



Integrated Management Report **2022**

PERIODIC YEAR-END REPORT



ECOPETROL GROUP,
A DIVERSIFIED
GROUP OF ENERGY



INTEGRATED MANAGEMENT REPORT 2022

ECOPETROL GROUP, A DIVERSIFIED ENERGY GROUP

Name: Ecopetrol S.A

Primary Address: Cr. 13 No. 36 - 24 Bogotá, Colombia.

Ecopetrol S.A. is listed on the Colombian Stock Exchange [BVC] and the New York Stock Exchange [NYSE].



01.

**Message
from the
Chairman**
Pg. 4

03.

**2022
Management
Report**
Pg. 24

02.

**About
this Report**
Pg. 12

04.

**Corporate
Responsibility
and TESG**
Pg. 112



05.

**Relevant Corporate
Responsibility
Issues**
Pg. 438

06.

Annexes
Pg. 450

(GRI 2-22)

Message from the Chairman of the Board of Directors to the Stakeholders

On behalf of the Ecopetrol Board of Directors, I am pleased to present the 2022 Comprehensive Management Report. The results contained in this report are a reflection of the constant and determined work of thousands of people who make the impossible possible through their perseverance, commitment, and innovation.

Today, we are proud to show our stakeholders that we continue to lead by example, and that our commitment to Colombia and the world is ever-present in all our actions:



- 4**

4 In safeguarding life, as expressed in our cultural principle of **"Life First,"** honoring it with tangible and historical results in the reduction of our accident rates.
- 4** In protecting the environment, also aware of the active role that we must play in the mitigation of climate change and the energy transition, with milestones such as the reduction of emissions, our commitment and measures adopted to become water neutral, the promotion of biodiversity and circular economy strategies, self-generation projects using renewable energies, and pilot testing for the production of green hydrogen, among other initiatives.
- 4** In the importance we place on local development and employment to contribute to improving the quality of life of the population and closing socioeconomic gaps.
- 4** In the undertaking of responsible, safe, and efficient operations, and in decision-making following rigorous corporate governance processes and practices focused on generating value.
- 4** In the promotion of knowledge and the use of technology to develop innovative solutions to face current and future challenges.

All of the above, within the framework of building trust and harmonious relationships with our stakeholders, based on ethics, transparency, respect, and the promotion of human rights.

In the last few years, we have witnessed Ecopetrol's transformation and evolution to become a leading diversified energy group in the American continent. This commitment was materialized in the "2040 Strategy: **Energy that Transforms**," which was released at the beginning of 2022, in response to global environmental, social, and governance challenges. By means of the Strategy, we ratify the Ecopetrol Group's commitment to TESG and to the sovereignty and energy transition of the country.

The roadmap outlined for the coming years aims to continue advancing towards decarbonization and the generation and use of clean energy, without neglecting the competitiveness of the hydrocarbon business, and particularly the increase of gas supply, while maintaining competitive returns for all shareholders.

Ecopetrol is aware of the need to advance on the path to a just energy transition. In this sense, it has made a decisive commitment to reduce its carbon footprint and become a zero net carbon emission company by 2050 (Scopes 1 and 2), produce at least 1 million tons of low-carbon hydrogen (H₂) by 2040, and generate 900 MW of renewable energy by 2025, just to mention some of the objectives that we have set for ourselves.

To leverage this strategy, as the Board of Directors, we approved the 2023 Investment Plan, which will allow the Ecopetrol Group to invest between 25.3 and 29.8 TRILLION COP in 2023. Allow me to highlight that around **23%** of this plan will be allocated to diversification into new low-emission businesses, including investments in hydrogen production, renewable energy, carbon capture, and electrical transmission. Roughly COP 2.3 trillion will also be allocated mainly to decarbonization, comprehensive water management, and fuel quality projects, as well as investments associated with research, circular economy, health, and process and industrial safety.

All this is possible thanks to the superb financial results attained

in 2022. We ended last year with a net income of **33.4 TRILLION COP**, doubling that of the previous year, and an **EBITDA of 75.2 TRILLION COP**, with a **47% EBITDA margin**. These figures not only enable investments in the aforementioned projects, but also play a part in the well-being of all Colombians by contributing **2.3% to gross domestic product (GDP)**.

Ecopetrol has been committed to the socioeconomic growth of the country by being a relevant player in the development of local and national programs and projects aimed at promoting prosperity and territorial peace. *"Contributing to the effective improvement of social welfare conditions, environmental conservation, and the strengthening of democratic institutions at the local level"* is the slogan that motivates us. For this reason, the Board of Directors approved the allocation of **472 BCOP in social investments** for 2023, which will strengthen the Company's commitment to the local development of the regions.

As Chairman of the Board of Directors, I hereby reaffirm our pledge to continue guiding the Company in its strategic matters and overseeing the achievement of the goals that we have set for ourselves, as well as those that we set for ourselves in the future. Continuing to be **"Energy that Transforms"** will motivate each of our steps to continue positioning Ecopetrol as a benchmark for the just energy transition and as a leader in the management of environmental, social, and governance issues.

Saúl Kattan Cohen
Chairman
Ecopetrol Board of Directors

Message from the CEO/ Sustainable Development Strategy Statement



It is with great pleasure that I present to you our 2022 Comprehensive Management Report, which includes the most significant aspects and achievements attained by Ecopetrol and its subordinate companies in the previous year, for the benefit of all their stakeholder groups. We take great pride in our learning and evolution over more than 70 years of experience, and I am pleased to reaffirm that our commitment to act responsibly and deliver value opportunities remains intact, as evinced in the exceptional results reported in this document.

The **2040 Strategy: Energy that Transforms**, made up of four (4) pillars:

- | | |
|---|--|
| <p>1 Growing with the energy transition.</p> | <p>2 Generating value with T ESG.</p> |
| <p>3 Cutting-edge expertise.</p> | <p>4 Competitive returns.</p> |

Attests to the relevance of sustainable development for the Ecopetrol Group, by coining the term T ESG and incorporating it as one of its pillars.

This strategy outlined a horizon with great challenges, which is why we have strengthened ourselves to become the largest diversified energy group in Latin America with three (3) business lines: hydrocarbons, low emissions, and transmission and toll roads. To this end, our corporate governance has played a vital role in the Company's vision and in obtaining our current results. I wish to highlight that the strategic guidelines of our Board of Directors in the context of T ESG has defied the Company to be at the forefront of the challenges imposed on us by our stakeholders, the market, and the territories where we operate.

The operational, financial, and TESG results materialize the work undertaken in 2022 and are reflected in the achievements obtained in each of the business lines pursued by the Ecopetrol Group.

On the pillar of **Growing with the Energy Transition**, the Ecopetrol Group recorded a Reserve Replacement Index of 104% in 2022, incorporating 249 MBOE thanks to the management efforts exerted in the development fields, reflected in the optimal and timely maturation of new projects, better execution capacity, and implementation of improved recovery expansion projects. 75% of the total balance of reserves consists of liquid and 25% of gas, and the average life of the reserves stood at 8.4 years.

On the exploration front, we accumulated **seven (7) exploratory successes** in the Colombian offshore (Uchuva-1, Gorgon-2), Valle Superior del Magdalena (El Niño-2 and Ibamaca-2ST), Valle Medio del Magdalena (Morito-1), Llanos Orientales (Tejón-1), and Valle Inferior del Magdalena (Coralino-1 operated by our subsidiary Hocol), which will contribute to the country's energy sovereignty with the supply of natural gas to the market.

Our production hit targets above the goals announced for 2022 (700-705 kboed), with a total of **709.5 kboed**, 4.5% higher compared to 2021. Gas production contributions accounted for **20%**, which we expect to continue expanding. For this reason, and consistent with our 2040 Strategy, the Gas Vice Presidency became the Low Emission Solutions Vice Presidency,

integrating the areas of natural gas, biogas, LPG, energy, renewables, hydrogen, and CCUS (Carbon Capture, Use, and Storage), with the purpose of capitalizing opportunities and synergies geared towards the energy transition.

Not to mention the outstanding operating and financial results of our operation in the *Permian*, with an increase of **57.4% kboed** in average production (net values for Ecopetrol before royalties).

1,071 KBPD were transported in 2022, increasing by 6.3% compared to the previous year, thanks to higher production, the transportation of additional third-party barrels, and increased multi-pipeline transportation due to the higher fuel demand in the country.

The refining segment recorded superb operating and financial results throughout the year, with a consolidated load of **357.5 kbd**, the highest in the last three (3) years, and an annual historical gross margin record of 21 USD/BL. Furthermore, the **Barrancabermeja refinery was recognized as the best in Latin America** by the World Refining Association in the framework of the Latin American Refining Technology Conference (LARTC). The award highlights the refinery's leadership in efficiency, energy transition, profitability, and the implementation of new technologies.

In 2022, the Cartagena refinery completed the crude oil plant interconnection project (IPCC, as per its Spanish acronym), increasing the load capacity from 150 kbd to 200 kbd to meet the growing demand for fuels in the country.



The refinery recorded a load of 139.8 kbd, with an annual historical gross margin record surpassing that of 2021 by 169.4%. This, mainly due to:

- i) Better differentials versus Brent in fuels.
- ii) Higher performance in gasoline production by maximizing the load in the cracking and alkylation units.

It is also important to highlight the Transmission and Toll Road business line, which contributed **COP 8.6 trillion** to the Ecopetrol Group's EBITDA, thus ensuring the successful consolidation of ISA.

With regard to the pillar of **Generating Value with TESG**, accomplishments can be seen in all dimensions of sustainable development.

Our principle of "Life First," in pursuit of reliable and safe operations for all our collaborators and contractors, led us to a low level of accidents with a **TRIF¹ of 0.33**, the lowest annual figure recorded in the history of the Ecopetrol Group, consolidating us as an international benchmark.

In the environmental dimension, the Ecopetrol Group is committed to reducing net CO₂ emissions to zero by 2050. By deploying energy efficiency and renewable projects, among others, we have accumulated a reduction of **910,113 tCO₂e** since 2020 to this date, of which 586,226 tCO₂e have been verified by a third party. By year end, we had exceeded our emission reduction goal by 59%.

In 2022, we sold four (4) cargoes of carbon-compensated Castilla Blend® amounting to **4.0 million barrels** to the United States, India, and Spain. Furthermore, at the end of 2022, we implemented a pilot in Colombia for the sale of carbon-compensated premium gasoline to wholesale distributors, thus contributing to the mitigation of climate change in Latin America and the region. Similarly, we conducted test **applications of asphalt modified with recycled plastic on various roads in Bogotá and Medellín**, advancing steadily in our circular economy projects.

The midstream segment, led by Cenit, was granted the **Carbon Neutrality certification** this year, ranking it as the first segment to achieve said milestone globally. The same certification was obtained by our subsidiary Esenttia.



1 TRIF: Total Recordable Incidents Frequency.



Our commitment to be water neutral by 2045 also remains firm. In 2022, **131.5 million m³ of water were reused**, which is equivalent to 77.5% of the total water required for operation, representing an 18% increase with respect to the previous year. In turn, a sustained 6% decrease was recorded in catchments compared to 2012, bringing us closer to the goal set.

In line with our commitment to advance towards the energy transition, we doubled our renewable energy capacity, including **three (3) eco-solar parks** and the first small hydroelectric plant (PHC) in the country, thus generating **208MW of renewable energy** in operation, connected to the self-generation grid.

We are the largest renewable energy self-generator in the country and our purpose is to continue pressing forward. The goal is to incorporate 900 MW of renewable energy sources for self-consumption by 2025.

In hydrogen, we are creating an ecosystem in Colombia with the signing of six (6) agreements with companies in Europe and Asia, as well as our adherence to the Hydrogen Council, and the formulation of a diversified portfolio. We successfully completed the pilot test for the production of green hydrogen at the Cartagena refinery, which serves as the foundation for the development of two green hydrogen megaprojects at our refineries, and we also advanced in the construction of **two (2) mobility parks**. In so doing, we have taken determined steps in the implementation of the Company's strategic plan in this regard.

With respect to the energy management business, the Ecopetrol Group was able to reach its energy efficiency goal of reducing its electricity demand by **3%** before the established deadline in 2022. Since 2018, the Company has optimized its electricity demand by 44.7 MW, which means an improvement of 5.5%. By 2022, the Group reduced its electricity demand in operations by 16.8 MW and we conducted six (6) pre-feasibility studies for the underground storage of CO₂.

In the social domain, we reinforced our commitment to sustainable territorial development and closing inequality gaps, with investments that enable the diversification of local economies, improve the quality and coverage of national education, and expand access to basic utility services. The foregoing is evinced with the execution of more than **615 BCOP in socio-environmental investments**, translated into benefits for more than 2,100 families who were able to access marketing channels for their agricultural products; more than 128,000 students; more than 7,600 new users connected to the gas grid; more than 763,000 people with access to water; and 204 km of tertiary road network built.

The Works for Taxes mechanism enabled the handover of 8 projects throughout the year, amounting to **101,374 BCOP**, which benefited more than 276,000 inhabitants in 14 municipalities of 4 departments around the country. Similarly, the historic allocation of 16 new projects was completed, including access to photovoltaic energy for the first time. The new projects amount to 155 BCOP and represent 31% of the national total, contributing significantly to the consolidation of peace in the municipalities affected by the conflict. With the allocation of these projects, the Ecopetrol Group accumulates a total assignment of 59 projects since the inception of the program, in the amount of 557,608 BCOP, equivalent to 39% of the total assigned in the country.

We also wish to highlight the work of the companies under the Ecopetrol

Group, which procured goods and services totaling COP 32.6 trillion in 2022, of which 5 TRILLION COP were contracted with local suppliers and **generated more than 130 thousand jobs**, including the hiring of more than 28,000 people with disabilities, members of ethnic groups, victims of armed conflict, and people in their first jobs. This demonstrates the contribution and importance of the Group to the local economy and its commitment to the promotion of human rights, inclusion, and business development in Colombia.


In the field of Corporate Governance, three (3) General Shareholders' Meetings were held, one ordinary and two extraordinary. In addition, we have a new Board of Directors made up of people with a well-reputed professional career and extensive experience in various sectors of the economy, including energy, which is relevant to furthering the strategy towards the energy transition. In line with our efforts in pursuit of diversity and inclusion, we now have two (2) women as part of this team.

Throughout the year, we published the Comprehensive Sustainable Management Report, consistent with our commitment to transparency, which is the second SASB report and the second TCFD report for 2021. Our commitment to TESG was reflected in our Dow Jones Sustainability Index, where we grew our rating by eight (8) points compared to the previous year, and we were recognized as **members of the Sustainability Yearbook** for the second time in a row.

With regard to the pillar of **Cutting-edge Expertise**, the CT+I (science, technology, and innovation) initiatives contributed to operational efficiency, the generation of TESG value, and the competitive advantage of our businesses, through the automation of processes and the implementation of avant-garde technologies. The CT+I portfolio was made up of 201 projects in execution, generating certified benefits of about **596 million USD**.

In this field, among others, we highlight the Visual Mesa digital tool, which allows real-time optimization of the power generation system at the refineries, thus enabling the reduction of operating costs, greater process efficiency, and the reduction of CO₂ carbon emissions. With the implementation of this tool, the Barrancabermeja refinery was able to reduce emissions by **12,377 Ton/CO₂**.





We also wish to mention the deployment of the first versions of the water management platform, developed jointly with Accenture and Amazon Web Services (AWS), focused on optimizing water catchment, use, and discharge processes at the Barrancabermeja refinery, in the conventional (Campo Ocelote de Hocol) and unconventional (Permian) upstream, which is a key initiative to fulfill our goal of being a neutral water company by 2045.

In December, at the Caribbean Innovation Center, we entered into an agreement with the Ministry of Commerce, Industry, and Tourism, the Ministry of Mines and Energy, the Bogotá Energy Group, Promigas, Siemens Energy, the Embassy of Colombia in Germany, and LATAM, to seek financing mechanisms for the development of renewable energy and green hydrogen projects in the country, thus reinforcing Ecopetrol's commitment to the energy transition.

On the pillar of **Competitive Returns**, the Ecopetrol Group ended 2022 with the best financial results in its history, by recording a **historical income of COP 159.5 trillion**, a net profit of COP 33.4 trillion, an EBITDA of 75.2 trillion, and an EBITDA margin of 47.2%. At the end of 2022, the gross debt/EBITDA indicator was 1.5 times over and the return on capital employed (ROACE) was 18.8%.

This solid financial performance was leveraged by:

- i) The favorable pricing environment.
- ii) The higher contribution to production by Permian and Ecopetrol S.A.
- iii) The record achievements in the refineries.
- iv) The solid results secured by ISA.

The foregoing allowed the Group to offset:

- i) Inflation and the exchange rate effect on operating costs and expenses.
- ii) The higher debt interest.
- iii) The higher level of exploratory expenses.
- iv) The increase in the nominal income tax rate for 2022.

Our subsidiary in Singapore, Ecopetrol Trading Asia, allowed us to consolidate our crude oil exports to the Asian market, with new commercial relationships with clients in China, India, Japan, South Korea, Brunei, and others, by intensifying the diversification strategy and significantly improving our sales margins.

Our contribution to the country was outstanding: in 2022, we contributed **COP 42.4 trillion to the Nation** in dividends, royalties, and taxes, compared to COP 16.8 trillion in 2021, and similarly distributed **COP 2.1 trillion to our minority shareholders**.

We are proud of our results. They are the result of the dedication of more than **18,000** direct employees and **130,000** partner company employees committed to generating sustainable and responsible value for society and our shareholders, and who push us forward in the implementation of the 2040 Strategy to guarantee a just energy transition and energy sovereignty in Colombia.

Felipe Bayón Pardo
President - CEO



ABOUT THIS REPORT

12



Ecopetrol Group² is a **diversified group** committed to the Energy Transition and Value Generation with TESG, as depicted in its 2040 Strategy: **Energy that Transforms**.

Accordingly, and as part of its commitment to transparency and accountability towards its Stakeholder Groups (GI, as per its Spanish acronym), Ecopetrol S.A. (Ecopetrol or the Company) annually publishes its Integrated Management Report (formerly Comprehensive Sustainable Management Report), incorporating the Annual Management Report, the Periodic Year-End Report, and the Corporate Responsibility and TESG Report, in which the Company reports on its performance, its impacts, and the main social, environmental, and governance achievements and challenges, which are part of Ecopetrol's material issues.

(GRI 2-2-a, 2-2-c)

The **2022 Integrated Management Report** accounts for the management exerted by Ecopetrol S.A.; however, in specific cases, it includes information on the Corporate Responsibility and TESG efforts made by other Ecopetrol Group companies that leverage the **2040 Strategy**.

(SFC)

Materiality criteria in the disclosure of periodic information

<p>1</p>	<p>Relevant risks to which the company and its subsidiaries are exposed.</p>	<p>Relevant risks are those that materially affect the advancement of the corporate purpose, the strategy, the financial situation, the investment plan, the operating results, the cash flow, and the growth prospects.</p>
<p>2</p>	<p>Risk materialization events.</p>	<p>The materialized risks whose amount is greater than 5% of the total value of assets, liabilities, operating income, operating profit, or profit before taxes will be relevant for the Ecopetrol Group.</p>
<p>3</p>	<p>Litigations and judicial and administrative proceedings involving the Company and its subsidiaries, and that also have the potential of affecting their operation or financial situation, and/or changing their financial situation.</p>	<p>Litigations and judicial and administrative proceedings whose risk assessment exceeds 5% of the Ecopetrol Group's total value of assets, liabilities, operating income, operating profit, or profit before taxes.</p>
<p>4</p>	<p>Signing or terminating final agreements outside the ordinary course of the Company.</p>	<p>Signing or terminating agreements are relevant when they impact the Company with variations equal to or greater than 5% of the Ecopetrol Group's total value of assets, liabilities, operating income, operating profit, or profit before taxes.</p>
<p>5</p>	<p>Signing agreements that give rise to obligations deriving from off-balance sheet operations by the Company or its subordinate entities and/or subordinate autonomous equities.</p>	<p>The signing of agreements by the Company or its subordinate entities are relevant when they give rise to obligations from off-balance sheet operations whose amount is greater than 5% of the Ecopetrol Groups' total value of assets, liabilities, operating income, operating profit, or profit before taxes.</p>

² The term "Ecopetrol Group" refers to all companies in which Ecopetrol, directly or indirectly, holds shareholding in, regardless of the percentage of stake, that is, whether it has control over it or not. It is therefore a broad, non-legal concept, whose purpose is to create a common identity to incorporate Ecopetrol's different direct and indirect investments in these companies under a single term, also from the management, administration, and cultural perspectives.

6

Enforcement of sanctions by State control bodies on the Company, its administrators, or the statutory auditor.

Litigations and judicial and administrative proceedings whose risk assessment exceeds **5%** of the Ecopetrol Group's total value of assets, liabilities, operating income, operating profit, or profit before taxes.

In the case of administrators and statutory auditors, any penalty incurred by law shall be applicable.

7

Changes in the capital structure; stakes in the Company's capital and other matters related to its proprietary private capital structure; signing of agreements that give rise to financial obligations.

Changes in the capital structure, stakes in the Company's capital, and other matters related to its ownership structure, as well as the signing of agreements that give rise to financial obligations are relevant when pertaining to:

1. Changes in subscribed and paid-in capital and/or;
2. Adoption of a liquidation or dissolution plan for the Company and/or;
3. The fact that the Republic of Colombia ceases to be the effective direct or indirect owner of the majority of the Company's voting rights of the shares with voting rights.

8

Signing of agreements that give rise to financial obligations acquired directly by the Company and/or its subordinate entities and/or its subordinate autonomous equities.

The financial obligations under the responsibility of Ecopetrol and its subsidiaries are relevant when they have a term of payment greater than one year, in the case of Ecopetrol; and in the case of the subsidiaries, when they exceed the consolidated liability of the last fiscal period by **10%**.

9

Events that accelerate the obligations contracted by the Company or its subsidiaries and/or subordinate autonomous equities.

The acceleration of obligations is relevant for the Ecopetrol Group when they exceed **10%** of the current liabilities of the last fiscal period.

10

Changes in the liquidity situation; operations conducted with parties related to the Company.

Changes in the liquidity situation are relevant when accounts receivable or possible contingencies that exceed **5%** of the total value of assets or liabilities need to be provisioned for.

Non-recurring individual transactions with parties related to the Company are relevant when their variations are equal to or greater than **5%** of the total value of assets, liabilities, operating income, operating profit, or profit before taxes.

11

Social and environmental issues, including climate issues that have an impact on the financial situation of the issuer.

Material environmental, social, and governance issues are those that, in the opinion of the Administration, affect the advancement of the Company's strategy.

(GRI 3-1)
(WEF 3)

Process of preparing the Corporate Responsibility and TESG Report.

In 2020, Ecopetrol updated its materiality by means of an exhaustive internal review and consultation process with its Stakeholder Groups. This analysis included aspects such as the risks associated with each material element, regional and global sustainability trends, and the opinion of the Company's seven (7) Stakeholder Groups. The objective was to build a list of elements or issues that Ecopetrol should focus on to ensure sustainability over time and the generation of value for its Stakeholder Groups.

The result of this exercise was the identification of **28 prioritized material elements** divided into

four (4) categories: **exceptional, notable, differentiated, and in compliance**, as specified under Section IV of this Report. Corporate Responsibility and TESG.

The Exceptional and notable material elements are part of the content and scope of the Company's 2022 Integrated Management Report, extending across the Ecopetrol level. However, the Company has launched initiatives to achieve its ambition of reporting at the level of the Ecopetrol Group.

In 2023, the Ecopetrol Group will undergo the update process of its materiality and Stakeholder Groups.



This report has been prepared in accordance with the standards of 2021 *Global Reporting Initiative* (GRI). It similarly follows the guidelines of the following reporting frameworks:

The World Economic Forum's (WEF) Stakeholder Capitalism Metrics (SCM)



United Nations Sustainable Development Goals – SDGs



Global Compact



Financial Superintendence of Colombia (SFC)



Sustainability Accounting Standards Board (SASB) – (Exploration and Production)



Task Force on Climate-related Financial Disclosures (TCFD)



This report complies with the requirements established in External Circular 012 of 2022 of the Financial Superintendence of Colombia. The contents that respond to these requirements are identified with the acronym **SFC** or can be found as annexes in the Financial Statements that are part of this report.

(WEF 8)

The foregoing will be shown in this Comprehensive Report and will be identified by the corresponding codes of each reporting framework. This allows the Company to be in line with best practices and international standards associated with the disclosure of sustainability-related information. The annexes contain the GRI Index, as well as two specific ones for SASB and TCFD.



Ecopetrol has been highlighted as one of the most sustainable companies in the world. It was included in the **MILA** index for the second consecutive year and for the first time in the Emerging Markets index. The Company was also recognized as a member of the *Sustainability Yearbook* (#SPGSustainable1Yearbook).

For more information, visit

<https://www.spglobal.com/esg/csa/yearbook/>



Periodicity

(GRI 2-3-a,
2-3-c)

Ecopetrol presents its Integrated Management Report on an annual basis. This Report was presented to and approved by the 2023 General Shareholders' Meeting and elaborates on Ecopetrol's management and

performance between January 1 and December 31, 2022. The latest report (Comprehensive Sustainable Management Report) was published and approved by the General Shareholders' Meeting on March 26, 2022.



(GRI 2-2-b) In relation to the financial statements under this Report, it is important to note that there are three **(3) types of companies** within the Ecopetrol Group: those in which Ecopetrol is the majority shareholder and has direct or indirect control; those in which Ecopetrol, in addition to having control, has a unity of purpose and direction, that is, those that make up the Ecopetrol Business Group; and those in which Ecopetrol holds a stock options.

The separate financial statements that are part of this report correspond to Ecopetrol. The consolidated financial statements include the companies with the same unity of purpose and direction as Ecopetrol. **(See Annex 9).**

(GRI 2-3-b) The financial reports attached to this Report cover the same reporting period (January 1 and December 31, 2022) and are prepared in the same periodicity.

External Verification

(GRI 2-5-a, 2-5-b) Senior Management reviewed and approved the **2022 Comprehensive Sustainable Management Report** and entrusted EY with the limited assurance of social, environmental, and economic indicators. **(See Annex 1).** EY provides statutory auditing services to Ecopetrol.

In previous years, the submission of the report had been subject to external verification, as shown in the pdf version of **the 2021 Comprehensive Sustainable Management Report**, page 378, available on the following **link**.

Point of Contact

(GRI 2-3-d) Any concerns, queries, or additional information requests regarding this Report must be sent to the following email address: **responsabilidadcorporativaecp@ecopetrol.com.co**.



Outstanding achievements

Life first
TRIFR
0.33



Production levels

709.5
KBPED



Discoveries of
new gas fields

in the Colombian Caribe region,
Uchuva-1, and Gorgon-2.



595.67 **MUSD**

in benefits certified through the **Science, Technology, and Innovation (CT+I)**, as per its Spanish acronym) project portfolio.

Decarbonization

The goal of reducing **262,761 tCO_{2eq}**,
of emissions by 2022 was exceeded by

59%, up to
416,672 tCO_{2eq}.

Re-equipment
of our Human Talent

Installed skills rate:

98%



Total value of the
socio-environmental
investment

615,334
BILLION COP³

+31% vs. 2021.



Energy transition

208 **MW**

were added to the Ecopetrol Group's self-generation matrix, thanks to the incorporation of three projects in **2022**: (1) small hydraulic power plant and (2) photovoltaic solar projects.



Reserve
Replacement Rate

104%

incorporating **249 MBOE**.



The Ecopetrol Group incorporated
cumulative efficiencies of up to

3.6 **TRILLION COP,**

the highest figure since **2015**.

Net income of

33.4 **TRILLION COP,**

doubling that of the previous

year, and an EBITDA of

75.2 TRILLION COP

with an EBITDA margin of

47%.



³ The Ecopetrol Group allocated social, environmental, and engagement investment resources to projects and initiatives under the Sustainable Development portfolio, within the framework of the environment strategy, in the amount of 615,334 BILLION COP by the end of 2022, including strategic and mandatory investments. The environmental dimension includes contributions from the transportation segment, Hocol, Reficar, Esenttia, and ISA.

II.1. Ecopetrol Group

(GRI 2-1-c, 2-1-d, 2-6-a, 2-6-b)

SUSTAINABLE INTEGRATED MANAGEMENT REPORT



N.º of workers in the Ecopetrol Group:

18,000+

N.º of contractor employees:

130,000



Headquarters:
Bogota, Colombia

Countries in which Ecopetrol S.A. operates

Countries in which the Ecopetrol Group operates



Our markets:

Colombia, Brazil, Chile, Peru, Argentina, Bolivia, Central America and the Caribbean, United States, Europe, and Asia.



Singapur



United States (Permian and US GoM)



GRUPO ecOPETROL



Business lines:

-  Hydrocarbons
-  Low emission solutions
-  Transmission and toll roads

215

clients in the hydrocarbon business line

Productos:



- Crude oil
- Diesel oil
- Fuel oil
- Turbo-combustion engine fuel
- Regular and premium motor fuel
- Kerosene
- Aviation fuel
- Petrochemical, chemical, and industrial products
- Gas
- Biogas
- Energy
- Road infrastructure
- Telecommunications and ICT



Brazil



Argentina



Chile



II.2. About Ecopetrol

22



[GRI 2-1-a,
2-1-b, 2-6-a]

Ecopetrol is a national mixed economy company, affiliated to the Ministry of Mines and Energy (MME). The Company is commercial in nature, made up of public and private stakes, and fulfills its purpose in competition with individuals.

Ecopetrol's corporate purpose is the undertaking, in Colombia or abroad, of industrial and commercial activities corresponding to or related to the exploration, exploitation, refining, transportation, storage, distribution, and trading of hydrocarbons and their derivatives and products; as well as research, development, and trading of conventional and alternative sources of energy; the production, mixing, storage, transport, and trading of oxygenated components and biofuels, the port operation, and the execution of any related, complementary, or useful activity for the advancement of the above objectives.

[GRI 2-6-d]

Ecopetrol currently leads a diversified energy group, managing the following business lines:



Hydrocarbon business line:

It includes the segments and operations in the different links of the hydrocarbon chain, as follows: upstream (exploration and exploitation), midstream (transport and logistics), downstream (refining and petrochemicals), and trading of crude oil, and petrochemical and industrial products. Its objective is to maximize the value of the businesses described above, focusing on efficiency and competitiveness and operations that are responsible with the territories, and with a relevant emphasis on the decarbonization of its operations.

Low emission solutions business line:

It involves the development of the LPG, biogas, energy management, hydrogen, renewable energy, carbon capture, storage and use, and geothermal businesses, among others. Its objective is to conceptualize and build a comprehensive energy solutions portfolio for the diversification and decarbonization of the Ecopetrol Group's operations, leveraging on cross-cutting synergies with other business lines.

Transmission and toll roads business line:

It includes the electricity transmission, road infrastructure, and telecommunications businesses. Its objective is to enhance its performance and capture synergies with other business lines, maximizing the value of this type of business, which is characterized by having developed and implemented operating models and regulated returns.

(SFC 7.4.1)

To learn about the companies that make up each of the business lines, see **Annex 5** of the 2022 Integrated Management Report.

(WEF 2E)

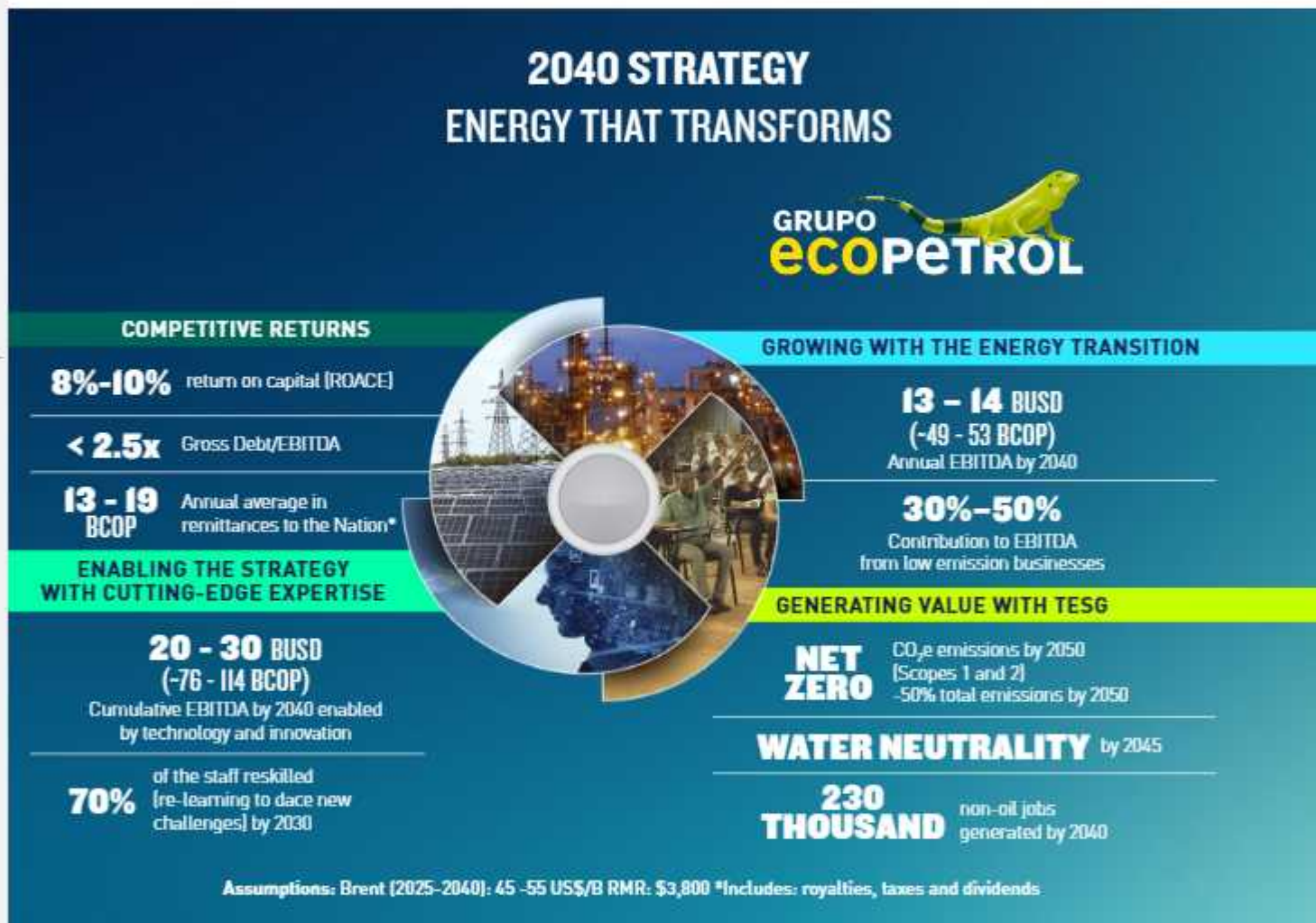
2022 MANAGEMENT REPORT



III.I. Ecopetrol advances in its 2040 Strategy: Energy that Transforms

Since the publication of the 2040 Strategy "Energy that Transforms," the Ecopetrol Group has been advancing steadily in its implementation and has consequently positioned itself as an energy group that transitions towards new forms of energy, without neglecting its competitiveness in the hydrocarbon business, increasingly decarbonizing its operations, and strengthening the TESG pathway.

Figure 1. | 2040 Strategy: Energy that Transforms.



The following aspects stand out from the three (3) business lines of the Ecopetrol Group:

- (i) Hydrocarbons currently accounting for roughly **88%** of the Group's EBITDA.
- (ii) Low emission solutions, where the challenge is for it to represent at least **14%** of EBITDA by 2040.
- (iii) Transmission and toll roads contributing approximately **12%** of the Group's EBITDA (2022) but with the aspiration that it generates close to **26%** of EBITDA by 2040.

By 2040, the low emissions and transmission and toll roads businesses are expected to jointly contribute between **30%** and **50%** of EBITDA.

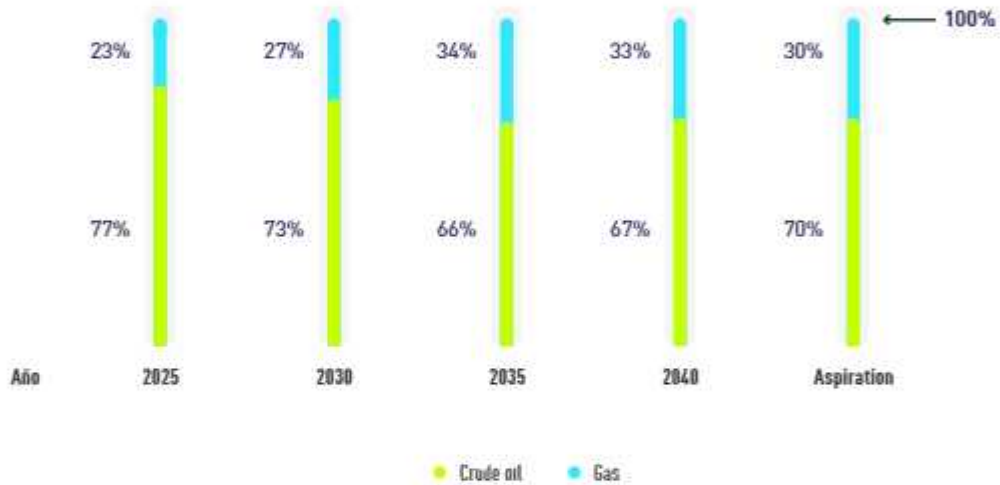


Growing with the energy transition

The hydrocarbon business is vital for the growth of the Group and, in this sense, the commitment to sustain a production of **800 to 850 KBPED** in 2030 remains, focusing on the proper management of basic production, consolidation of the enhanced recovery program, profitable production in the

Permian in the United States, offshore exploration in the Colombian Caribe region, as well as the fields in the Piedemonte and the Eastern Plains. Ecopetrol has set out to diversify the production of hydrocarbons until reaching a sustained **30%** market share in the gas sector by 2040.

Figure 2. | Diversification production by type of hydrocarbon



Source: Corporate Vice Presidency of Strategy and New Businesses

The long-term aspiration in the midstream segment is to increase resilience to maintain the value at around **2.2 TRILLION USD** in EBITDA for this segment. Along this path, the strategic lines to secure the business are as follows: maintain the competitiveness of the oil pipelines, grow in multiple pipelines, port optimization, diversification towards gas infrastructure, and internationalization.

In order to ensure cleaner and more profitable fuels, as well as protect the country's energy sovereignty, Ecopetrol continues on the path towards maximizing the margin of its refineries, as well as enhancing the value of virgin naphtha in Cartagena and continue reducing the sulfur content in the fuels produced (less than **10 ppm sulfur in diesel by 2025 and less than 10 ppm sulfur in gasoline** by 2030).

With regard to the commercial segment of the hydrocarbon line, we inaugurated our trading subsidiary in Singapore (Ecopetrol Trading Asia) in September 2022, which will help us increase the commercial value of our products and strengthen geographical position worldwide.

From the diversification perspective, ISA, an Ecopetrol Group subsidiary, was integrated successfully. For the reported period, the company represented **12%** of the Group's EBITDA, thus consolidating its entry into the electric chain transmission segment. The long-term objective is to continue growing organically and inorganically in the transmission business and venture into large-scale energy storage projects. For this strategy, the purpose is to invest roughly **36 TRILLION USD** by 2030.

On the other hand, we launched the roadmap for the production of at least 1 million tons of low-carbon hydrogen (H₂) by 2040, which implies an investment of 2.5 TRILLION USD

and an expected long-term return of +400 MUSD in EBITDA. The first goal for 2030 is to produce **47 thousand tons of H₂** for our own consumption and for export. Similarly, Ecopetrol is structuring the roadmap towards the capture, use, and storage of carbon dioxide CO₂ (CCUS).

In terms of self-generation of non-conventional renewable energy, the aspiration by 2030, is that at least **30% - 40%** of our own energy consumption comes from green sources. In 2022, Ecopetrol produced **208 MW** from solar energy, among other sources, which paves the way for the goal of **900 MW** by 2025 (solar, wind, biomass, and geothermal).



Generating value with TESH

TESG at Ecopetrol refers to performing responsible, safe, and efficient operations, in a harmonious relationship between the Stakeholders Groups and the environment; under a transparent and ethical governance framework, and making use of technology to develop innovative solutions to address current and future challenges.

In this sense, the Ecopetrol Group is committed to the goal of net zero emissions by 2050 in Scopes 1 and 2 (own operations and those related to the operation). To this end, the Group has focused on the reduction of fugitive emissions, an energy efficiency of up to **10%**, and the incursion into natural climate solutions in the short and medium term, as well as H₂, CCUS, and energy storage in the long term.

Moreover, Ecopetrol is geared towards integrated water management to minimize water

catchment, thus avoiding dumping into bodies of fresh water and compensating until reaching an adequate balance. Ecopetrol currently reuses **77.5%** of the water produced by its operations, and it aspires to raise this number to **90%**, which will ensure the use of neutral water by 2045.

Finally, the 2040 Strategy accounts for the sustainable development of the territories through social investment; for which we expect to invest some **472 billion COP** in 2023, benefiting communities with education, roads, and access to public services. In terms of social gas, Ecopetrol was able to connect **7,683 new users** in 2022, with the goal of servicing 75,000 by 2030. And on the matter of labor force, the Ecopetrol Group generated close to 73,000 unskilled labor jobs hired locally through contractors, with a 28% increase in the employment of people facing difficult labor placement.



Cutting-edge knowledge

The science, technology, and innovation (CT+i) strategy is at the heart of TSEG and will enable between **20 and 30 TRILLION USD** of accumulated EBITDA by 2040. To take on this challenge, Ecopetrol has set itself out to be an orchestrator of ecosystems focused on technology clusters to solve the challenges posed by the **2040 Strategy**:

- Decarbonization
- Energy transition
- TSEG
- Resilient assets
- Circular economy
- The 5.0 industrial revolution

With this strategy, Ecopetrol expects to execute roughly

400 MUSD
per year in **CT+i investments**.

Furthermore, Ecopetrol is committed to equipping its human talent with the necessary skills to face the challenges of growing with the energy transition. To this end, it hopes to instill **70%** of the required cutting-edge skills in its employees to strengthen the **2040 Strategy**, with levers such as training programs, the appropriation of culture, emotional connections with people, and talent and leadership redevelopment.



29

Competitive Returns

The Ecopetrol Group's **2040 vision** seeks to generate competitive and sustainable financial returns for shareholders and investors, by strengthening **EBITDA** through **30% - 50%** gradual diversification from low emission businesses by 2040, maintaining a ROACE between **8 % and 10%**, maintaining the capital structure at a gross debt/ EBITDA ratio consistent with investment grade (<2.5x), and ensuring contributions to the Nation in the range of **13 TRILLION COP to 20 TRILLION COP** (royalties, taxes, and dividends).

The Company has strengthened the efficiencies program as a strategic line to ensure cost optimization in a structural way, thus mitigating the inflationary effects on OPEX and amassing **20 TRILLION COP** since 2015.

It has similarly been increasing the level of investments, maintaining capital discipline with a ROACE greater than **13%** in the last two (2) years and an investment record close to **5.4 TRILLION USD** in 2022.

(SFC 7.4.1.1.1.I)

III.2. Business Plan

In **2022**, the Company presented its long-term vision to the market, incorporating the contribution of each of the business lines to the financial results, as well as their growth and return expectations for related parties. One of the most relevant achievements of the business plan is Ecopetrol's unified vision as an energy group that undertakes its operations in a profitable manner and in alignment with its decarbonization objectives. In the same way, the business plan shows the gradual adoption of low-emission businesses within the Company's portfolio and includes the roadmap for these alternatives to be part of the incubation and become EBITDA generators for the Group in the medium and long term.

However, the roadmap proposed through the business plan poses challenges for Ecopetrol, since it

implies guaranteed monitoring of the gradual fulfillment of the objectives associated with the competitiveness and sustainability of the hydrocarbon business line, while incorporating businesses associated with the reduction of greenhouse gas (GHG) emissions. Similarly, one of the challenges of the **2040 Strategy**, which is directly highlighted in the business plan, is to ensure the Group's growth and value generation for its three (3) business lines. Ecopetrol, as an energy group, seeks long-term EBITDA growth, a ROACE above the cost of capital, a payout to its shareholders between **40%** and **60%**, and leverage indicators in line with investment grade expectations. The achievement of these objectives goes hand in hand with constant monitoring based on the business plan to detect early warnings for the fulfillment of the strategy.





Expansion into the Permian (Delaware sub-basin)

In June 2022, Ecopetrol Permian LLC (an Ecopetrol subsidiary) and several OXY subsidiaries entered into a Joint Development Agreement (JDA) to develop drilling and production programs in the Delaware sub-basin in the Permian basin, within an approximate area of **21,000 acres** over the period of 2022 - 2027. Said agreement allows Ecopetrol to expand its presence in the Permian, representing **49%** of the rights in the drilling and production programs in the area.

Ecopetrol did not make any initial payment to enter the area. It will cover a percentage of OXY's development investment (up to 75%) as the carry advances. The carry percentage to be covered by Ecopetrol will be linked to the price of one barrel of oil (WTI), which will be set during the course of the drilling activity. The activity in Delaware initiated in the fourth quarter of 2022 and production will increase starting the first quarter of 2023.

Moreover, an amendment was executed to the JV in Rodeo, granting Ecopetrol a greater stake in production (**75%**) as well as a deferral of its current obligations under carry until 2025. The effective date of this modification was January 1st, 2022, and it had a favorable impact on production by year end, with a **95%** increase compared to 2021.



ISA's Transition

With the acquisition of **51.4%** of ISA and its companies, the transition process to the Ecopetrol Group's control and reporting scheme ended in 2022, as well as the exploration and materialization of the first wave of synergies. Compliance with the legal and financial requirements associated mainly with the approval of the 2021 consolidated financial statements, the implementation of SOX controls in ISA, and the definition of the governance and interaction model were also achieved successfully. With regard to value generation, synergies were materialized in **eight (8) thematic areas**, including higher reliability of Ecopetrol's electrical infrastructure by applying ISA's cutting-edge expertise, the definition of the Conexión Jaguar program's scaling strategy as a contribution to the carbon credit offer for the Ecopetrol Group, savings in the supply of common expense categories, and increased resilience in the supply chain. We will continue strengthening synergies and capturing value for the Group.



2022 Brazil Round

Ecopetrol Brasil participated in ANP's **Third Cycle of Permanent Offer** held on April 13, and was awarded **six (6) offshore blocks** in the southern region of the prolific Santos basin, with a **30%** stake, and Shell with a **70%** stake as operator. The blocks that Ecopetrol is entering are the following: S-M-1599, S-M-1601, S-M-1713, SM-1817, S-M-1908, and S-M-1910. These concession contracts were signed on November 7 and 8. This new acquisition completes a total of **12 blocks** in Brazil, of which **10** are exploratory and two (**2**) additional ones are in the development phase.



Exploration Agreement with Anadarko (Oxy)

In the month of May, Ecopetrol and Anadarko Colombia Company, an OXY subsidiary, entered into a joint exploration agreement in the COL 1, COL 2, COL 6, and COL 7 blocks, located in deep waters to the northeast of the Colombian Caribe region, with the purpose of embarking on the search for hydrocarbons in an area with attractive potential. Ecopetrol will have a **40%** stake in exploration and production rights, and Anadarko the remaining **60%** as operator of the blocks. The agreement has already been formalized at the National Hydrocarbons Agency (ANH). The blocks are located off the coast, at an average distance of more than 150 km from the coastline.

III.3. 2022 Results for the Year



(SFC 7.4.1.1.1.III)

International market environment for crude oil and related products in 2022

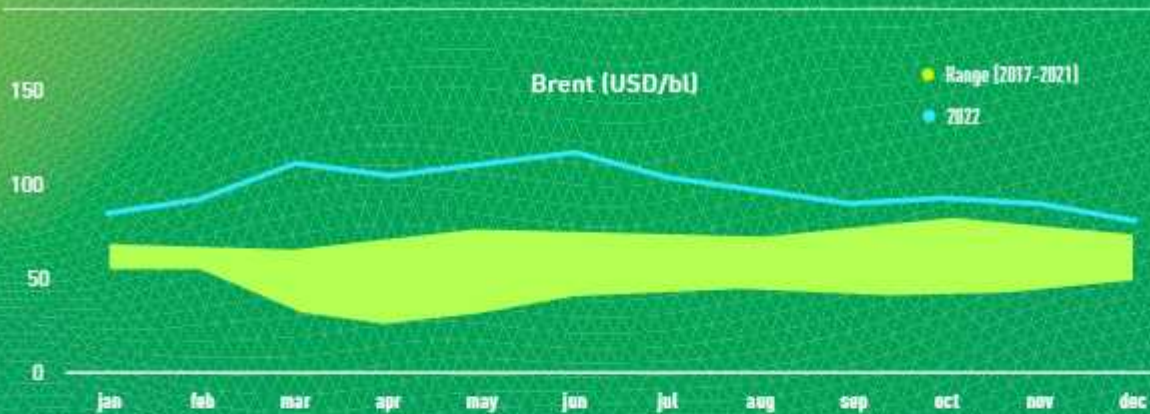
In the first half of **2022**, Brent Crude maintained an upward trend, driven by favorable demand growth (the global economy continued to expand at a good pace and mobility continued to recover rapidly). The offer also contributed to the rise in the Brent price, with a slow growth in supply due to a very cohesive OPEC (the group's production was below the agreed quotas all year), a Non-OPEC production that grew very slowly given the strict capital discipline of the industry in recent years, and the prospects of lower supply of Russian crude following the sanctions imposed on this country after the invasion of Ukraine at the end of February. In this context, the Brent price rose from **86 USD/bl** in January 2022 to **118 USD/bl** in June that year.

This upward trend was interrupted in the second semester. On the one hand, global inflationary pressures and the high price of fuels discouraged consumption in the economies. In line with the above, the central banks, pressured by inflation, embarked on an upward cycle of interest rates that deteriorated the economic outlook by the end

of 2022 and the beginning of 2023. On the other hand, high gas prices, especially in Europe, due to the lower Russian supply, degraded the confidence levels and the economic activity of this continent. Finally, China's "zero-Covid" policy strongly impacted the demand of that country, accounting for a negative growth in its consumption of **400 kbd** of oil for all of 2022, a situation unseen in many years. This deterioration in demand led OPEC+ to announce a **2 mmbd** production cut in October, which prevented a further decline in the Brent. Given this situation, the Brent price fell throughout the second semester to a minimum of **81 USD/bl** in December 2022.

In total, the average Brent stood at **99 USD/bl** in 2022, far exceeding the value of **71 USD/bl** in 2021. Geopolitical factors played a crucial function in determining the price in 2022, since the market balance showed a slight accumulation of inventories globally: according to Platts, average supply in 2022 was at 101.2 mmbd, **740 kbd** above demand (in OECD countries, however, there was a slight reduction in crude inventories).

Figure 3. | Brent Average



Source: Bloomberg.

Refineries continued on the positive path of 2021 in their 2022 operating margins. Product cracks benefited from the recovery in demand, especially in the first half of the year, which was not accompanied by a rapid recovery in supply, despite the high cracks, given the reduction in global refining capacity, which decreased in net terms by close to **1 mmbd** in 2020 and 2021. This dynamic kept global gasoline and especially diesel inventories at low levels for a good part of the year. The Russia-Ukraine conflict also favored product cracks, especially diesel: the reduction in the supply of Russian gas to Europe in 2022 raised gas prices in this continent (practically

tripled between 2021 and 2022), thus raising the cost of processing for refineries, which should have experienced higher income (via diesel crack, their main refining product) to guarantee their operation. Finally, refineries also benefited from lower costs in their diet vs. the one in 2021: the diversion of Russian crude to other markets, especially Asia, at high discount rates, deteriorated the spreads of intermediate and heavy crudes. In total, the global refining margin, an average of the margins in the main refining centers, stood at **8.4 USD/bt** in 2022, more than doubling the margin of **3.4 USD/bt** in 2021.



Moderate optimism is maintained for **2023**. Several agencies and multilateral organizations have reduced their growth forecast for 2023, mainly as a consequence of interest rates rising globally. The World Bank, for example, recently adjusted its 2023 growth forecast to **1.7%**, from the 3.0% it had expected six (6) months ago. OPEC+ remains cohesive and any strong deterioration in demand would surely be accompanied by a similar adjustment in the group's production, which seeks to maintain a market balance consistent with a crude oil price of at least **80 USD/bl**. Moreover, the abandonment of the "zero-COVID" policy by China at the end of 2022 anticipates a significant consumption recovery in that country that would serve as support for Brent and other commodities and that would counteract the deterioration in demand in other geographies. Refining margins would remain high, in historical terms, although they would see a decline versus the levels of 2022: new refining capacity, coupled with a slowdown in demand, would help diesel and gasoline inventories to rise close to the averages of the last five years.

The international gas and LNG market environment

The conflict between Russia and Ukraine, in addition to the maintenance works and sabotages of the Nordstream gas pipeline, which carries gas from Russia to Germany, has resulted in a significant TTF benchmark price increase in continental Europe. The indicator experiences a shift greater than 98%⁴, reaching a record high of **106 USD/Mbtu**.

Alerts on a shortage of natural gas during wintertime in Europe led several countries like Germany to reconsider electricity generation based on fuels such as coal to complement generation using natural gas.

LNG imports peaked in August, with most flows destined for Europe to fill storage levels and face increased winter demand. With this and other measures such as promoting savings in consumption, Europe managed to fill 83% of its storage capacity at the end of December, to a level

that is expected to cover its energy requirements during the winter.

Limited regasification infrastructure in Europe led to delayed vessel unloading and increased floating LNG storage to back up unmet demand, driving daily freight rates to as high as **\$470,000/day** in the Atlantic basin, which represents an increase of **365%** compared to the average rate of 2021.

Concerns about dependence on Russia's natural gas have increased the number of floating storage regasification unit (FSRUs) construction projects, mainly in Europe. 23 regasification units are expected to come into operation by 2023, especially the entry of **two (2) units** in Germany with a capacity of **6.1 Mtpa**.

The above measures are expected to guarantee Europe's energy security to face a **2023**, in which, most likely, no natural gas flows will be received from Russian.

⁴ March 7, 2022, vs. the previous trading day.

The lack of reliability in the natural gas supply due to the aforementioned situation led to the replacement of natural gas with alternative sources such as coal or liquids for generation, in addition to lower household consumption in response to the high gas rates, mainly in Europe. The accumulated global demand deterioration is expected to reach 55Mm³ by November, with 90% corresponding to demand from the European market.



The 2022 Colombian economic context

The Colombian economy grew at a rate of **7.5%** in **2022**, one of the highest in the region, thereby consolidating the country as one of the economies with the strongest recoveries in the world, growing **11.0%** in 2021 after the recession caused by the pandemic in 2020.

The expansion of the economy was leveraged by a growth in consumption. Household spending grew at an average annual rate of **9.5%**, driven by the recovery of employment (more than 1.6 million jobs were created in 2022 vs. the same period in 2021) and the growth of consumer credit, which was growing at a rate of more than **20% per year** by the end of 2022. Investments also recorded positive growth, averaging **11.8%**, throughout the year. From the external perspective, imports, driven by the boom in domestic consumption, grew much faster than exports (24% vs. 15%), subtracting momentum in the growth of the entire economy.

The strong growth in consumption not only affected foreign accounts, increasing the current account deficit to **7.2% of GDP** in the third quarter, one of the highest in history, but was also an important factor in raising inflation. 2022 closed with a **13.1%** inflation rate, the highest since 1999, where, in addition to demand pressures, price dynamics were also driven by the exchange rate depreciation (14% in annual terms) and by supply chain issues.

This demand, as well as the price dynamics, led Banco de la República to raise its rates throughout 2022 by **eight (8)** percentage points, up to **12%** by year end. This strong rate increase, in addition to the high inflation and the slowdown in foreign demand, will have a negative impact on consumption and investment in 2023. Accordingly, a significant moderation in economic growth is expected, with a GDP growth that could be close to **1.0% in 2023**.

Ecopetrol's growth and contribution to Colombia's GDP

Contribution of the oil sector to the Gross Domestic Product (GDP)

In 2022, the behavior of GDP in the mining sector presented a slight increase of **0.6%** compared to the previous year, mainly due to:

- i) **2.5%** growth in oil and gas extraction activities.
- ii) **3.9%** growth in metallic mineral extraction activities, exploitation of other mines and quarries, and support activities for other mines and quarry exploitation activities.
- iii) **-5.4%** contraction of stone coal and lignite extraction activities.

The growth in the oil and gas extraction indicator was due to the increase in crude oil production, which averaged **754 kbd** in 2022 compared to **736 kbd** in the previous year.

Ecopetrol's growth and contribution to the national GDP

Ecopetrol's contributed **2.3%** to the national GDP in 2022. This lower contribution compared to the previous year is mainly because Ecopetrol's increase in production in Colombia stood at **2.1%** (662 kbd in 2022 vs. 649 kbd in 2021) compared to the country's increase in production of **2.4%**.

Table 1. | Contribution of the oil sector to the country's GDP
Oil Sector Contribution to GDP (billion constant pesos in 2015)

	2021	2022
National GDP	907,352	975,365
Oil extraction GDP	24,813	25,444
Contribution to GDP from the oil sector	2.7%	2.6%
Contribution to GDP by Ecopetrol	2.4%	2.3%

Sources: DANE, Minminas, and Ecopetrol.

(GRI 201-1, 201-4)

Financial strategy and resultss

The Ecopetrol Group closed 2022 with the best financial results in its history, with a net profit of **COP 33.4 trillion**, doubling that of the previous year, and an EBITDA of **COP 75.2 trillion** with an EBITDA margin of **47%**. This solid financial performance was leveraged by:

- i) The favorable pricing environment.
- ii) Higher production contributions from the Permian and Ecopetrol S.A.
- iii) Record results in the refineries.
- iv) Solid results from ISA.

The foregoing allowed the Group to offset:

- i) Inflation and the exchange rate effect on operating costs and expenses.
- ii) Higher debt interest rates.
- iii) Higher level of exploratory expenses.
- iv) The increase in the nominal income tax rate for 2022.

Accumulated revenues at the end of 2022 increased by **73.8%** compared to 2021 as a result of:

- i) Higher weighted average sales price of crude oil, gas, and products.
- ii) Higher average TRM.
- iii) Higher sales volume due to increased production from the Permian and Ecopetrol S.A., and the growth of domestic demand for fuel and gas products.
- iv) Greater services throughout 2022, mainly due to the consolidation of ISA's revenues, compared to only four **(4) months** in 2021.

The foregoing was partially offset by lower exports of middle distillates, given the major maintenance scheduled at the refineries.

Sales costs, including variable and fixed costs for 2022, experienced a **60.9%** increase compared to 2021, as a result of:

- i) Larger crude oil, gas, and product purchases due to greater fuel requirements to meet the economic recovery of the market and major maintenance scheduled during the year at the refineries, as well as increased purchases of crude oil for the start-up of the crude oil plant interconnection project in Cartagena.
- ii) Higher operating activity costs due to increased activity, tariff rise in contracts, the exchange rate, the inflationary effect, larger purchase of energy, as well as fewer Covid-19 restrictions.
- iii) Higher labor costs due to salary increases and greater provision of health services.
- iv) Consolidation of ISA's results throughout 2022 versus just four months in 2021.

Operating and exploratory expenses also rose at the end of **2022** compared to 2021 due to:

- i) The single recognition in 2021 of an income in Cenit and Oleoducto Bicentenario, as a result of the settlement reached with Frontera.
- ii) The incorporation of ISA's results throughout 2022 compared to four months in 2021.
- iii) Increased exploration expenses due to the recognition of exploratory activities in unsuccessful wells and greater activity in Ecopetrol Brazil and Hocol.
- iv) The increase in customs operations mainly due to the larger volume of DAP sales.
- v) Greater social investments executed through agreements and community aid, as well as higher taxes and inspection fees, among others.

Financial expenses recorded increases by the end of 2022 compared to 2021 due to:

- i) The incorporation of ISA's net financial results throughout 2022 compared to just four months in 2021.
- ii) Higher interest rates on the debt acquired in the second half of 2021 to finance the purchase of ISA and the exchange rate effect on debt-related interest in dollars.

- iii) Increased expenses due to exchange rate differences, mainly pertaining to the income associated with the conversion adjustment of the investment in dollars made in Savia, as a result of its sale in 2021, as well as the devaluation of the peso against the dollar given the Ecopetrol Group's net liability position in dollars in 2022.

The foregoing was partially offset by higher yields and the appreciation of the investment portfolio and bank accounts.

Investment analysis

In 2022, the Ecopetrol Group executed organic capital investments in the amount of **5,488 BUSD**, reaching the high range of the goal set for 2022 of 4.8 BUSD - 5.8 BUSD. Of all organic investments in the oil and gas business, **79%** were made in Colombia, and the remaining **21%** in the US and Brazil.

The investments focused on the growth of the gas chain represented **10%** of the investments executed in the year. These investments were mainly driven by the execution of projects in Piedemonte, in the assets of Floreña, Cupiagua, and Cusiana, the offshore exploration blocks, and the projects developed by Hocol.

For its part, ISA's investments in 2022 amounted to **1.02 BUSD**, with **84%** concentrated in the energy transmission business (858 MUSD), and **14%** (141 MUSD) and **2%** (21 MUSD) in the roads and telecommunications businesses, respectively. Brazil and Colombia accounted for **33%** and **23%** of total investments, respectively, and the remaining **44%** corresponded mainly to investments in Chile and Peru.

Table 2. | Investments by Business – Ecopetrol Group and ISA

Millions (USD)	Ecopetrol S.A.	Affiliates and Subsidiaries	Total 12M 2022	Share
Production	2,156	982	3,138	70.2%
Refining, Petrochemicals, and Biofuels	220	218	438	9.8%
Exploration	280	158	439	9.8%
Transport*	0	320	320	7.2%
Corporate**	134	0	134	3.0%
Total without ISA	2,790	1,679	4,468	100.0%
Energy transmission	0	858	858	84.1%
Toll roads	0	141	141	13.8%
Telecommunications	0	21	21	2.1%
Total ISA	0	1,020	1,020	100.0%
Total	2,790	2,698	5,488	-

Source: Corporate Vice Presidency of Finance.

*Includes the total amount of investments by each of the companies under the Ecopetrol Group (Ecopetrol S.A.'s share and non-controlling interest).

**Includes investments in energy transition projects.





2023 Business Plan update

The Ecopetrol Group updated its 2030 Business Plan, in alignment with the Group's commitment to accelerate towards the path of transition and energy sovereignty in the country, while maintaining competitive returns for all shareholders pursuant to its 2040 Strategy: Energy that Transforms.

The plan contemplates organic investments for 2023 ranging between **5.6 BUSD** and **6.6 BUSD**. About 66% of total investments will go to projects in Colombia and the remaining **34%** will be executed in the US, mainly in the Permian (19%), as well as in Brazil (9%), Peru (3%), and Chile (3%).

The resources from renewable self-generation, hydrogen, energy efficiency, carbon capture, and ISA (transmission and toll roads) represent about **23%** of the 2030 investment plan. Around 900 MUSD in the next 3 years (roughly 70 MUSD in 2023), will allow the incorporation of **900 MW** of renewable energy, the production

of more than 50,000 tons of low-carbon hydrogen, the reduction of about 400,000 tons of CO₂e emissions, and the advancement of carbon storage and capture studies.

The commitment to self-sufficiency in the gas business line includes investments ranging between **800 MUSD** and **900 MUSD** for exploration and production projects in Piedemonte Llanero, the Continental Caribe region, and offshore. The plan seeks to create at least two (2) new regional energy communities and connect close to **107,000 new households** to the gas grid.






In addition, ISA will invest roughly **1.4 BUSD** (~4.4 BUSD for the next 3 years), of which close to 1.2 BUSD will be used to build 9,657 kilometers of energy transmission lines by 2025 (6,227 kilometers for the transmission of unconventional non-renewable energy), thus consolidating ISA as a leader in energy transmission in Latin America.

Investments in the exploration and production segment will be focused on enhanced recovery technologies to maximize existing resources in the reservoirs and protect the basic curve to offset the natural decline of the fields. Investments in the transportation and refining segments correspond to **5%** and **7%** of the total plan for 2023, respectively.

In line with the Generating Value with T ESG pillar, the plan considers investments close to **500 MUSD**, mainly in projects associated with:

- i) Decarbonization (199 MUSD).
- ii) Integrated water management (200 MUSD).
- iii) Fuel quality (64 MUSD).
- iv) Investments related to other areas such as research, circular economy, health and process and industrial safety (46 MUSD).

Some of the most relevant operating and financial goals of the 2023 plan are:

-  Reduce about 400,000 tons of CO₂e emissions and incorporate close to 900 MW of renewable energies and more than 50,000 tons of green hydrogen by 2025.
-  Build 9,657 kilometers of energy transmission lines by 2025 (6,227 kilometers for the transmission of non-conventional renewable energies).
-  Production levels between 720 and 725 thousand barrels of hydrocarbon per day in 2023 (76% oil and 24% gas), with potential growth to reach production levels between 730 and 740 thousand barrels by 2024.
-  Joint loading of 420 to 430 thousand barrels per day between the Barrancabermeja and Cartagena refineries.
-  Transported volumes greater than one million barrels per day, in line with the country's production expectations and the demand for refined products.

Also, **472 BCOP** are planned for social investments, which will strengthen the Group's commitment to the local development of the regions, to execute the intervention of 240 kilometers of tertiary network in 2023, as well as to provide education for **90,000 students**, access to drinking water for 16,000 inhabitants, and serve 13,000 new household gas users, among others.

Finally, the **2023** investment plan involves, among other things, financing with own resources, the collection of the account receivable from the Fuel Price Stabilization Fund (FEPC), and marginal leverage in line with a Gross Debt/ EBITDA ratio lower than 2.1 times. The plan will be subject to revision during the first quarter of **2023** based on the evolution of its assumptions.

(GRI 201-1,
201-4)
(SFC 7.4.1.2.3,
7.4.1.2.4)

Financial results

Balance sheet

The Group's assets amounted to **306.4 TRILLION COP**, with an increase of 62.1 TRILLION COP compared to 2021, mainly due to:

- i) Larger accounts receivable given the higher value of the FEPC (Fuel Price Stabilization Fund) account and the exchange effect on assets from concessions in ISA Brasil.
- ii) The increase in property, plant, and equipment generated by a higher CAPEX in Ecopetrol and Permian projects, and the positive conversion effect in companies using a functional currency other than the Colombian peso, offset with the depreciations of the year.
- iii) The higher deferred tax asset, generated mainly by the update thereof.
- iv) Larger inventories due to vessels in transit at the end of the year.
- v) Increased investments in associated companies and joint ventures, mainly due to the positive conversion effect of investments made in foreign currency.

The Group's liabilities stood at **187.3 TRILLION COP**, with an increase of 36.8 TRILLION COP mainly due to:

- i) Escalating debt caused by the devaluation of the peso against the dollar in 2022.
- ii) Higher income tax, mainly due to the outstanding results achieved by the Ecopetrol Group companies.
- iii) The increase in accounts payable in line with the expanded activity and prices during the year.
- iv) Better employee benefits, mainly due to a lower appreciation of autonomous equities.

Equity amounted to 119.1 TRILLION COP, of which 91 TRILLION COP corresponds to equity attributable to Ecopetrol shareholders and 28.1 TRILLION COP to non-controlling shareholders.

Detailed information on Ecopetrol's financial statements (consolidated and unconsolidated) can be found on **Ecopetrol's website**.



Financial indicators

Below are the results of the financial indicators in **2022**:



Liquidity indicators

These correspond to the resources required by the Ecopetrol Group to operate in the short term, maintaining a margin to cover cash fluctuations as a result of current asset and liability operations.

At the end of **2022**, current assets increased by **49%** compared to the previous year, mainly due to:

- i) The increase in the account receivable from the Fuel Price Stabilization Fund.
- ii) The higher level of inventories due to in-transit vessels.

On the other hand, current liabilities increased by **88%** mainly due to:

- i) The transfer of financial obligations maturing in 2023 from long to short term.
- ii) Larger commercial accounts associated with increased activities and higher prices.
- iii) Higher current taxes arising from the improved results.



Activity indicators

The asset turnover indicator, measured by the value of sales over the Group's average assets, stood at **0.59** in 2022 (vs. 0.49 in 2021), reflecting the excellent results for the year.



Debt indicators

These represent the proportion of the Company's investment financed with debt, that is, using third-party resources.

Total liabilities payable to third parties backed by the level of assets was **61%** in 2022 and **62%** in 2021. Similarly, the concentration of short-term indebtedness was **30%** and long-term **70%**.



Profitability indicators

The EBITDA margin for **2022** was **47.2%** compared to 45.7% in 2021. In 2022, the Ecopetrol Group's return on assets (ROA) was **13.6%** (2021 - 9.9%), and the return on capital employed (ROACE) was **18.8%** (2021 - 13.6%). These rising indicators are mainly due to the higher results in 2022 for all operating segments and Group companies compared to 2021.

(201-1)
(WEF 18, 21, 32E)

Economic value generated and distributed

The economic value generated and distributed illustrates the basic way in which an organization generates wealth for its Stakeholder Groups. The economic value generated corresponds to the Company's income.

For its part, the distributed economic value includes: operating costs, employee salaries and benefits, payments to capital providers, payments to the government, and social investments [see table].

Table 3. | Economic value generated and distributed - Ecopetrol Group (Millions of pesos)

Economic value generated		
	2021	2022
Income	92,147,671	159,473,954

Economic value distributed		
Economic value	2021	2022
Operating costs (cost of sales and operating expenses)	62,183,496	99,381,325
Employee salaries and benefits (expense)	1,577,109	2,027,302
Payments to capital providers	6,104,841	6,710,106
Payments to the government	16,771,372	42,437,114
Investments in the community	199,057	284,399
Economic value distributed	86,835,877	150,840,247

Source: Corporate Vice Presidency of Finance.

43

(SFC 7.4.1.2.1)

Evolution of Share Prices in Colombia

The COLCAP index, the main reference of the Colombian Stock Market, had a negative variation of 8.85% during 2022. Its maximum level was 1,635 in April, the lowest level occurred in September when it reached 1,112 and closed 2022 at 1,286.

During 2022, Brent appreciated by 10.45%, going from levels of USD -78/bl at the beginning of 2022 to USD -86/bl at the end of the year, with a maximum in March of USD -127/bb and a minimum in December from USD -76/bl. Ecopetrol's share price closed the year at 2,420 COP, with a devaluation of 10.04% in the year. The action reached in 2022 a maximum of 3,610 COP in March and a minimum of 1,970 COP in September. Click on the following [link](#) for the detailed behavior of share prices in the BVC.



(SFC 7.4.1.2.1)

Evolution of the ADR on the New York Stock Exchange

Ecopetrol's ADR closed 2022 with a price of USD 10.47 and presented a variation of -18.77%. The ADR reached a high of USD 19.65 in April and a low of USD 8.64 in September. Click on the following [link](#) for the detailed behavior of Ecopetrol's ADR.



(SFC XIII)

Relevant information

All relevant information disclosure obligations in Colombia and abroad were complied with. For more information, see **Chapter IV.1.** of the Corporate Governance Report. Transparency, fluidity, and quality of information.

Table 4. | Relevant information

Releases of relevant information	65
Press releases	430
Documents published in the SEC	44
Total	539

Source: Corporate Vice Presidency of Finance.

(SFC 7.4.1.2.2)

Capital and ownership structure

Ecopetrol had

256,206
SHAREHOLDERS

as of December 31, 2022, with a

0.83%

variation in the number of shareholders compared to December 2021.



Figure 4. | Evolution in the number of shareholders (thousands of shareholders)



Source: Corporate Vice Presidency of Finance.

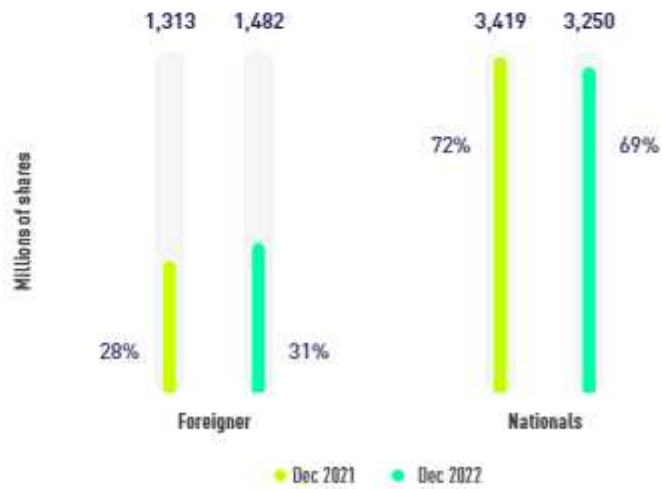
Ecopetrol's shareholding composition as of December 31, 2022, highlights a **12.9%** increase in the stake of foreign shareholders and an **8.7%** drop in the stake of natural persons.

Figure 5. | Floating comparison by type of shareholder (natural and legal person)



Source: Corporate Vice Presidency of Finance.

Figure 6. | Floating comparison by type of shareholder (domestic or foreign)



Source: Corporate Vice Presidency of Finance.

Identification of the main shareholders

The twenty-five **(25) shareholders** with the largest number of Ecopetrol shares as of December 31, 2022 are listed below:

Table 5. | Number of shares (millions)

N.º	Investor	N.º shares as of December 2022	Stake
1	STATE ENTITIES	36,385	88.49%
2	JPMORGAN CHASE BANK NA FBO HOLDERS OF DR ECOPEPETROL	1,019	2.48%
3	ISHARES MSCI COLCAP STOCK FUND	354	0.86%
4	PORVENIR HIGHER RISK MANDATORY PENSION FUND	328	0.80%
5	PORVENIR MODERATE MANDATORY PENSION FUND	312	0.76%
6	PROTECCIÓN MODERATE MANDATORY PENSION FUND	288	0.70%
7	PROTECCIÓN HIGHER RISK MANDATORY PENSION FUND	224	0.54%
8	COLFONDOS MODERATE MANDATORY PENSION FUND	133	0.32%
9	NORGES BANK	116	0.28%
10	COLFONDOS HIGHER RISK MANDATORY PENSION FUND	84	0.20%
11	HORIZONS COLOMBIA SELECT DE S&P STOCK FUND	84	0.20%
12	VANGUARD TOTAL INTERNATIONAL STOCK INDEX FUND	64	0.16%
13	SKANDIA MODERATE MANDATORY PENSION FUND	58	0.14%
14	JP MORGAN SECURITIES PLC	57	0.14%
15	VANGUARD EMERGING MARKETS STOCK INDEX FUND	44	0.11%
16	PROTECCIÓN RETIREMENT MANDATORY PENSION FUND	43	0.11%
17	VOL-ECOPEPETRO PROTECCIÓN PENSION FUND	41	0.10%
18	SKANDIA HIGHER RISK MANDATORY PENSION FUND	39	0.09%
19	PORVENIR SEVERANCE FUND	35	0.09%
20	ASHMORE AC + LATAM CLOSED COLLECT INVESTMENT FUND	34	0.08%
21	PROTECCIÓN LONG-TERM SEVERANCE FUND	32	0.08%
22	PORVENIR SPECIAL PLANNED RETIREMENT FUND	32	0.08%
23	PORVENIR CONSERVATIVE MANDATORY PENSION FUND	22	0.05%
24	COLFONDOS PLANNED RETIREMENT MANDATORY PENSION FUND	21	0.05%
25	PROTECCIÓN CONSERVATIVE MANDATORY PENSION FUND	19	0.05%

Source: Corporate Vice Presidency of Finance.



In line with the Colombian Code of Best Corporate Practices⁵, no Ecopetrol shareholder, except for the Nation, individually owns a “significant stake” (equivalent to **10%** or more of outstanding shares). By virtue of the authorized capitalization process, the Nation must retain, at least, eighty percent (**80%**) of outstanding shares with voting rights⁶.

Stock trading

In **2022**, no Ecopetrol administrator requested authorization from the Board of Directors to sell Company shares.

Total capitalization¹

Table 6 shows the value of Ecopetrol’s market capitalization as of **December 31, 2022**.

Table 6. | Full capitalization

Number of shares	41,116,694,690
Share price as of December 31, 2022 (COP)	2,420
Market Capitalization (Colombian pesos COP)	99,502,401,149,800

47

Source: Ecopetrol, Corporate Vice Presidency of Finance.

(SFC 7.1.III)

Share capital

As of **December 31, 2022**, Ecopetrol’s capital stock did not show any variation compared to the previous year.

Ecopetrol’s authorized capital (COP)	36,540,000,000,000*
Total shares	60,000,000,000
Face value (COP)	609**

Source: Corporate Vice Presidency of Finance.

* Equivalent to USD 7,596,357,740.

** Equivalent to USD 0.13.

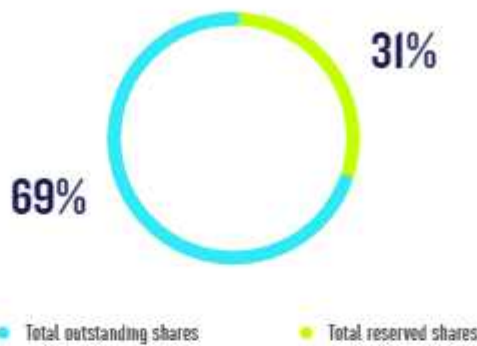
This information was calculated with the TRM of December 31, 2022: COP 4,810.20

Ecopetrol’s shares are nominal, ordinary, grant their holder equal rights in the Company’s assets and benefits distributed, and each of them has the right to one vote in the deliberations of the General Shareholders’ Meeting, with the legal limitations applicable in each case (e.g., default by shareholders, among others). There are no treasury shares held by the Company.

⁵ Financial Superintendence of Colombia, External Circular n.º 028 of 2014.

⁶ Article 2, Law 1118 of 2006.

Figure 7. | Ecopetrol S.A. shares



Source: Corporate Vice Presidency of Finance.

(SFC 7.4.1.3.1.XII)

Shareholder and investor service and communication

48

Ecopetrol provides equitable treatment to all shareholders, without prioritizing the interests of any over the others, considering that each shareholder has the same rights according to the class of shares they hold, and therefore, to guarantee the full exercise of the rights and a correct fulfillment of its obligations to its investors and shareholders, the Company addresses all petitions, claims, and requests for information in the same way, regardless of the value of the investment or the number of shares it represents.

In **2022**, a total of **80,755** shareholder requests were received through all service channels and **99.51%** of the various requirements were addressed in a timely manner. Also, no claims regarding compliance with the Code of Good Governance were filed by shareholders and investors.

A total of **13,137 satisfaction surveys** were conducted on the service received by shareholders and investors.



The main shareholder loyalty activities conducted during **2022** are listed below:

- Information Bulletin for Shareholders
- Data update campaign using different customer service channels, with a total of **11,986 updated data** points.
- Participation in **twelve** international conferences with analysts and institutional investors.
- Participation in the "Ecopetrol towards a TESG transformation" webinar organized by Casa de Bolsa Stock Brokerage Company, targeting minority shareholders and addressing critical issues and updates related to the Oil Sector and Ecopetrol.
- "Semana del Emisor" (Issuer Week) took place using the **Trii platform**, an e-trading application associated with Acciones & Valores Stock Market Commissioner, where you can buy and sell shares of companies listed on the Colombian Stock Exchange and in the Colombian Global Market. Talks on the Company's financial results, its TESG strategy, and progress made in the **2040 Strategy** were given to minority shareholders during the week. In addition, a commission-free day was granted on transactions with Ecopetrol shares, closing the day with a record of **4,525 operations** on the platform.
- Ecopetrol's visit to Medellín, Barranquilla, and Duitama with financial education talks for minority shareholders given by the Colombian Stock Exchange, together with the participation of some stock brokerage firms to provide information and conduct data updating processes.

Ecopetrol has been awarded the IR recognition (Investor Relations) by the Colombian Stock Exchange, which highlights the Company's commitment to best practices in the disclosure of information and investor relations. Visit for more information.

<http://www.bvc.com.co>



(GRI 201-4,
11-21-3)
(WEF18)

Financial assistance received from the government

Current tax regulations do not provide for tax deductions that can be used by the Company. On the other hand, the same tax regulations provide for tax credits that can be used by the Company in determining its income tax. As of December 31, 2022, Ecopetrol has **860 BCOP** in tax credits, which will be used to determine the income tax payable in 2023.

On the other hand, no financial assistance was received from Export Credit Agencies (ECAs) in **2022**.

(WEF 21)

Transfers to the Nation

Ecopetrol is one of the largest national and territorial taxpayers in Colombia. Its tax policy seeks to comply with its legal obligations under current regulations and obtain the highest tax benefits for the Company. The taxes payable by Ecopetrol are summarized in the table below.

Table 7. | Taxes payable by Ecopetrol

Tax type	Tax
National	<ul style="list-style-type: none"> • Income and complementary • VAT common regime • Income withholding agent, VAT • National Diesel (ACPM) surcharge • National gasoline and Diesel (ACPM) tax • Carbon tax • Tax on financial transactions
Territorial	<ul style="list-style-type: none"> • Industry and commerce tax, notices, and boards • Industry and commerce withholding agents • Street lighting • Vehicles • Property • Gasoline surcharge • Transport tax

Source: Corporate Vice Presidency of Finance.



The amount paid by Ecopetrol includes the taxes payable by the Company and the tax withholdings or collections applied to third parties and transfers to the different tax authorities in its capacity as withholding agent. Ecopetrol's individual and consolidated effective tax rate in **2022** was **33.8%** and **31.4%**, respectively.

Table 8. National and territorial taxes and transfers paid (figures in millions of pesos) by Ecopetrol

TAX TYPE	2018	2019	2020	2021	2022	PURPOSE
OWN TAXES						
Income tax	272,763	-	446,316	-	69,530	Nation
Self-withholding for equity - CREE	-	-	-	-	-	Nation
Income self-withholding	5,094,734	2,172,632	1,728,724	2,795,957	5,196,462	Nation
Equity/Wealth Tax (valid until 2017)	-	-	-	-	-	Nation
National gasoline and Diesel (ACPM) tax	45	45	31	30	30	Nation
Carbon tax (effective as of 2017)	619	1,128	446	800	146	Nation
National Diesel (ACPM) surcharge	29	26	18	16	16	Nation
Sales tax	765,949	756,350	-	-	-	Nation
Industry and commerce tax	136,012	167,124	165,289	149,353	312,817	Municipalities
Property tax	22,641	22,439	20,763	21,184	46,054	Municipalities
Transport tax	73,786	77,267	163,553	166,936	401,210	Municipalities
Tax on financial transactions	137,975	142,312	128,230	135,793	296,154	Nation
Vehicle tax	239	173	92	95	227	Municipalities
Lighting tax	10,590	11,646	19,374	40,534	62,620	Municipalities
Gasoline surcharge	6	5	2	2	3	Departments/ Municipalities
SUBTOTAL OWN TAXES	6,515,388	3,351,147	2,672,838	3,310,699	6,385,269	
THIRD PARTY COLLECTION						
National gasoline and Diesel (ACPM) tax	983,425	1,188,018	954,854	1,303,416	1,499,890	Nation
Income/VAT/stamp withholding tax	985,174	1,060,373	1,175,564	1,328,934	1,854,695	Nation
National pro-university stamp	-	3,132	675	2,063	17,293	Ministry of Education / Nation
Construction contribution (effective as of 2020)	-	-	688	14,942	100,088	Ministry of Interior
COVID-19 solidarity tax withholdings	-	-	45,216	-	-	Nation
National Diesel (ACPM) surcharge	49,658	50,870	31,594	26,690	27,183	Nation
Carbon tax (effective as of 2017)	224,730	363,930	235,123	264,210	341,462	Nation
Industry and commerce withholding tax	46,791	68,940	77,870	230,873	108,057	Municipalities
SUBTOTAL TAX COLLECTION FROM THIRD PARTIES	2,289,778	2,735,263	2,521,583	3,171,128	3,948,668	
TOTAL	8,805,166	6,086,410	5,194,421	6,481,827	10,333,937	

Source: Corporate Vice Presidency of Finance.

The Ecopetrol Group's contribution to the Nation in **2022** represented transfers effectively paid in the amount of **42.4 TRILLION COP** as follows: dividends **16.3 TRILLION COP**, total taxes **16.4 TRILLION COP** (includes taxes paid by the Company and tax withholdings or collections applied on third parties and transferred to the different tax authorities in its capacity as withholding agent), and royalties and purchases of crude oil and gas from the ANH in the amount of **9.7 TRILLION COP**.

(GRI 207-1, 11-21-4)

Tax-related issues

The document containing the Ecopetrol Group's Tax Policy is published on the Ecopetrol website at the following [link](#). The main topics covered are:



01

Timely compliance with all national and international tax obligations based on current legislation.

02

The Ecopetrol Group's strategy is not focused on adopting aggressive or risky tax decisions that could question its tax returns.




03

The Boards of Directors of Ecopetrol and of the different Group companies will be informed of the main tax implications arising from their operations or of all matters subject to their approval, particularly when they constitute a relevant decision-making factor.

04

In order to optimize the tax treatment of the different operations, the rules set forth in the agreements shall apply to avoid double taxation, if any.

Good Tax Practices

-  Documentation and standardization of the Group's tax planning.
-  A transfer pricing guide is available to guarantee that the operations, agreements, and/or contracts entered into between the affiliates and subsidiaries of the Ecopetrol Group are carried out under market conditions, avoiding the erosion of tax bases.
-  Not using structures or the intermediation of instrumental companies through tax havens or territories that do not cooperate with tax authorities, without a real or valid business reason.

Monitoring and Control

-  Updating, publishing, and sharing the tax planning memorandum with all Group companies every time the National Government enacts a regulation that affects its guidelines.
-  Holding quarterly committees with the Group to review the implementation of benefits and update on tax issues.
-  Reporting relevant aspects such as the behavior of the effective tax rate, relevant transactions that affected it, a comparative table with data from the immediately previous period, the effect of the last tax reform on the group's rate, among other matters.



Main aspects of Ecopetrol's tax planning

Using the tax benefits contemplated under current regulations:

1. Law 2277 of 2022 did not introduce any modification to the existing reduction of the presumptive income rate to zero (0) since 2021.
2. VAT discount on the acquisition, construction, etc., of Productive Real Fixed Assets.
3. Deduction of 100% of the ICA (Industry and Commerce Tax) effectively paid throughout the year.
4. Tax benefits for using alternative energies.
5. Optimizing the benefit of carbon credits.
6. Discount of Article 256 of the Tax Code for investments in science, technological development, and innovation.
7. Others.
 - Involvement in the structuring and tax definition of the Group's new businesses.
 - Notification of changes in the tax legislation to the different areas of the Company and its subsidiaries.
 - Teamwork with the Ministry of Finance and Public Credit (MHCP), the Ministry of Mines and Energy (MME), and the National Tax and Customs Authority (DIAN).
 - Creation of Tax Committees in the Ecopetrol Group and quarterly litigation reports pertaining to all Group companies.

Tax Risks

Ecopetrol has identified some tax risks that could cause business losses, if materialized, as well as the payment of penalties and default interest to the tax authority.

The main risks are:

- a. Changes in the tax legislation of the countries in which the Company currently operates.
- b. Adopting aggressive tax positions that may lead to disputes with the tax authority.
- c. Changes in the existing tax doctrine that give rise to disputes with the tax authority.

The Company's risk matrix and the procedure to assess the economic impact associated with the occurrence of risks is published at

www.ecopetrol.com.co



III.4. About Ecopetrol's Operations

III.4.1. Hydrocarbon Business Line

This business line covers the exploration, exploitation, refining, transport, and trading of hydrocarbons and their derivatives and products, in order to maximize the value generated with the Company's efficiency and competitiveness, by undertaking operations in a safe and ethical manner, also responsible with the territories in which it operates, and with relevant emphasis on decarbonization.



Exploration

It is the first link in Ecopetrol's value chain in the hydrocarbons business line, and its main objective is to discover and delimit commercially viable accumulations of hydrocarbons to ensure the expansion of the reserves required for the sustainability of the Group. High technical assurance standards are maintained to this end, optimizing the management of the prospects and discoveries portfolio, steering efforts in compliance with the exploratory strategy, and streamlining the maturation process of opportunities, as well as their conversion into discovered, contingent, and reserve resources.



Production and Development

The second link in the value chain includes the production of crude oil, gas, and white products, either directly or in partnership with other companies. Its main objective is the extraction of hydrocarbons via optimal development of the fields.



Exploration and Production Strategy

This segment's strategy seeks to grow with the energy transition, decarbonizing operations and strengthening the gas portfolio, focusing on sustainable value creation for Stakeholders and preserving competitive returns for the Company.

For the materialization of the strategy, which projects between **700-750 kboed** of hydrocarbon production by 2040, with a peak of **800-850 kboed** by 2030 at high price levels, Ecopetrol has designed several lines of action, including activities in existing conventional assets and in other geographies, exploration in the Caribe offshore and in the Colombian onshore, and international as well as new business opportunities.

More specifically, the exploration and production strategy focuses on:

High competitiveness and resilience: focusing on material opportunities with competitive equilibrium prices and renouncing unprofitable opportunities.

Quick trading: concentrating efforts on gas and light hydrocarbon opportunities near existing fields, in line with the near field exploration strategy, and with an optimal start in the incorporation of reserves and production.

Hydrocarbons favorable to the energy transition: greater emphasis on light crude oil and gas projects to ensure a emission reduction from new opportunities and expanding the gas share in the product portfolio.

Low execution risk: focusing on opportunities with a high probability of execution, as well as ensuring risk mitigation actions for opportunities with high strategic value, but low probability of materializing.

Development of the Caño Sur and Akacias green fields.

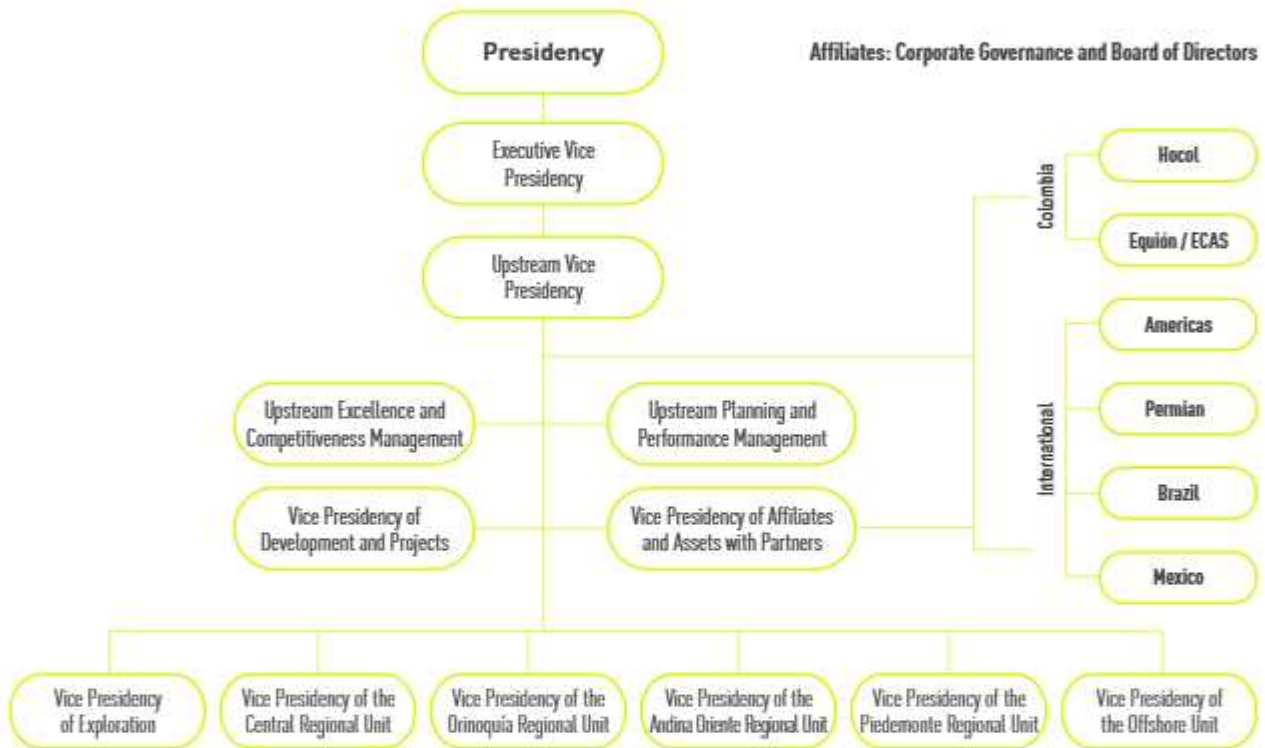
Value maximization in the recovery program, mainly in heavy crude oil and in the Magdalena Medio region.

Protecting the basic curve, mitigating the natural decline of the fields and continuing with primary recovery, mainly in Rubiales.



As of June 2022, with the purpose of responding to the Ecopetrol Group's 2040 Strategy: **Energy that Transforms**, and more specifically, to the Growing with the Energy Transition pillar, a new operating model was approved for the upstream (exploration and production) to guarantee a comprehensive perspective of the segment, provide greater autonomy to the regions, and for better integration and synergy with the subsidiaries.

Figure 8. | New upstream operating model



Source: Upstream Vice Presidency .



The new organization committed itself to the main objectives:



Exploratory Activity

Exploratory Drilling

Ecopetrol and its partners drilled **24 exploratory** wells, in line with the proposed plan (23 in Colombia and 1 in the Gulf of Mexico), with seven **(7) exploratory successes** in basins of great interest to the Company, which will contribute to the country's energy sovereignty:

the Colombian offshore (Uchuva-1, Gorgon-2), Valle Superior del Magdalena (El Niño-2 and Ibamaca-2ST delimiter, confirming discovery announced in January 2022), Valle Medio del Magdalena (Morito-1), Llanos Orientales (Tejón-1), and Valle Inferior del Magdalena (Coralino-1).

Figure 9. | Exploratory wells in 2022



Source: Upstream Vice Presidency.

Table 9. | List of Exploratory Wells

N.º	Well	Operator / Partner	Contract / Block	Results
1	El Niño-2	Perenco 30% (operator), Ecopetrol 50%, CNOOC 20%	Boquerón	Successful
2	Tejon-1	Ecopetrol 55% (operator) - Repsol 45%	CPO-9	Successful
3	Morito-1	Ecopetrol 100% (operator)	Magdalena Medio Exploitation Agreement	Successful
4	Gorgon-2	Ecopetrol 50% Shell 50% (operator)	COL-5	Successful
5	Uchuva-1	Petrobras 44.44% (operator) Ecopetrol 55.56%	Tayrona	Successful
6	Coralino-1	Hocol 100% (operator)	VIM-8	Successful
7	Ibamaca-2 ST	Hocol 100% (operator)	Tolima	Successful
8	Guarapo-1 ST1	Parex 80% (operator) ECP 20%	Fortuna	Under evaluation
9	Yoda A-1	Hocol 100% (operator)	YDSN-1	Under evaluation
10	Arrecife Norte-1	Hocol 100% (operator)	VIM-8	Under evaluation
11	Alqamari-2	Ecopetrol 100% (operator)	Western Putumayo	Under evaluation
12	Tororoi-1	Hocol 50% Geopark 50% (operator)	LLA-87	Under evaluation
13	Tinamú-1	Repsol (45%) Ecopetrol 55% (operator)	CPO 9	Under evaluation
14	EST SN 15	Hocol 100% (operator)	SN15	Stratigraphic
15	Bololó-1	Hocol 100% (operator)	VIM-8	Dry
16	Pilonera-1	Hocol 50% Lewis Energy 50% (operator)	SSJN1	Dry
17	Boranda Sur-3	Parex 50% (operator) Ecopetrol 50%	Boranda	Dry
18	Chinchorro-1 G	Hocol 100% (operator)	GUA-2	Dry
19	Boranda Norte-1	Parex 50% (operator) ECP 50%	Boranda	Dry
20	Kinacú-1	Ecopetrol 100% (operator)	South Area	Dry
21	Starman-1	Chevron 50% (operator) EAI 25% BHP 25%	MC412-USGoM	Dry
22	Yoda B-1	Hocol 100% (operator)	YDSN-1	Dry
23	Sintuano-1	Hocol 100% (operator)	SN-8	Dry
24	Ibamaca-2	Hocol 100% (operator)	Tolima	Dry

Source: Upstream Vice Presidency.

Advancements in the gas portfolio

Progress was made in **2022** in the evaluation of the Gorgon-2 and Uchuva-1 discoveries in the Colombian offshore to define the delimitation and development plan for these discoveries. On the Piedemonte Llanero, the Cupiagua XD 45 and Cusiana V31 exploratory wells were drilled by the end of the year, in order to find new gas and light

hydrocarbon accumulations in the vicinity of existing fields, in line with the Near Field Exploration strategy.

In turn, Hocol undertook exploratory activities in the areas of northern Colombia, with the successful drilling of the Coralino-1 well, confirming the presence of gas in the **Ciénaga de Oro** formation.

Seismic Information

In order to strengthen the exploratory areas already awarded, progress was made in the acquisition of national seismic information with the Flamencos 3D program operated by Ecopetrol and the SSJN1 2D program operated by Hocol, which are in the operating stage and are expected to complete registration in 2023.

Moreover, Ecopetrol acquired **2,639 km²** of 3D seismic

information (4,486 equivalent km) in Llanos Orientales to expand the technical knowledge on this prolific basin. Similarly, Hocol acquired **472 km²** of 2D information and **923 km²** of 3D information (2,041 equivalent km) on different areas of interest, from the Llanos basin to northern Colombia. Ecopetrol Brasil acquired **2,595 km²** of 3D information on the Santos basin (4,412 equivalent km).

Figure 10. | Ecopetrol Group's Seismic Information (equivalent km)



Source: Upstream Vice Presidency.



From 2017 to 2021, around **44,917 equivalent km** of seismic information in the onshore and offshore basins of Colombia have been reprocessed and reinterpreted by the Ecopetrol Group, which has contributed to the reduction of uncertainty by improving the seismic image. This has leveraged interpretation to support the characterization of exploratory opportunities, in periods in which seismic acquisition has been complicated due to environmental restrictions and/or reduced investments because of crude oil prices.

During 2022, Ecopetrol S.A. and its subsidiary Hocol reprocessed and reinterpreted **12,101 equivalent km** and **1,006 equivalent km** of seismic information, respectively, in offshore areas of great relevance such as Piedemonte, Putumayo, northern Colombia, and Valle Medio and Valle Superior del Magdalena, allowing the continued identification, evaluation, and maturation of new opportunities.

Contracts and Exploratory Areas

By the end of **2022**, Ecopetrol had **109 exploratory** assets, distributed as follows:



Some of these contracts have operating or non-operating partners.

60 Table 10. | Number and Type of Contracts

	PARTNERSHIP	CONCESSION	E&P CONTRACT	CET***	E&P AGREEMENT	CRC**	PSC*	Royalty/Tax Agreement
MEXICO							2	
BRAZIL		7					2	
HOCOL	1		19		1			
ECOPEPETROL	3		21	3	1	1		
EA								48

Source: Upstream Vice Presidency.

Note:

*PSC: Production Sharing Agreement

**CRC: Shared Risk Contract

***CET: Technical Evaluation Contract

EA: Ecopetrol América (Gulf of Mexico)

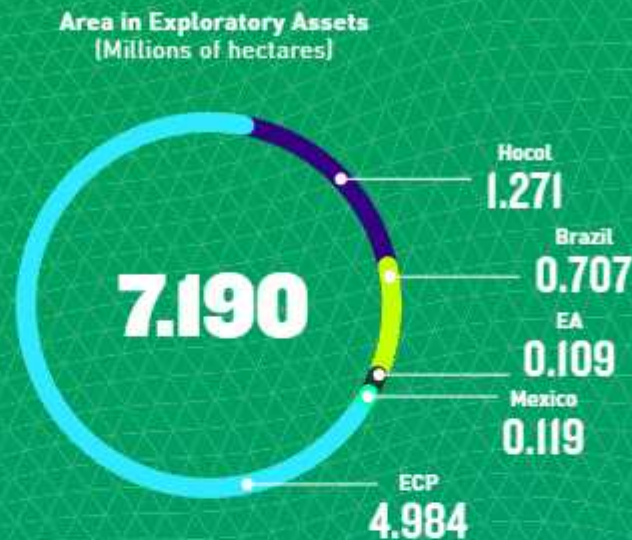
Five **(5) assets** were in the divestment process at the end of **2022**:

TWO (2) FROM HOCOL, TWO (2) IN MEXICO AND ONE (1) IN BRAZIL.

Also, exploratory opportunities have been identified in **30 production** area assets that are part of the portfolio of projects in maturation [24 Ecopetrol S.A. and 6 Hocol].

The **109 exploratory** assets cover a total of **7.19 billion** hectares, distributed in the different subsidiaries and areas of exploratory interest: **Colombia, Brazil, USA, and Mexico.**

Figure 11. | Area in Exploratory Assets



Source: Upstream Vice Presidency.

Production and Development

(SASB
EM-EP-000.A)

In **2022**, the Ecopetrol Group's production accounted for **709.5 thousand barrels** of oil equivalent per day (kboed), of which **625.5 kboed** were contributed by Ecopetrol and **84.0 kboed** by the subsidiaries. Gas contribution represented **20%** (139.6 kboed). The fields with recovery technologies contributed **40%** of the Ecopetrol Group's production.

Compared to the period of 2021, there was an increase of **30.5 kboed** (14.4 kboed from Ecopetrol and 16.1 kboed from the subsidiaries), mainly due to the following factors: the incremental production of the Caño Sur and Permian assets, the reversal of the Nare partnership contract, and the management of the deposits in Chichimene, Akacias, and Rubiales, which resulted in lower water cuts, greater stakes in production due to the high prices in partnership operations, the restoration of production affected by public security events, and the lifting of operating restrictions in Castilla related to water management.

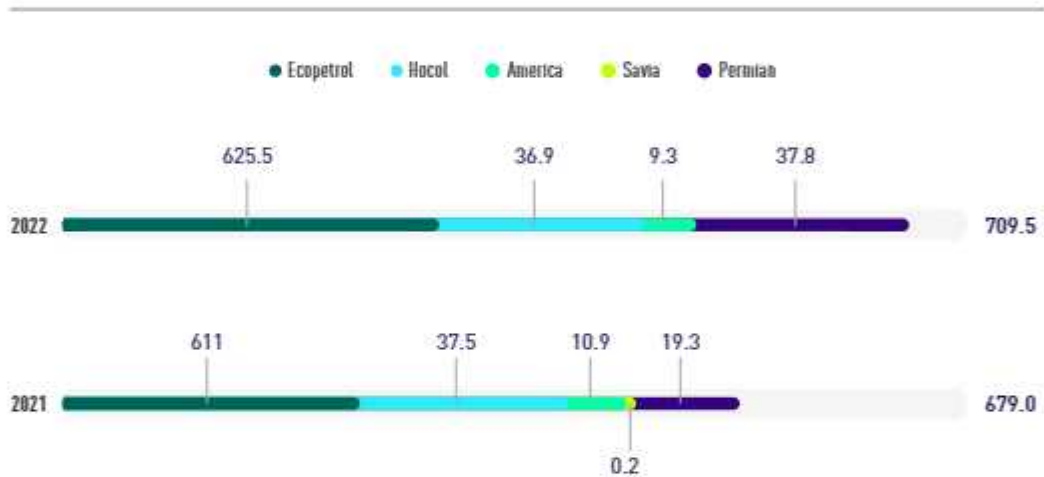
For the time being, Ecopetrol's portfolio does account for, nor does it contemplate exploration and exploitation operations in the arctic region or the production of tar sands.

In accordance with the Guide for the Ecopetrol Group's Corporate Governance Model (GEE-G-041), Ecopetrol participates as a shareholder in various companies, in order to add to the results of the business and the sustainability, strategic alignment, and optimization of the investment portfolio via the financial return generated by said companies.

In the case of the segments under the hydrocarbon business line and, particularly, the upstream segment, the necessary strategic alignment to articulate value generation efforts as a group is achieved through:

- (i) The function of the upstream segment's Vice President.
- (ii) The Boards of Directors of the companies that make up the segment.
- (iii) The execution of activities foreseen in the Group's engagement model.

Figure 12. | 2022 Production by Company in the Ecopetrol Group (kboed)



Source: Upstream Vice Presidency.

Figure 13. | Ecopetrol Group's 2022 Equivalent Oil and Gas Production (kboed)



Source: Upstream Vice Presidency.

Figure 14. | Ecopetrol S.A.'s 2021 Oil and Gas Equivalent Production



Source: Upstream Vice Presidency.

International Portfolio

The upstream has four **(4) international** subsidiaries in the United States, Mexico, and Brazil.

63

United States:

Permian:

- The Company has operations in the Permian, the most prolific basin in the world, with a first-tier operator (OXY). It has approximately **100,000 acres** of low exploration risk, with no license expiration, and the operation unfolds in a stable regulatory framework.
- The business is characterized by:
 - i) Increased production and materialization of reserves.
 - ii) Agile and low-cost operations.
 - iii) Short paybacks on annual campaigns (2-3 years).
 - iv) Cash generation.
- The volumes produced are light (40 degrees API), which contributes to the diversification of the Group's portfolio in the context of low CO₂ emissions and water management.
- Below are some of the highlights of **2022**:
 - Zero recordable HSE events.
 - Record production in October of **57.4 kboed** [Ecopetrol's production stake before royalties].
 - The successful drilling of **103 development wells**, with time and cost efficiency.
 - In terms of TSEG, low intensity of CO₂ emissions < 8kgCO₂e/boe can be highlighted, in addition to the recycling of more than **11 Mbls** of water, equivalent to **40%** of the production.

Ecopetrol America:

1. The deepwater exploration strategy in the Gulf of Mexico (USGoM) is focused mainly on the search and development of opportunities in the plays of Mioceno and Jurásico, prioritizing opportunities of low exploratory risk and that are close to existing infrastructure.
2. It leverages geographic diversification and has access to high-quality reserves with top-tier operators such as Murphy, Hess, Oxy, and Quarter-North.
3. It is the learning platform for strengthening deep-water exploration and production skills, and in terms of production, it offers access to barrels of medium and light crude oil in a low CO₂ emissions environment.
4. Below are some of the highlights of **2022**:
 - 4.1. Well-related work was completed successfully in the Gunflint field, allowing EA production to recover by roughly **3.7 net kboed**.
 - 4.2. Successful drilling of a new DC90 development well at Dalmatian, which will add to production by 2024 once completed.

Mexico:

- The variables used to define Mexico's strategy in 2019 show a negative trend to date, which is why this subsidiary is in the process of simplification (geographical exit). It is therefore worth noting that:
 - (i) No changes are expected to improve the opening conditions for the hydrocarbon business.
 - (ii) The current portfolio has limited prospects due to negative results in **Block 6** and high risks in **Block 8**.
 - (iii) The country's risk level has increased (e.g. limitation of import contracts and restrictions on crude oil export permits).
- In **2022**, the National Hydrocarbons Commission (CNH) approved the assignment of the **Block 8** contract to PEMEX. With regard to **Block 6**, the withdrawal from the block was filed and the completion of the process is expected for the third quarter of 2023.



Brazil:

- Its activity focuses on offshore, with the strategic purpose of contributing to the internationalization of Ecopetrol via:
 - i) The maturation of exploratory options in deep waters.
 - ii) The acquisition of knowledge by developing offshore assets.
 - iii) The incorporation of reserves in areas of high prospectivity.
- The Gato do Mato project is currently in maturation, with Ecopetrol holding a 30% stake, Shell (operator) **50%**, and Total **20%**.
- The Company's Regional positioning was strengthened in **2022**, thanks to the incorporation of **six (6) new** offshore exploratory blocks in the post-salt play of the Santos Sur basin.

National Subsidiaries

Hocol

- This subsidiary is intended to leverage growth, mainly in gas, as well as the Ecopetrol Group's strategy in Colombia, with a differentiated and low-cost operating model.
- It has a high exploratory capacity with more than **70%** of current production originating from discoveries in the last **15 years**.
- Below are some of the highlights of **2022**:
 - The successful drilling of the Coralino-1 well in Córdoba, with a contribution of **2.77 MBOE** of discovered resources yet to be delimited.
 - Reduction of 14,102 TonCO₂e (Scope 1 and 2) with the execution of **11 projects** to reduce flaring and increase energy efficiency.
 - Inauguration of the La Guajira Innovation and Entrepreneurship Center, leveraging the growth of a key region for the energy transition.

Well Drillings

In 2022, **536 development wells** were drilled and completed: 250 from Ecopetrol's direct operation, 162 were executed jointly with partners, 21 by Hocol and 103 by Permian, as shown in the table below:

Table 11. | Well drilling in 2022

Company	2021	2022
Ecopetrol Direct Operation	193	250
Ecopetrol Operation with Partners	95	162
Hocol	22	21
Permian	85	103
Total Development Wells of the Business Group	395	536

Source: Upstream Vice Presidency.

(SASB
EM-EP-000.B)

Number of maritime facilities: 2

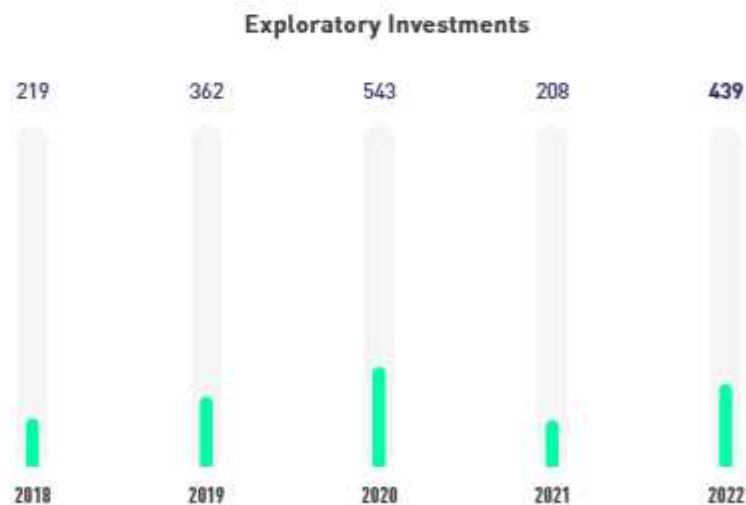
(SASB
EM-EP-000.C)

Number of land facilities: 156

Ecopetrol Group's Upstream Investments

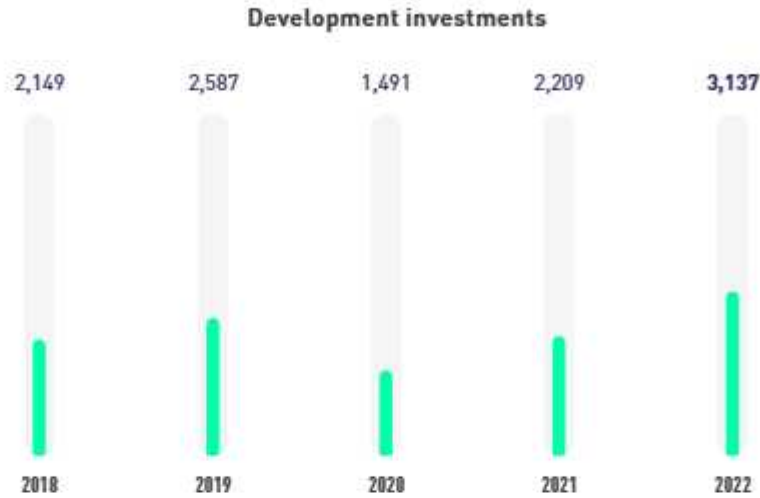
In 2022, the upstream executed a total capex of 3,576 MUSD. Exploratory investments amounted to **439 MUSD**, rising 111% compared to 2021, and investments in development and production added up to 3,137 MUSD, a **42%** increase compared to the previous term.

Figure 15. | Ecopetrol Group's Exploratory Investments in the Last 5 Years.



Source: Upstream Vice Presidency.

Figure 16. | Ecopetrol Group's Development Investments in the Last 5 Years.



Source: Upstream Vice Presidency.

Exploration and Production Partners

(GRI 2-6-c)

The upstream partners participate in businesses and/or joint projects with Ecopetrol in the exploration and exploitation phases (development and production), with the purpose of generating value in the achievement of common objectives, within a transparent, reliable, and efficient environment of mutual benefit, framed within competitiveness and the energy transition. These relationships are regulated by formal agreements and are based on contributions from the parties.

As of June **2022**, in the new segment model, the Vice Presidency of Subsidiaries and Assets with Partners (formerly the Vice Presidency of Assets with Partners) was incorporated, with the purpose of centralizing management with upstream partners, ensuring the

execution of the strategy and the engagement plan, and identifying new growth opportunities by increasing partnership contracts in the portfolio.

The Company's process flows were restructured, in line with the new model, which resulted in the creation of the new Value Maximization Flow in Subsidiaries and Assets with Partners - MFS, effective as of January 2023.

Both the Vice Presidency of Exploration and the Vice Presidency of Subsidiaries and Assets with Partners are responsible for the engagements with exploration and production partners. By year end in 2022, Ecopetrol had engaged with **25 partner companies**, as shown in the table below:

Table 12. | Partner Companies/Ecopetrol Partners

1. CEPESA COLOMBIA S.A.	14. PETROSANTANDER COLOMBIA INC. ¹
2. COLOMBIA ENERGY DEVELOPMENT CO (CEDCO)	15. PETROSOUTH ENERGY CORPORATION
3. EMERALD ENERGY PLC	16. SAINT - AUBIN INTERNATIONAL S.A.S.
4. FRONTERA ENERGY	17. REPSOL ¹
5. GRAN TIERRA ENERGY COLOMBIA LTDA. ¹	18. SIERRACOL ENERGY ¹
6. HOCOL S.A.	19. TEXICAN OIL & GAS LTDA.
7. LAGOSUR PETROLEUM COLOMBIA INC.	20. ISMOCOL - JOSHI - PARKO (UT LP) TEMPORARY JOINT VENTURE
8. LEWIS ENERGY	21. SAN AGUSTIN ENERGY CORP COLOMBIA BRANCH
9. NEXEN PETROLEUM COLOMBIA LTDA (CNOOC)	22. CPVEN ²
10. NIKOIL ENERGY CORP.	23. SHELL EP OFFSHORE VENTURE ²
11. PAREX RESOURCES ¹	24. PETROBRAS ²
12. PERENCO ¹	25. ANADARKO COLOMBIA ²
13. PETRÓLEOS COLOMBIANOS (PETROLCO S.A.)	

Source: Upstream Vice Presidency.

Effective members as of December 31, 2022.

1. Partners with assets in the exploitation phase, with exploratory activities.

2. Partners with assets in the exploration phase.

The engagement mechanisms with partner companies take place via Collaboration Contracts (Partnership, JOA, ORRI, CPI, CRC, etc.), E&P, and agreements with the National Hydrocarbons Agency (ANH).

Furthermore, strategic relationships are established with contractors that contribute to the fulfillment of objectives in abandonment and dismantling processes (subsoil equipment, communications, SES, scraping, dismantling, cleaning, environmental training, ambulances, firefighting, among others).

Table 13. | Contracts with Ecopetrol Partners in Colombia

Type of Contract	Total
Partnership contract (includes only risk and ORRI)	37*
Exploration and production contracts with JOA	17
Incremental production contract	4
Business collaboration contract	2
Shared risk contract	2
Business collaboration agreement	1

Source: Upstream Vice Presidency.

Note. As of December 31, 2022, Ecopetrol managed 63 contracts with partners.

* Includes five (5) partnership contracts transferred to Hocol S.A. as of July 1, 2018, with the area assigned to Ecopetrol.

In 2022, the investment executed in partnership contracts (exploration and production) by Ecopetrol S.A. amounted to **262.6 million** dollars.

**CAPEX
EXECUTED
(MUSD)**

2018	2019	2020	2021	2022
450.5	497.96	106.3	130.2	262.6

Source: Upstream Vice Presidency.

In **2022**, the Vice Presidency of Subsidiaries and Assets with Partners developed a strategy together with the cross-cutting areas to manage partner relationships, including the following initiatives:

- Diversity and inclusion:**
Through training and the dissemination of messages related to the subject area.
- Ethics and compliance:**
Partners were trained in Ecopetrol's Code of Ethics, sharing reflections and ethical discussions, as well as ratifying their commitment to ensuring ethical criteria and complying with procurement and contracting processes.
- Engagement:**
The first Ecopetrol Partner meeting took place in 2022, with the participation of senior leaders of both Ecopetrol and our partners, which secured the deployment of the 2040 Strategy: Energy that Transforms and addressed the main achievements and challenges in managing partners. Also, the first accounting and tax meeting was held in order to strengthen relationships and identify best practices and trends in this area, and activities were conducted to identify socio-environmental initiatives (diagnosis and baselines) in the assets held with partners.
- Human rights:**
Training was provided and efforts were undertaken to disseminate messages related to this subject.

Each of these initiatives was developed by implementing a plan with specific activities, and with quarterly monitoring throughout the year.



Reserve Balance

At the end of 2022, the Ecopetrol Group's net proven reserves amounted to **2,011 MBOE**, the highest in the last eight (8) years, of which **89%** correspond to fields in Colombia and **11%** to fields in the US.

The reserves were estimated based on the standards and methodology of the *US Securities and Exchange Commission* (SEC). **99.8%** of the reserves were certified by **three (3)** renowned independent specialized firms (Ryder Scott Company, DeGolyer and MacNaughton, and Gaffney, Cline, & Associates). The price (Brent marker) used for the appraisal of the 2022 reserves was **USD 97.9** per barrel compared to USD 69.2 in 2021.

The reserve replacement rate was **104%** and the average life of the reserves is equivalent to **8.4 years**. The Ecopetrol Group incorporated **249 MBOE** of proven reserves and

the total accumulated production for the year was **240 MBOE**. Of the total balance of reserves, **75%** are liquid and **25%** correspond to gas.

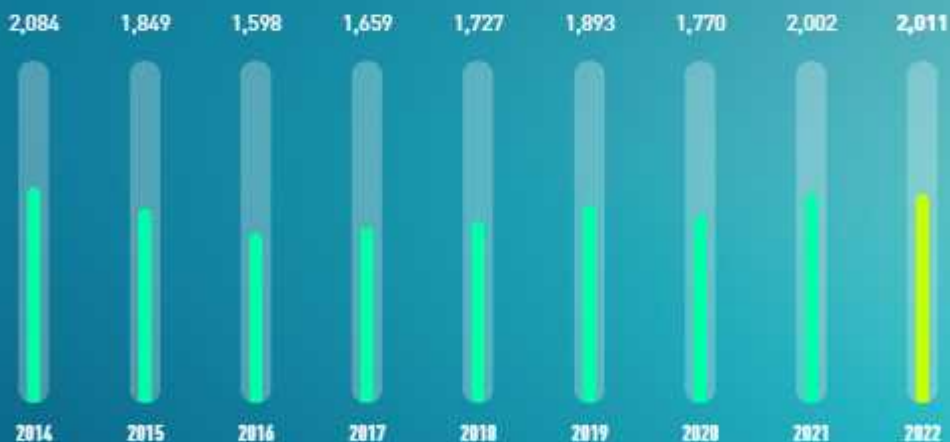
A total of **215 MBOE** were incorporated thanks to the management in the development fields, reflected in the optimal and timely maturation of new projects, better execution capacity, and the implementation of improved recovery expansion projects in fields such as Chichimene, Castilla, and Akacías, among others.

In terms of purchases, reserves were incorporated by acquisition and qualitative selection of areas in the Permian basin – USA (48 MBOE).

The increased reserves in 2022 are one of the pillars of the Ecopetrol Group's strategy in order to guarantee its long-term sustainability.



Figure 17. | Evolution of Ecopetrol Group's Proven Reserves [MBPE]



Source: Upstream Vice Presidency.

Table 14. | SEC Price USD/Bl

SEC Price USD/Bl							
56	44	55	72	63	43	69	98

Source: Upstream Vice Presidency.

The Ecopetrol Group's main efforts for the incorporation of reserves in the medium and long term are focused on:

- (i) The gas potential in the Colombian Caribe Offshore, Piedemonte Llanero, and the North Caribe Onshore, which will contribute to the country's energy sovereignty and ensure the supply of natural gas to the market.
- (ii) The crude potential of Llanos Orientales and Valle Medio del Magdalena, leveraged mainly on primary recovery (infill drilling) and the enhanced recovery program.
- (iii) Internationally, the Permian basin in the US and the pre-salt in Brazil, in which Ecopetrol has a stake.

The maximization of reserves and production are aligned with the **2040 Strategy**, where the Growing with the Energy Transition pillar seeks to maintain competitiveness in the integrated hydrocarbon chain and increase the gas supply to ensure resilience and competitiveness.

(GRI 11-7)

Technical Abandonment of Wells

Ecopetrol continues with its commitment to meet current legal regulations applicable to the abandonment of wells under Resolution 40230 of 2022 of the MME and Decree 1076 of 2015 of the Ministry of Environment and Sustainable Development (MADS), pertaining to environmental recovery, as well as the provisions of the internal guidelines set forth in the Guide for Well Integrity Management - WIMS (Well Integrity Management System) and the Guide for the Disincorporation of Production Assets.

According to Resolution 40230 of 2022 of the MME, definitive abandonment is "The abandonment operation executed when there is no interest in returning to the well on the part of the operator, including the location of cement and/or mechanical plugs as a primary and secondary barrier to isolate formations that produce water, gas, or oil, thus guaranteeing a transverse seal (lining-cement-formation-lithological seal).

It also includes the filling of the sub-well, the installation of the monument and the abandonment plate, and the dismantling of equipment and production facilities (the latter, provided that there are no other wells in operation in the same location), as well as environmental cleaning and restoration of the areas where exploration, evaluation, or production operations had been executed." A total of **276 technical well abandonments** were executed in 2022.

The dismantling of facilities and environmental recovery are also complementary activities to the abandonment of the well.

The dismantling of facilities consists of uninstalling and removing the facilities and equipment that are part of the asset, such as flow lines, electrical systems, electromechanical equipment, and civil works associated with the production wells to be abandoned.

This activity is the last intervention in the operating life of an asset and is conducted in accordance with applicable regulations. In 2022, **660** well-related facilities were dismantled.

For its part, environmental recovery consists of activities that guarantee the protection of the environment in accordance with the guidelines

set forth in the environmental instruments of the areas and with established legal norms. These activities include: erosion control and slope management, maintenance of recovered areas, waste management, revegetation or reforestation of the land, and runoff water management and control. A total of **161** environmental recoveries were completed in **2022**.



Transport

This is the third link in the hydrocarbon business line value chain, and includes the transportation of crude oil, fuels, and other refined products such as diesel and biofuels. These activities are conducted by Cenit and its subsidiary companies.

Transportation Operations Management and Maintenance

In **2022**, an average of **772,641 KBPD** was transported by oil pipelines and **298,119 KBPD** by polyducts, registering a total transported volume of **1,070.76 KBD**.

Crude oil

The volume of crude oil transported⁷ using Cenit's systems and those of its subsidiaries grew by **5%** compared to the previous year, as a result of the higher production of the fields (mainly Caño Limón, Piedemonte, Rubiales / Caño Sur)

and the incremental capture of barrels (mainly from of the Nare, CP05, and CPI Suroriente fields). Of the total volume of crude oil transported by pipelines, roughly **84.2%** was owned by the Ecopetrol Group.

⁷ The volumes of crude oil transported correspond to the following systems (country evacuation): OCS Seg 3, ODC, Vasconia-Galán, Ayacucho-Galán, Ayacucho-Coveñas and the OTA. Cenit's crude evacuation: 299.60 KBPD in Gross Standard Volume (GSV) and 298.79 KBPD in Net Standard Volume (NSV).

Refined products

The volume of refined products transported⁸ by Cenit grew by **7.5%** compared to the previous year, mainly due to the recovery of economic activities and growth in demand, in addition to the greater availability of refined products from the Barrancabermeja and Cartagena refineries and the increase in capacity of the pipeline network. Of the total volume of refined products transported through multipurpose pipelines, **26%** was owned by Ecopetrol.

Main midstream achievements, results, and logistics solutions:

- The **2022-2040** corporate strategy for the transport segment was approved with some commitments and strategic aspirations defined for **2030**, targeting an optimization model for the current business and diversification towards alternative businesses geared towards the path of sustainability and energy transition.
- Consolidated segment revenues amounted to more than **14 TRILLION COP** (CAGR +15% vs. 2021), and EBITDA generation came close to **11 TRILLION COP**.
- Fulfillment of **236%** of the decarbonization plan with respect to the goal set for the transportation segment, with emission reductions of **21,326 tCO₂e** in 2022.
- The renewable energy strategy was developed, tracing the route for the energy transition. Commissioning of the solar plants of Gualanday (0.42 MW), Retiro (0.06 MW), Cartagena (50 KW - Reficar green hydrogen pilot), and the MicroLNG plant in Buenaventura.
- The acquisition and commissioning of a small hydroelectric plant, Cantayús (4.3 MW), the first for the Ecopetrol Group, in the municipality of Cisneros in the department of Antioquia. This asset constitutes a significant advance in Cenit and the Ecopetrol Group's energy transition plan, since it will avoid about **63 thousand tons of CO₂** emissions in 15 years, thus contributing to the reduction of Cenit's carbon footprint. This is the first hydroelectric self-generation scheme in liquid hydrocarbon transportation systems using the country's pipelines.
- The Analytics Intelligence Center was consolidated, with the creation of five **(5) high performance cells** (team of experts gathered temporarily to solve a need for the company). More than 25 analytical solutions that impact the core business and its support processes were built.
- The polyducts were operated with minimum Transmix generation, in compliance with regulations and contributing to the improvement of the air quality for Colombian citizens.
- The centralized operation was executed efficiently, complying **100%** with the commitments in the transportation of crude oil and refined products, while capturing additional volumes.
- The high performance of the polyduct network, the use of alternative logistics solutions, and the alignment of the Group's operating planning teams enabled higher volumes to wholesale centers, ensuring better coverage of national demand, which contributed to the optimization of expenditure from the Fuel Price Stabilization Fund (FEPC). Highlights include the PPG systems and the evacuation of the Barrancabermeja and Cartagena refineries.
- Products with a lower API (from 29° to 24° minimum) were transported in the OTA, allowing the capture of barrels. 1 Mbls were imported in Coveñas, with an outstanding performance of the Coveñas - Cartagena system, which transported **84%** of the cargo from the Cartagena refinery along the pipeline.
- Obtaining the **CARBON NEUTRAL** certification granted by **ICONTEC** for the transport segment.

⁸ The volumes of refined products transported correspond to the following systems (refinery evacuation + other entry points): Galán - Salgar 16°, Galán - Salgar 12°, Galán-Bucaramanga, Buenaventura-Yumbo, Cartagena-Baranoa + Sebastopol Injection.

Maritime or Port Operation

Cenit's port operations in **2022**:

Table 15. | Cenit's Port Operations in 2022

Export capacity available in ports	3,216 kbpd
Number of ports	3
Vessels served by Cenit	230

Source: Cenit.

Table 16. | Export volume by ports

Export Volumes	2020	2021	2022	Destinations
Coveñas	522.4 kbpd	435.5 kbpd	462.765 kbpd	The export destinations of the crude oil evacuated by the terminals include the United States (largely towards the Gulf of Mexico), Panama, Asia (China and Singapore), and Europe (ports in Spain).
Tumaco	6.1 kbpd	9.44 kbpd	6.4 kbpd	

Source: Cenit.

Table 17. | Import Volumes

Import Volumes	2021	2022
Pozos Colorados	116.606 kbpd	139 kbpd

Source: Cenit.

Total Number and Volume of Spills in 2022

Due to operating causes, **six (6)** spills with soil damage were recorded in **2022**, and one (1) affecting a body of water. Compared to previous years, there has been a successive decrease in events, from **13 (2020)** to **10 (2021)** and **6 (2022)**, which shows the positive impact of the improvement actions implemented on the operation. On the other hand, 296

containment losses were recorded in 2022, most of them caused by third-party events and **two (2)** associated with natural causes.

To address this type of situations, mitigation and contingency plans have been implemented for the recovery of natural resources in the event of spills*.

9 In the event of an operating emergency, the following four stages are implemented to mitigate any deriving impacts and recover natural resources, considering the consequences of each particular case, within the framework of the Emergency and Contingency Plan of each facility. The environmental cleaning stage must be executed in all emergencies, regardless of their cause; however, the scope thereof will be defined based on the evaluation of each particular event.



Table 18. | Actions for addressing operating emergencies according to the cause giving rise to the event

Cause	Actions
Operating origin	<ul style="list-style-type: none"> • Primary assistance • Containment and control of the spill • Cleaning of areas impregnated with hydrocarbon • Recovery or replacement of areas impregnated with hydrocarbon • Recovery or replacement of damages caused by third parties • Monitoring and control after managing the spill • Coordination with entities and authorities • Activation of cooperation agreements and mutual aid plans
Situations caused by third parties, force majeure, or fortuitous events	<ul style="list-style-type: none"> • Primary assistance • Containment and control of the spill • Cleaning of areas impregnated with hydrocarbon • Coordination with entities and authorities • Activation of cooperation agreements and mutual aid plans • Report any illegal activity or situation

Source: Cenit.

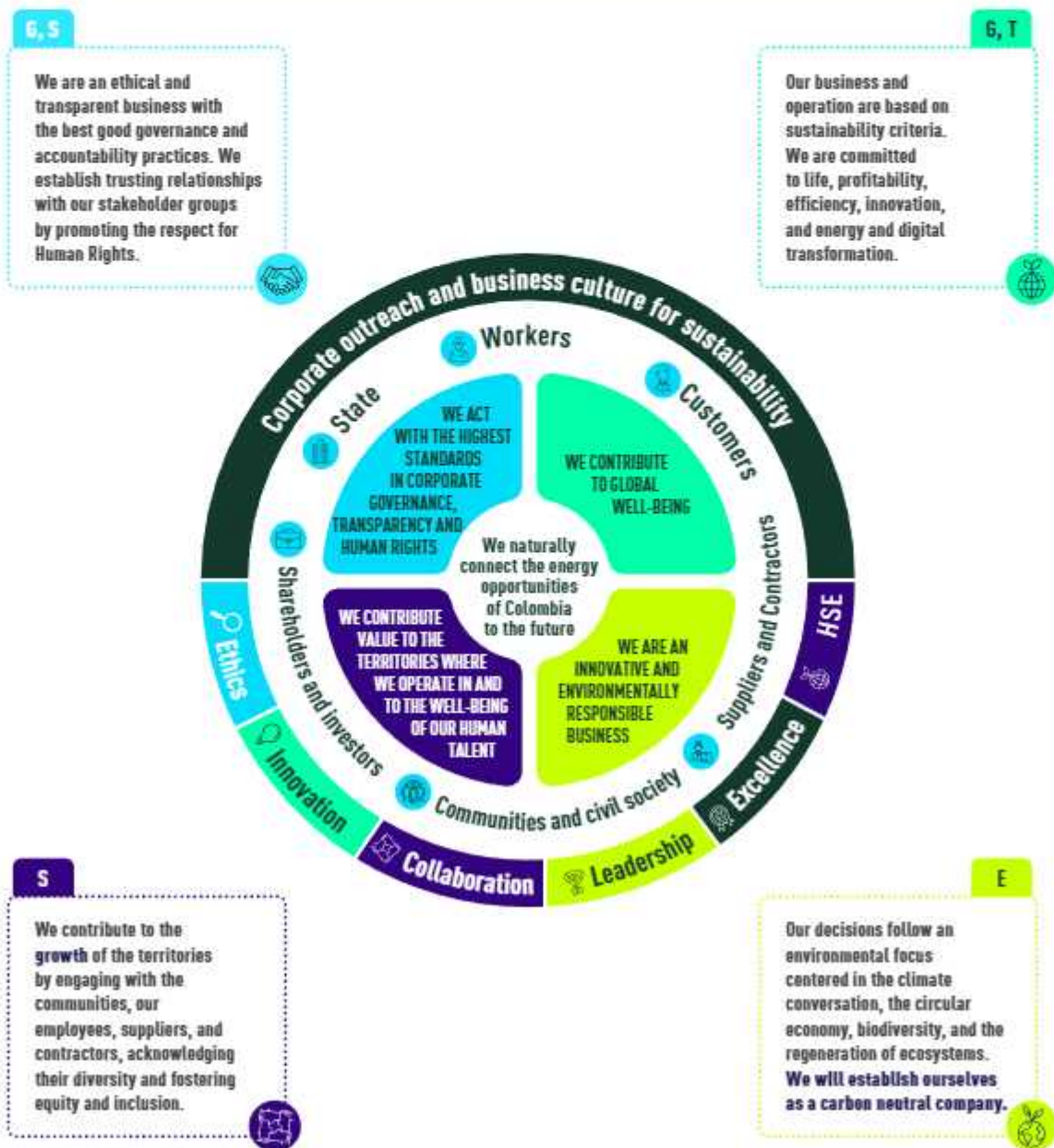
Commitment to Human Rights:
219 service contracts were signed at Cenit, all of which contained a Human Rights clause.

TESG Indicators

Starting **2020**, Cenit took on the corporate commitment to lead its business model on the path of sustainability and energy transition through the TESG strategy.

For Cenit, TESG is an enabling perspective of the corporate strategy, a competitive advantage, and the most valuable tool to create value for Stakeholders, based on four **(4) objectives**: environmental, social, governance, and technology and innovation (TESG, as per its English acronym), as illustrated below:

Figure 18. | TESG at Cenit



Source: Cenit.

Table 19. | Cenit's T ESG Results

Purpose	Indicator	Results
Objective 1: We contribute to global well-being	TRIF	The indicator closed at 0.18 in 2022 for Cenit, against a limit of 0.45.
	Installed capacity in MW of renewable energy and total consumption of renewable energy	By 2022, Cenit had 60.6 MW of solar energy installed capacity, with a photovoltaic solar system for the generation of energy from the San Fernando plant and smaller plants.
Objective 2: We are an innovative and environmentally responsible business	Reduction of accumulated GHG emissions between 2020 - 2025	In 2022, GHG emissions reduced by 6,631 tons of CO ₂ e as a direct consequence of the Nodo Llanos optimization projects, electrification in Copey, the San Fernando solar park, smaller plants, and the energy efficiency program.
	Carbon Neutrality	The milestone of certifying the entire midstream segment was met (Cenit and its subsidiaries), and it was the first in the Oil & Gas value chain to obtain this global certification.
	TESG Stations	Initiation of the T ESG Stations program to materialize circular economy practices at Cenit's stations.
Objective 3: We add value to the territories where we operate and to the well-being of our human talent	C - Siembra	This program contributes to the goal set by the country of planting 180 million trees between 2018-2022. In 2022, Cenit contributed a total of 463,630 trees to the goal.
	Execution of the socio-environmental investment program	The socio-environmental investments executed in 2022 amounted to 63.3 BCOP, of which 51.7 BCOP correspond to voluntary and 11.6 BCOP to mandatory investments.
Objective 4: We act with the highest Corporate Governance, Transparency, and Human Rights standard	% of compliance with the activities schedule for the 2022 Corporate Governance model,	The Corporate Governance model's activities schedule was 100% completed, particularly the following activities: implementation of best corporate governance practices; inventory of the organization's alignment and engagement committees and meetings, authority delegation manual; engagement model between midstream segment companies.
	% of operations submitted to a human rights impact analysis	In 2022, Cenit conducted an exercise to assess human rights impacts in the southwestern part of the country, in the departments of Nariño, Putumayo, and Valle del Cauca. This geographical area represents 13% of the subsidiary's operation.
	# people/hours dedicated to human rights training	Virtual course on general Human Rights and Company information, main international due diligence standards, and internal tools to implement the corresponding good practices. The course had a duration of roughly 445 hours and a total of 891 participants (82% of Cenit's employees) completed it.
	Transparency Perception Index	In the measurement taken annually by the Office of the Inspector General of the Nation (ITA Indicator), the Company scored 95% in its Information Transparency Index.

Source: Cenit.





Refining and Industrial Processes

The fourth link in the hydrocarbon business line value chain is the refining and petrochemical activity, which includes the Barrancabermeja and Cartagena refineries and Esenttia. This activity transforms the crude oil coming from the fields (domestic and imported) into value-added products.

In 2021, the downstream segment's (refining and petrochemical) strategy was updated for the period of **2022-2040**. Accordingly, new strategic options were generated to complement, refocus, and prioritize some aspects of the previous strategy update in 2017 (with a perspective towards 2020-2030), as well as add new options to increase the competitiveness and diversification of the business given the new challenges in the industry, using levers such as TSEG, growth in the energy transition, decarbonization, competitive returns, and cutting-edge expertise.

The identified options were prioritized and classified into:

- i) **Necessary initiatives** related to the achievement of clean fuels, sustainability, and maximizing asset value.
- ii) **Large commitments** that would give options to the business and that require additional analysis to propose an outlook.
- iii) **Real options** offering low capex stocks to explore potential new sources of high growth and rely on technological advancement, the market, and regulation to scale them.
- iv) **Discarded** in which the options that are not aligned with the direction of the Company's strategic objectives or the trends of the segment at an international level are dropped.

As part of the large commitments, the best option to increase the value of the surplus virgin naphtha from the Cartagena refinery must be determined. One of them is a reformer towards aromatics, which presents an attractive economic case in all scenarios, with a moderate capex that can be deployed in different stages over time, generates a large production of hydrogen and a significant impact on the decarbonization of the refineries. Another option is an **olefin complex**, which allows greater integration in the downstream segment, improves Colombia's trade balance, and whose market demand is growing healthily.

As an option to **diversify into low emission businesses**, the configuration of assets can be transformed to meet the demand for emerging products in the medium and long term, such as green/blue hydrogen, and part of the refineries can be reconverted to produce biofuels, increase the trading of base oils, petrochemicals, and industrial products, increase the production capacity of Ecodiesel, diversify the business, and become pioneers in mechanical and chemical recycling (through circular economy initiatives).

The segment's strategy seeks to build resilience in current operations and capture new value in petrochemicals and new businesses. It generates a portfolio of strategic options targeting an EBITDA of more than **1 BUSD** and a competitive ROACE by 2040.

79

In the traditional business, the purpose is to maintain the function of supplier to meet the fuel demand in Colombia, optimizing the current capacity while generating profitability for the Ecopetrol Group, through comprehensive planning, adding value to domestic crude oils, and capturing efficiencies (with the ambition of reaching US Gulf Coast levels), in compliance with the quality and decarbonization paths embarked on. All of this, accompanied by the Zero Fuel Oil initiative as part of the combined margin improvement.







In terms of diversification, the objective is to sustain the size of the business by creating attractive, cost-efficient, and flexible investment options to integrate fuels into petrochemicals and biofuels, depending on the evolution of demand and of the market.

From the TESG perspective, the goal is to capture opportunities in new low-emission businesses, in line with the energy transition, transforming the configuration of assets to meet the demand for emerging products in the medium and long term (e.g., green/blue hydrogen), and become leaders on circular economy related matters, by being "first movers" in recycling issues involving the territories in which Ecopetrol operates. The sustainability of the operations will improve through integrated water management, aligned with the Group's water neutrality strategy and social and environmental responsibility at the center of these efforts.




With regard to cutting-edge expertise, the development of human talent remains a priority to face the new challenges of the energy transition through adaptive leadership.

In 2022, important progress was made in the development of the segment's strategy, including the following:

Strengthening of the traditional business

-  Development of conceptual engineering for the baseline fuel quality projects at the Barrancabermeja refinery and the U107 naphtha polishing reactor at the Cartagena refinery to adapt the facilities to the 10 ppm sulfur content legislation applicable to regular gasoline by 2030.
-  Signing of contracts for additional production of refinery grade propylene (PGR, as per its Spanish acronym) from the refineries to the Esentia subsidiary to increase the stake in Petrochemicals.
-  Zero fuel oil: formulation of alternatives to increase asphalt production at the Barrancabermeja refinery and start production at the Cartagena refinery.
-  Zero fuel oil: development of phase I for the expansion of the coke unit at the Cartagena refinery.
-  Commissioning of the U-001 original crude oil unit at the Cartagena refinery, as part of the completion of the crude plant integration project, which raised the nominal load of this refinery to 230 KBD.
-  Approval of the startup of the initiative to change technology to HF alkylation at the Cartagena refinery.

Diversification

-  **In biofuels:**
 - (i) The feasibility study was conducted for the possible production of diesel (HVO) and renewable jet fuel at the paraffin plant in the Barrancabermeja refinery.
 - (ii) The study to define the growth path of the Ecodiesel subsidiary was completed.
 - (iii) A 5% palm oil co-processing test was conducted at the loading point of the U-109 diesel hydrotreater in the Cartagena refinery.
-  **In petrochemicals:** the study on the best alternative for petrochemicals in Cartagena between the olefin and aromatic complexes was completed.
-  **In low emissions:**
 - (i) The pilot test was conducted for the production of green H₂ at the Cartagena refinery.
 - (ii) Phase I of the green H₂ production projects was approved at the refineries, with an estimated capacity of 10 MPCED each.

TESG:



In decarbonization:

- (i) The startup of the blue H₂ production initiative by bottoms gasification at the Barrancabermeja refinery was approved.
- (ii) Well studies for CO₂ storage began in the Magdalena Medio area.
- (iii) The 2023-2050 decarbonization study was completed for the downstream segment in scopes 1, 2, and 3, which seeks to build a detailed route to achieve the goal of carbon neutrality in operations by 2030 and 2050.



In terms of electricity self-generation with renewable energy, solar park projects are being developed at both refineries to reduce energy demand.

• In circular economy:

- (i) Phase I of the Esenttia chemical recycling project for the future production of 3 kilotons per year (or kilo tons per annum, KTA) was presented.
- (ii) Progress was made in the construction of the 12 KTA mechanical recycling plant at Esenttia.
- (iii) Tests were conducted on the reuse of clarification sludge from the Barrancabermeja refinery.
- (iv) Pyrolysis tests were conducted in the cracking and coker pilot plant.
- (v) The construction and demolition waste (RCD) pilot test was conducted at the Cartagena refinery.
- (vi) The use of hazardous waste such as oily and non-hazardous sludge increased.
- (vii) Organic waste composting initiatives and PlastiTon were leveraged.

• In water neutrality:

- (i) The study to define the road map towards water neutrality by 2023-2050 for the downstream segment was completed.
- (ii) The construction of the digital integrated water management tool started for the Barrancabermeja refinery.
- (iii) A third party conducted a water footprint verification for both refineries, in accordance with the NTC-ISO 14046 standard.

• In solid waste: catalyst regeneration tests began to reuse them in the process.

• In digitization:

- (i) The startup of advanced analytics initiatives was approved for both refineries.
- (ii) The Visual Mesa tool came into service at the Barrancabermeja refinery for the online optimization of electricity generation to improve efficiency in natural gas consumption.

Cutting-edge expertise

The following measures were adopted to prepare human talent in the downstream for the challenges associated with the 2040 Strategy:

- (i) The implementation of process simulators for the training of panel builders.
- (ii) The first equipment retooling phase of the segment in energy transition and digitization.
- (iii) The graduation of the first class of operators and supervisors, refining and petrochemical process engineers in Barrancabermeja.

Downstream Segment Investments

Barrancabermeja Refinery

The investments made by the Barrancabermeja refinery in 2022 amounted to 210 MUSD, related to reliability (142 MUSD), regulatory legal compliance (44 MUSD), HSE (11 MUSD), and TESG (13 MUSD) initiatives and projects.

In line with the segment's strategy, the following projects stand out as part of the execution for the year:

1. **Reliability in the amount of 142 MUSD:**
The plant experienced 22 shutdowns in 2022, mainly due to maintenance of primary systems, including the following: maintenance of the UOP I Train, tanks, industrial services, SG5100, orthoflow, HCM, Tea 6, Rotors, major equipment, environmental train, skimming prime D, U650 specialties, U150 topping, HDT prime G, sour water projects, flue gas cooler and UOP I bottoms circuit, B2880 sulfur II system, UOP II availability, UOP I retrofit technological update, marpol stage I and 1:1 replacements of internal R2702, UOP I riser, U2100 static equipment, U650, rotary equipment stage I, crude boards, 35kV ring cables, UOP I pressure vessels, drum D1216.
2. **Regulatory legal compliance in the amount of 44 MUSD:**
New WWTP wastewater treatment plant, SOX emissions control sulfur plants, fuel quality baseline to ensure regulatory compliance in terms of quality, 10 ppm sulfur diesel and regular motor gasoline, and technological improvement at the HCM plant.
3. **Health, safety, and environment (HSE) in the amount of 11 MUSD:**
containment of the riverbank, replacement of mobile emergency response equipment, safeguarding furnaces, and a new laboratory at the Barrancabermeja refinery.
4. **TESG in the amount of 13 MUSD:**
Technological changes to the lighting systems at the Barrancabermeja refinery, blue hydrogen production studies with gasification and decarbonization using CCUS.

Cartagena Refinery

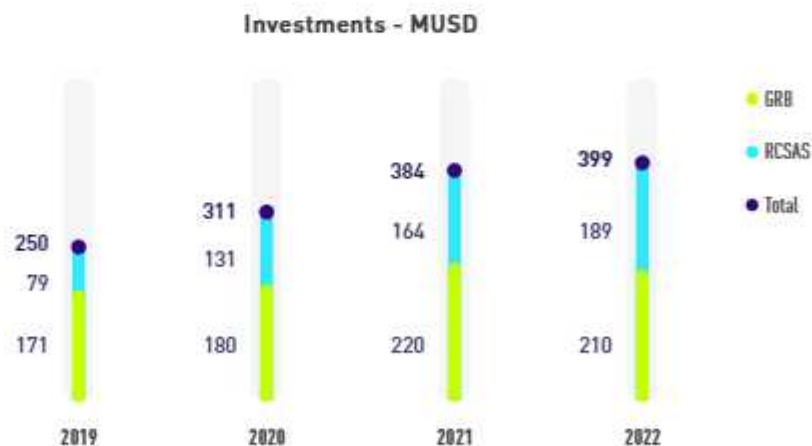
The Cartagena Refinery invested nearly 189 MUSD in 2022, associated with reliability (115 MUSD), HSE (26 MUSD), and regulatory legal compliance (5 MUSD) initiatives, and growth and profitability projects (43 MUSD).

The following projects stand out in **2022**, which were structured with the purpose of guaranteeing:

- **Reliability in the amount of 115 MUSD:**
 The plant experienced nine (9) shutdowns due to maintenance of primary systems, such as: major maintenance (MM) of the U-111 coker, MM of U-100 Crude oil, MM of Turbines, MM of the U-108 and U109 diesel hydrotreaters, MM of the U-115 hydrogen, MM of compressors, MM of boilers, and MM of tanks.
- **Health, safety, and environment (HSE) in the amount of 26 MUSD:**
 Fire-fighting system for the Cartagena terminals, LPG comprehensive management, water supply system for boilers, and cargo lifting facilities.
- **Regulatory legal compliance in the amount of 5 MUSD:**
 Conversion plan to clean technologies and discharge management at the Cartagena refinery, improvements to the U-107 unit (incorporation of CDTECH Technology), and automatic air conditioning filtration system.
- **Growth and profitability in the amount of 43 MUSD:**
 Interconnection of crude oil plants, increase in capacity of the U-111 coking unit to 50KBD, energy consumption optimization, and U-111 drum heating facilities.

The graph below shows the consolidated investments for the refineries in the last five (5) years.

Figure 19. | Investments by the Cartagena and Barrancabermeja Refineries



Source: Vice Presidency of Refining and Industrial Processes.

In 2022, the refining segment generated a load of 357.5 kbd, the highest in the last 3 years, and an annual historical gross margin record of 21 USD/BL. In 4Q22, consolidated cargo accounted for 344.9 kbd and the integrated gross margin closed at 19.9 USD/BL.

The segment's results were leveraged by operating and commercial tactical strategies that led to:

- i) Adjustments in the shutdown execution strategy to capture the benefits of the market environment, and ensure operating stability at the refinery units and petrochemical plants.
- ii) Integrated planning of the logistics chain to maximize the consumption of national crude oil in the refineries.

The following benefits were also captured:

- i) High differentials in the product basket versus Brent.
- ii) An efficient commercial strategy to capture business opportunities.
- iii) Higher levels of PGR (Refinery Grade Propylene) delivered by the refineries to Esenttia.

Since July 2022, the Ecopetrol Group has been supplying gasoline with less than 50 ppm sulfur content, and since January 1, 2023, also diesel with 15 ppm sulfur content (under Resolution 40103 on Fuel Quality), thanks to the operational and logistics adjustments made in 2021 and 2022.

Trading

Trading is the last link in the hydrocarbon business line value chain, generating value through excellence in the purchase and sale of quality products, and committed to TSEG and a solid engagement with customers and suppliers.

84

(GRI 2-6-b-i)
(SFC 7.4.1.1.1.II)

The products marketed include the following:

- Crude oil
- ACPM or diesel
- Fuel oil
- Jet fuel
- Regular and premium motor gasoline
- Kerosene
- Aviation gasoline or avigas
- Petrochemical, chemical, and industrial products

(GRI 2-6-b-i)

In the 2022 period, no Stakeholder Groups associated with the Commercial and Marketing Vice Presidency, that is, customers and suppliers, raised any questions regarding the products marketed.

The trading subsidiary in Singapore, Ecopetrol Trading Asia, was inaugurated in September 2022, which will increase the commercial value of Ecopetrol products. This adds to the Company's improved geographical position at the international level.

Ecopetrol Trading Asia will focus on the diversification of clients in China and India, access to new markets in Asia, third-party trading, and the exploration of opportunities for new sustainability businesses and carbon credit markets. With this same objective in mind, the subsidiary Ecopetrol US Trading was incorporated in the US in November 2022, which will begin operations in the third quarter of 2023.



Crude oil

Ecopetrol's portfolio of international crude oil clients consists of 23 active companies, **74%** refiners that use crude oil as raw material to load their refineries and produce refined products for different uses, and the remaining **26%** marketers, whose engage in commercial intermediation to access new clients and markets.



Liquid fuels



Ecopetrol currently serves **43 clients**, 31 national and 12 international. The latter purchase gasoline, diesel, jet fuel, marine diesel, fuel oil, kerosene, and avigas. National customers must be authorized by the MME and/or the Energy and Gas Regulation Commission (CREG) to make purchases.



Petrochemical and industrial products

Ecopetrol currently serves **149 clients** between transformers and traders. The products purchased by the clients include solvents, lubricant bases, paraffins, polyethylene, asphalt, sulfur, propylene, aromatic tar, and coke, which serve as raw materials to manufacture a large number of products for end consumers, such as glue, paint, plastics, candles, and car lubricants.



Fuel transport

Shippers must meet the requirements set forth in Decree 1609 of 2002 or in the regulations that modify, replace, or add to it. The activity of transporting petroleum-based liquid fuels by polyduct is governed by the transport regulations issued by the MME for this purpose. Vessels transporting petroleum-based liquid fuels travelling by sea or river must carry a single waybill.



Sale of controlled products

In accordance with current regulations, as a national public entity, Ecopetrol is not required to hold a Certificate of Clearance from Technical Narcotics Reports (CCITE). Neither is it obliged to exert any control over the agents in the fuel distribution chain registered in the fuel distribution chain information system (SICOM), nor is it responsible for verifying the CCITE of its clients.

However, measures against said products have been adopted at Ecopetrol, such as requesting a certificate of clearance from clients prior to signing a contract or sales order, and periodic verification of the reported quota against the quantities dispatched. A detailed procedure for the trading of controlled chemical substances and products has also been implemented.



Product labeling and delivery regulation

In line with the National Action Plan for the Management of Chemical Substances in Colombia established by the Ministry of Environment and Sustainable Development (MADS), in 2022, Ecopetrol's HSE division has continued with the implementation plan of the globally harmonized system, with processes for updating chemical product safety data sheets and training for workers.

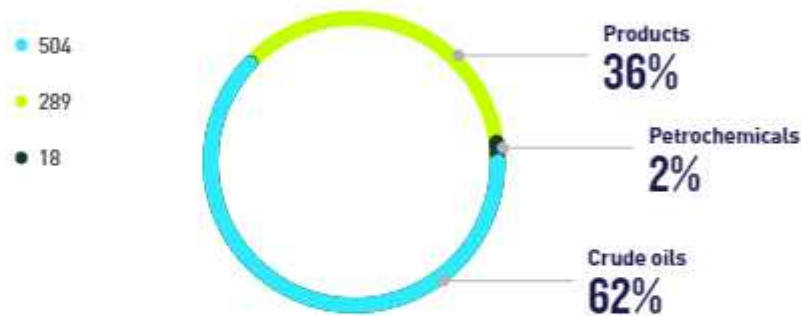
In 2022, the Company participated in the socialization of the web application known as National Inventory of Chemical Substances for Industrial Use - INSQUI. The lines of work under the 2022-2024 chemical risk management operating plans were reviewed and structured in the last quarter of 2021 and, by the end of 2022, the planning and scheduling of said plans were being finalized.

Operational Results

- Ecopetrol S.A.'s general income for 2022 amounted to 29.989 BUSD, growing more than **47%** compared to the previous year.
- Exports represented 13.329 BUSD in 2022, growing **42%** in comparison with the previous year.
- Domestic sales in BPD (barrels per day) for 2022 were as follows:
 - Gasoline: 124,396
 - Diesel: 110,909
 - Jet fuel: 23,603

In 2022, crude oil sales accounted for a **62%** share of total sales, products 36%, and petrochemicals 2%.

Figure 20. | Sales Volume (unit)



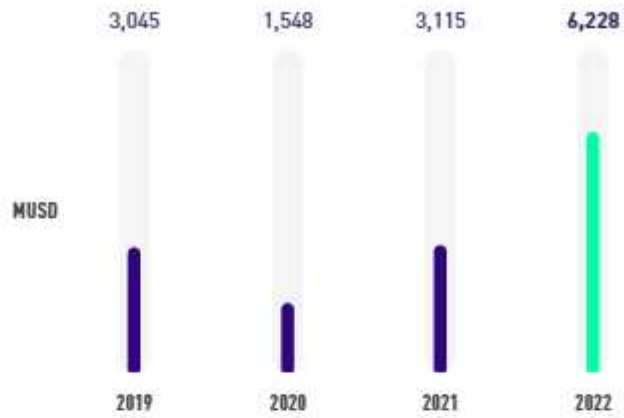
Source: Commercial and Marketing Vice Presidency.

Figure 21. | Ecopetrol S.A.'s Revenues for 2014-2022 (in BCOP and MUSD)



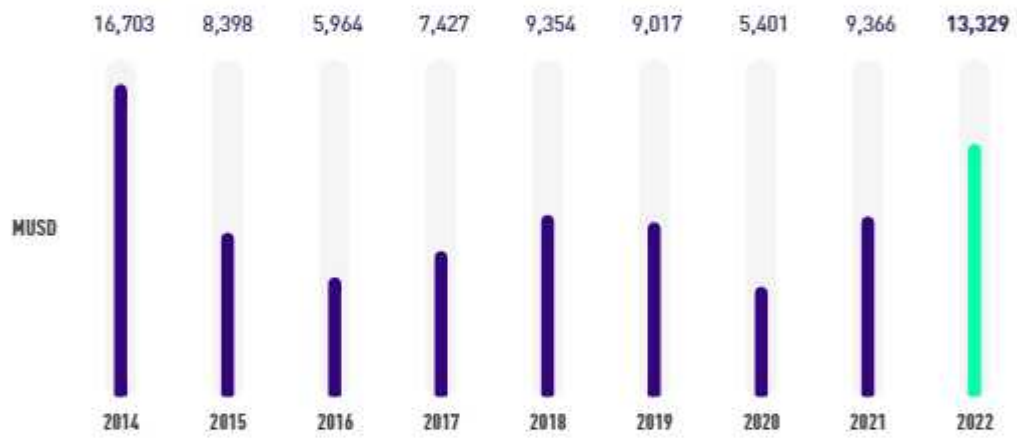
Source: Commercial and Marketing Vice Presidency.

Figure 22. | Ecopetrol S.A.'s Imports in the Last Four Years



Source: Commercial and Marketing Vice Presidency.

Figure 23. | Ecopetrol S.A.'s Exports for 2014-2022



Source: Commercial and Marketing Vice Presidency.



III.4.2. Low Emission Solutions Business Line

This entails the development of the LPG, biogas, energy management, hydrogen, renewable energy, carbon capture, storage and use, and geothermal businesses, among others. The objective is to conceptualize and build a comprehensive energy solutions portfolio for the diversification and decarbonization of the Ecopetrol Group's operations, leveraging cross-cutting synergies with other business lines.

Strategy

In 2022, the Vice Presidency of Gas became the Vice Presidency of Low Emission Solutions with the purpose of adding a portfolio of comprehensive energy solutions to the Ecopetrol Group's DNA, based on natural gas, LPG, biogas, renewable energies, hydrogen, and CCUS. This portfolio is essential to achieve the goal of carbon neutrality in Scopes 1 and 2 by 2050. Similarly, the reduction of fugitive emissions, energy efficiency programs, and the incursion into natural climate solutions and energy storage infrastructure will be critical to achieve this objective.

This integrated portfolio will contribute to equitable access to energy products as follows:

- i) Achieving the goal of connecting more than **300,000** new households in vulnerable areas in the country by 2035, by establishing partnerships with entities, territorial entities, and distributors in the social gas program, which will benefit more than 10.5 million families currently using natural gas and 3.5 million using LPG.
- ii) By supplying products such as gas, biogas, and hydrogen to promote sustainable mobility and support Comprehensive Mass Transportation Systems (SITM) in large and medium-sized cities.
- iii) The promotion of energy efficiency.
- iv) The creation of energy centers in the country (Caribe, South, Central, Orinoquia).

The strategic plan evolves with natural gas as a central component. This energy source is essential for the country's self-sufficiency and to enable the energy transition with an expected **30%** stake in production for the Ecopetrol Group by 2030, as well as a gas portfolio that has been allocated capital and activity in the **last two (2) years**, allowing exploratory successes and the optimization of basic curves, thus reducing the uncertainty thereof. The above was complemented with key actions in Piedemonte's development strategy (e.g., with the integrated Piedemonte train model and a lateral well drilling strategy) to continue drilling in mature fields, identifying competitive opportunities for easy connection to existing facilities, the identification of projects for the connection of offshore wells with the National Transportation System, the expansion of the transportation infrastructure, the generation of optional sources (e.g., micro LNG, biogas, and regasification projects), trading operations and development of regional gas markets, among others.





Moreover, it contemplates the permanent optimization of the Ecopetrol Group's energy systems, both electrical and thermal, increasing the reliability of energy supply for its own operations, incorporating operating improvements and new technologies to advance in the energy efficiency program, which is expected to reduce at least **10%** in consumption by 2040, and materializing synergies with Group companies, especially ISA, which holds relevant expertise and experience on the matter.

Solutions will be implemented along the same lines to decarbonize current operations, with technologies to capture, store, and maximize the CO₂ currently emitted into the atmosphere, and incorporating renewable energy sources, with an estimated capacity of **900 MW** in operation and construction by 2025. The evaluation of energy market diversification opportunities will continue into 2030.

Low-emission hydrogen will become more relevant as of the development of a profitable and competitive line to decarbonize and diversify the business with investments that will allow production of up to one (1) million tons per year by 2040, of which **40%** would be associated with green H₂, **30%** to blue H₂, with the incorporation of CCUS technologies, and **30%** to white H₂, with applications in own operations, sustainable mobility as a complement to gas, mixing with gas in pipeline transportation systems, and the generation of new products.

To achieve the above, the Investment Plan approved for 2023 includes a commitment to the energy transition, with investments between **5.9** and **6.8 TRILLION COP** in renewable self-generation, hydrogen, transmission and toll roads, and energy efficiency. In addition to its commitment to gas self-sufficiency, with investments between 3.6 and 4.1 TRILLION COP, mainly for exploration and production projects in the plains in Piedemonte, the continental Caribe region, and offshore.



The proposition of this integrated vision is as follows:

- (i) To develop the business of selling individual and isolated products to offering integrated low-emission energy solutions adaptable to market needs.
- (ii) To contribute to the democratization of energy with a social perspective for all our products and to the reliability of supply to the different sectors and populations, by implementing a decisive plan for social gas and energy in vulnerable populations, isolated areas, and bordering areas, facilitating the development of new regions beyond those directly associated with our current operations.
- (iii) To grow regionally with this portfolio, maximizing synergies with infrastructure subsidiaries such as ISA and CENIT, positioning the Ecopetrol Group as a leader in solutions adaptable to different requirements that contribute to the integration of energy markets and facilitate the transfer of knowledge.
- (iv) To leverage the reduction of emissions in our operations (Scopes 1 and 2) and those of our clients (Scope 3), by acting firmly in the mitigation and reduction of climate change effects.

Performance

During 2022, the gas and LPG business delivered solid financial results with an EBITDA generation of more than 1.0 BUSD, representing a growth of ~30% compared to 2021 and an EBITDA margin of more than 50%. This, as a result of the increase in production of both products and the execution of commercial gas strategies focused on protecting the customer base and expanding into new markets in Colombia, which led to the renewal of **100% of the contracts** during the gas trading process of larger fields. Similarly, the gas portfolio was strengthened with the discoveries of new fields in the Colombian Caribe, Uchuva-1, and Gorgon-2.

In order to develop businesses with a social conscience, in 2022 we executed the necessary activities to connect 13,447 ¹⁰ families in rural communities in the departments of Arauca, Casanare, Antioquia, Santander, Atlántico, Norte de Santander, and Meta, benefitting more than **24,000 families** since the inception of this program in 2019. Also, the first micro LNG import pilot was successfully conducted, covering roughly 60% of demand in the Buenaventura District with imported natural gas. With regard to LPG, the price applied by Ecopetrol during the first half of 2022 generated benefit/savings in the amount of -42 MUSD.

10 Of this total, 7,683 are certified connections and 5,764 are in the certification process.

Energy Management

In the energy management business, the Ecopetrol Group was able to fulfill its energy efficiency goal in advance, with a **3%** reduction in electricity demand by 2022. Since 2018, electricity demand has been optimized by **44.7 MW**, representing an improvement of 5.5%. By 2022, the Group's operations had achieved a reduction of **16.8 MW**, mainly through the incorporation of good operating control practices in the midstream - such as optimizing the number of pumps to be used in a pumping station - and downstream segments - with optimizations in the electric pumping systems -, and the implementation of technological improvement initiatives with a high impact on the optimization of the electrical energy demand in the upstream, such as the installation of new horizontal pumping systems, improvements in the hydraulic networks, and nanotechnology in the water disposal and injection processes of the Rubiales field, and the reduction of losses in the electrical transmission lines in the Orinoquia Regional Vice Presidency.

Given the acquisition of **51.4%** of ISA, and considering that there are regulations that establish restrictions

on the vertical integration of generators, distributors, and traders, or companies that are vertically integrated and jointly undertake more than one of these activities, Ecopetrol began the divestment process in Ecopetrol Energia and the process for hiring the new energy trader, which will serve the Ecopetrol Group's commercial lines until December 2036. The selected agent was Gecelca S.A. ESP, to whom Ecopetrol Energia's long-term energy supply contracts were assigned as of September 1, 2022. This transition took place in accordance with the deadlines established by regulation and with no operating impact on any of the assets.

Furthermore, energy supply contracts were renegotiated, representing **14%** of the non-regulated energy (ENR, as per its Spanish acronym) purchased for the Ecopetrol Group's portfolio. The PPI indexer was limited to a maximum variation of 15.5% per year for 2022, and the energy supply price was renegotiated with a decrease in opex starting 2023.



(SFC 7.4.1.1.1.IV)

Renewable Energies

In the case of the renewable energy business, Cenit acquired the 4.3 MW Cantayus small hydroelectric plant (PCH, as per its Spanish acronym) in **2022**, which began delivering energy to this Company's Cisneros station. Similarly, the **26 MW** Brisas Solar Ecopark in Huila came into operation and 65 MW of solar energy was purchased 15 years out. These three (3) projects began supplying energy to the Ecopetrol Group in December and closed the year with a cumulative incorporation of 208 MW of non-conventional renewable energy into its self-generation matrix, with an incorporation of **96 MW** in 2022.

In addition to the projects that came into operation during the year, the construction of solar ecoparks began in the Cartagena refinery (23 MW), as well as La Cira (56 MW) and Cenit's solar farms (23 MW), which will come into operation in 2023. The Castilla, San Fernando, and smaller solar ecoparks achieved a reduction of 17.9 kTonCO₂e and savings exceeding **13 BCOP**.

(SFC 7.4.1.1.1.IV)**Hydrogen**

In 2022, the pilot project for the production of green hydrogen was successfully conducted using a 50kW pilot electrolyzer powered by solar energy at the Cartagena refinery, with a production of **20kg H₂/day** and an investment of approximately **1 MUSD**. This pilot began in March and lasted six (6) months. The results will serve as the basis for the next steps in the development, implementation, and strengthening of the Company's strategic hydrogen plan. The electrolyzer is currently located at Esentia's facilities.

On the other hand, partnerships with **six (6) international companies** were established in May: Total Eren and EDF from France, Siemens from Germany, H2B2 from Spain, Empati from the United Kingdom, and Mitsui from Japan, to consolidate the development of the strategic hydrogen plan as follows:

- | | | |
|---|---|--|
| (i) Creating value to achieve cost competitiveness in hydrogen production by ensuring timely access to technology and low-cost renewable energy sources. | (ii) Structuring financing and investment opportunities for the projects in the portfolio. | (iii) Generating demand through the identification of markets and off takers in early stages. |
|---|---|--|

In terms of own operations, the development of two (2) green hydrogen megaprojects remains, with a 60 MW electrolysis capacity, for a production of **9 ktonH₂/year** each, of which **60%** will be used for consumption in the refineries and the remaining **40%** for the production of hydrogen derivatives. In 2022, the first phase of the maturation model was approved for both megaprojects, which then continued to phase 2. The investment decision for these projects will be made in the fourth quarter of 2023 and the commissioning would take place in 2025.

Sustainable Mobility

In terms of sustainable mobility, the company is working on a comprehensive sustainable program involving alternatives both for the Group's operations as well as the generation of partnerships with third parties for the incorporation of new mobility options in the country. Some of the actions adopted for Ecopetrol's operations include a portfolio for workers, ranging from electric vehicles and bicycle rental, technological applications, and analytics to promote the efficient and shared use of vehicles, to the incorporation of electric and gas vehicles for the personnel to travel to the different areas in the country and for the operation of own fuels. A total of **248 vehicles** have been incorporated to date, 87 in 2022, which represents 25% of the total fleet used by the Ecopetrol Group.



In terms of partnerships with third parties, a **3-year** agreement was entered into between Ecopetrol and Automotores Toyota Colombia S.A.S. to conduct mobility tests in a green hydrogen vehicle at the first Caribe Innovation and Technology Center in Cartagena. Similarly, the first sustainable land mobility pilot is being developed together with FENOGE (Fund for Non-Conventional Energies and Efficient Energy Management) and Fanalca, consisting of the replacement of fossil sources with green hydrogen for the promotion and advancement of efficient energy management, in combination with Bogotá's Integrated Public Transportation System (SITP).

Additionally, a memorandum of understanding was signed with 12 companies from the gas and financial sectors to structure a financing scheme of up to 75% of the purchase value of new heavy-duty vehicles running **100% on natural gas**. The initiative known as the Kandeo program seeks to finance the acquisition of approximately 4,000 vehicles in the first three (3) years. The investment for the financing of this program is estimated at -800 BCOP, of which Ecopetrol will contribute -60 BCOP. This project will allow the reduction of more than 220,000 tons per year of CO₂, and the objective is to generate new demand for natural gas.

CCUS

(SFC 7.4.1.1.1.IV)

In **2022**, the roadmap and the work plan began to be designed for the subsoil characterization of EOR-CO₂ (Enhanced Oil Recovery) technological alternatives, dedicated geological storage, and in depressurized reservoirs. Six (6) pre-feasibility studies were conducted with different consultants (SLB, HATCH, SPROULE, BEICIP) to estimate CO₂ storage capacity and potential for incremental production with improved recovery.

Total Investments in 2022

Detailed monitoring of gas and LPG investments began as of 2021, previously included under exploration and production. Investments made in 2022 amount to **539 MUSD**, close to 12% of the Group's investments for 2022, and represent an increase compared to the 232 MUSD invested in 2021. With regard to the Company's subsidiary, Invercolsa, investments in the amount of **10.2 MUSD** were made in 2022, representing a **21%** increase compared to the investment of 8.4 MUSD in 2021.

Investments in gas exploration and production projects have shown a growing trend in recent years and are mainly concentrated in Piedemonte, the Caribe offshore and onshore, and in the Permian account, outside of Colombia. In terms of activities, the investment focused on the profitable growth of the gas business in current assets, on ensuring the future commitment to offshore, and on guaranteeing infrastructure investments, while ensuring the reliability, integrity, and continuity of the operation.

Investments in renewable energy and hydrogen accounted for ~ **60 MUSD** by the end of 2022; 29 MUSD represented in investments in the La Cira solar ecoparks, the refineries of Cartagena and Barrancabermeja, Quifa, and Casabe and Cantagallo; as well as hydrogen (H₂) and small hydroelectric plants (PCHs), among some of the most important projects. Cenit's acquisition of the Cantayus PCH represented -10 MUSD and the investment in the construction of the Brisas solar ecopark by partner AES, through the PPA scheme (*Power Purchase Agreement*), amounted to -21 MUSD.

Business Results

- 1 In volumetric terms, gas and LPG sales showed an increase of close to **6%** compared to 2021.
- 2 Natural gas demand covered by Ecopetrol grew by 40 GBtud (10% of the goal set for 2030). Similarly, the market share increased from 79% to 80%.
- 3 With the update of long-term portfolio projections, volumes increased by **2%** in the strategic plan scenarios defined in 2021.
- 4 The Ecopetrol Group's reduction of equivalent GHG in 2022 stood at **416,672 Kton CO₂**, including 156 Kton CO₂ of energy efficiency, 9 Kton CO₂ of renewable energy, and 251 Kton CO₂ related to flaring, leaks, and venting.
- 5 With respect to renewable energies, **208 MW** were incorporated at the end of 2022, including 95 MW purchased from the grid, in the Ecopetrol Group's self-generation matrix, thanks to the commissioning of three (3) projects in 2022, one (1) PCH and two (2) photovoltaic solar projects.

The management of subsidiary Invercolsa in 2022 recorded sustained growth in its financial results, with an EBITDA generation of **490 BCOP** as of December 2022, +13.4% compared to the previous year, with levels similar to the periods prior to the pandemic, mainly due to:

- i) Higher profitability per m³ and higher volumes of natural gas.
- ii) The opening of the market in 2021, as well as revenue increases from installations and transportation due to the higher levels of activity.

Liquefied Natural Gas (LNG) Liquefaction Capacity

The Ecopetrol Group does not have natural gas liquefaction capacity or infrastructure to date. A micro LNG pilot is currently being executed in Buenaventura (Valle del Cauca), consisting of LNG importation and small-scale regasification (-320 BBTUD). The incursion into liquefaction projects is considered in the future, which will depend,

among other circumstances, on the exploratory success of offshore projects to allow natural gas surpluses that can be liquefied for export purposes after covering domestic demand; however, these alternatives are still in the preliminary evaluation stage and participation in liquefaction terminals has not yet been confirmed.

III.4.3. Transmission and Toll Roads Business Line



This includes the electricity transmission, toll road infrastructure, and telecommunications businesses, with the purpose of enhancing their performance and capturing synergies with other business lines, maximizing the value of these types of businesses, which are characterized by developed and implemented operating models and regulated returns.

ISA, under the Ecopetrol Group, is a multi-latin company with more than **55 years** of experience and track record, operating in the electric power, toll roads, and telecommunications and ICT businesses, and contributing to the quality of life of millions of people in Colombia, Brazil, Chile, Peru, Bolivia, Argentina, and Central America through the work of its **4,713 employees** in its 51 companies.

ISA undertakes its business based on **technical excellence**, the efficient provision of services, the creation of sustainable value for its Stakeholder Groups and for society as a whole, based on best corporate governance and ethical practices.

ISA and its companies are committed to mitigating and adapting to climate change, the rational use of resources, the development of programs that generate a **positive impact** on the environment, the comprehensive development of the communities where it operates, and the quality, reliability, and availability of the services it provides.

After more than five decades of leadership in the region, ISA has transcended the physical act of connecting one point with another to connecting people and making each connection an inspiring act.

Overall Figures



Source: ISA.

Table 20. | ISA's Infrastructure

Energy: 48,766 km and 104,438 MVA of transmission infrastructure in operation.
Energy: 69,934 km and 135,526 MVA, including ISA's stake in other companies.
Energy: 7,048 km and 20,237 MVA of transmission infrastructure under construction.
Toll Roads: 860 km of highways in operation. 714 km in Chile, 146 km in Colombia. Due to the conclusion of the Ruta del Bosque concession, there will be 553 km in operation in Chile and 146 km in Colombia as of February 2023, for a total of 699 km.
Toll Roads: 136 km of highways under construction.
XM: Coordination of the operation and administration of the Colombian electricity system market.
Internex: 56,463 km of fiber optics in operation and 1,087 customers.

Source: ISA.

ISA has been a member of the Dow Jones Sustainability Index for **eight consecutive years**, and it is included in the Sustainability Yearbook for the sixth year. Additionally, in **2022**, it remained in the Dow Jones Sustainability Index MILA Pacific Alliance for the fifth consecutive year.

ISA was recognized with the quality seal granted by the Colombian Stock Exchange for its transparency, corporate governance, and commitment to the stock market for the **sixth consecutive year**.

In 2022, it was also awarded the Empresa ALAS20 recognition in Colombia.

Table 21. | ISA and its Companies

Consolidated financial figures (trillion COP)	2022	Variation % 2022 vs. 2021
Operating income	13.4	19.7
Net profit	2.2	32.2
EBITDA***	8.6	11.3
EBITDA margin	64.1%	-7.1
Assets	78.7	27.6
Liabilities	49.2	24.3

Source: ISA.

Table 22. | ISA

Separate financial figures (trillion COP)	2022	Variation % 2022-2021
Net profit	2.2	32

Fuente: ISA.

Table 23. | Financial Figures by Business

Figures by business (trillion COP)	Income**	%	EBITDA***	%	Assets	%
Electrical energy*	10.0	74.9	6.8	79.4	62.5	78.8
Toll Roads	2.9	21.5	1.6	18.5	15.1	19.2
Telecommunications and ICT	0.5	3.6	0.2	2.1	1.1	2.0
Total	13.4	100	8.6	100	78.7	100

Source: ISA.

* EBITDA restated since 2018 due to methodological approval with Ecopetrol. This EBITDA is defined as profit from operating activities plus operating taxes, plus depreciation, amortization, and impairment of non-financial assets.

** Includes income from the periodic tariff review in Brazil.

*** Electrical Energy includes XM.

Conexión Jaguar Program

Conexión Jaguar is the sustainability program adopted by **ISA** and its companies to contribute to the conservation of biodiversity, the mitigation of climate change, the development of rural communities, and the connectivity of the jaguar's (*panthera onca*) natural habitats in Latin America. Chile, on the other hand, focuses on the protection of the puma's (*Cougar Concolor*) natural habitat since they do not have jaguars in that country. The program provides technical and financial support so that the best forest initiatives, in the hands of rural communities, issue and market certified carbon credits, under the highest international standards for the financing of conservation.



The Program seeks to contribute to the fulfillment of the global goals established in the 2030 agenda, such as the Paris Agreement, the Biodiversity Agreement, and the Sustainable Development Goals, specifically goals 13, 15, and 17: Climate Action, Life on Land, and Partnerships for the Goals.

Results in Latin America

- **Nine (9) ongoing projects**, five (5) in Colombia, two (2) in Peru, one (1) in Brazil, and one (1) in Chile.
- More than **820 thousand hectares** with conservation or restoration actions.
- Emission reduction potential of more than seven (7) million tCO₂e [between 2013 and 2055].
- Improvement of soil and water conditions.
- Various activities to support **322 families** in Colombia, Peru, and Brazil.
- Record of more than 180 fauna species in the camera traps placed in the project areas, of which 14 are cataloged under some degree of threat, according to the International Union for Conservation of Nature (IUCN).

Recognitions:

1	2	3	4
El Espectador BIBO Award Commitment to a Sustainable and Healthy Habitat Category	Portafolio Awards Environmental Protection Category	Boscares Award in Peru Forests and Climate Change Category	ProActivo 2022 Award in Peru Energy Category

(ECP015)

Supply Chain

Sourcing Model and Strategy



Goods and services at Ecopetrol are procured through a strategic model based on cross-cutting and enabling supply, with the purpose of ensuring the effective, responsible, and sustainable supply of goods and services in the long term, with segmented costs, opportunities, performance, quality, and level of risk, thanks to the efforts of trained and motivated human talent, and in an organizational and technological environment guided by best practices.

The sourcing strategy involves five (5) capacities:

- Demand, inventory, and logistics management:**
Articulation between investment and supply plans to maximize value generation in the supply chain, migrating to a predictive demand model to ensure the optimal level of inventory and service opportunity.
- Business models:**
Development and implementation of commercial instruments with the main suppliers for the implementation of innovative and efficient initiatives, focusing on standardization, long term perspectives, and the life cycle cost.
- TESG:**
Development and improvement of local and regional capacities, considering the productive vocations of the regions in which Ecopetrol S.A. operates, considering supply strategies and contractual and market practices aligned with the environmental agenda.
- Technology and Innovation:**
Improving supply chain efficiency through technology, analytics, and 4RI capabilities, as well as migration to the cloud, in accordance with the digital transformation roadmap.
- Smart market management:**
Decision-making based on simulation of probable scenarios, drawing from the analysis and monitoring of risks and market variables.

The effectiveness of the model is measured by strategic coverage and value generation, indicators that focus on leveraging organizational goals. Similarly, metrics have been incorporated to ensure the sustainable management of the supply chain, such as the local hiring of labor and procurement of goods and services, diversity and inclusion, diverse productive ventures, and decarbonization.

The model does not apply to the trading of raw materials and products, energy management, comprehensive logistics solutions, financial operations, new businesses, or the management of agreements and sponsorships, given that these areas already have specific processes.



Total Procurement at Ecopetrol S.A.

The Company contributes to economic reactivation from the supply function by increasing the procurement of the necessary goods and services to leverage corporate goals. In 2022, Ecopetrol increased the procurement of goods and services by **47%**, this being the highest since the transformation of the supply model in 2017, closing at approximately **24.7 TRILLION COP**.

(ECP014)

Table 24. | Total Procurement at Ecopetrol (COP)

Origin	2018	2019	2020	2021	2022
National	10,102,266,315,612	12,882,710,288,371	12,213,041,342,863	15,823,530,409,025	23,575,703,425,030
Foreign	338,376,995,881	486,974,439,366	756,651,341,559	1,044,413,202,432	1,144,809,406,978
Total	10,440,643,311,493	13,369,684,727,737	12,969,692,684,422	16,867,943,611,458	24,720,512,832,008

Source: Vice Presidency of Supply and Services.

Note: Figures include Reficar's procurement.

(WEF 29E)

Procurement as a Lever for TESG

Supply management had implemented initiatives that contribute to the sustainable economic development of the territories, in a way that 86% of total labor associated with the contracts is hired locally.

Similarly, the inclusive employment strategy has been strengthened, offering more than **19,857** opportunities to people with disabilities, youth, ethnic groups, victims of armed conflict, and women.

In terms of goods and services, the initiative to purchase from various productive entrepreneurs has been promoted, in order to contribute to the growth of MSMEs, by doing business in the amount **57,245 BCOP** with more than 974 companies between 2020 and 2022, and generating 6,098 non-oil inclusive jobs (without exclusive dedication to Ecopetrol S.A.), benefiting more than **30,000 families**.

In the environmental dimension, the supply chain has developed an environmental agenda focused on four **(4)** thematic areas since 2019: decarbonization, waste and materials, water and biodiversity, and two **(2)** cross-cutting lines: procurement, and information and technology, which became the vehicle to contribute to organizational goals.

71,970 tCO₂e were reduced in the supply and services chain in 2022, which corresponds to 10% of the total baseline of emissions generated in this area. 34,176,254 kg of waste were sold, of which **94%** was ferrous waste that was fully used in the steel industry, growing by 5% compared to 2021. **98%** of ferrous waste was used with the management of the circular economy. The first supply circularity model was launched, which allowed the transformation of 173,462 kg of ferrous waste into 348 racks and 8 cantilevers, with a 100% circularity indicator, and also represented 401 MCOP in avoided costs. 3 BCOP were generated through the repurchasing of turbo machinery equipment with

manufacturers, which are sold for remanufacturing purposes, thus extending the serviceable life thereof. 5,771 tons of waste from the administrative services categories were used, corresponding to **76.5%** of the total waste generated in the operation.

With technology as the core, the supply function manages high-level expertise on macro trends, sectors, and industries through the prospective analysis of internal and external variables, framed under the co-creation of scenarios that support decision-making in negotiation and/or procurement strategies, generating solutions that transform the way in which procurement strategies are addressed.

The supply function seeks to guarantee the commitment to TSEG by Ecopetrol suppliers, for which it incorporates sustainable criteria for the qualification, selection, and evaluation of suppliers throughout the process, in order to measure their commitment in these aspects. Some of these factors include:

- Technical certifications, management systems, HSE, and compliance.
- Promotion of local supply.
- Local supply of goods and services.
- Environmental criteria (decarbonization, waste, water, biodiversity, among others) to be evaluated in the selection methods and in the execution of the contracts.
- Inclusive employment.
- Supplier performance, evaluating their level of compliance with contractual obligations.

With the objective of strengthening the sustainable territorial growth of the country, supply management developed the Regional Impact Model for Ecopetrol's operations in the areas of influence, based on **six (6)** dimensions:

- i) Production
- ii) Commercial links
- iii) Tax contributions
- iv) Generation of employment
- v) Increase in household income
- vi) Alignment of social investments with development plans



This model allows for:

1. The quantification of the Company's economic and social contribution in the territories where it operates by participating in aggregate indicators at the local level, as well as the indirect effects on external indices such as the Municipal Performance Measurement (MDM, as per its Spanish acronym) calculated by the National Planning Department (DNP) based on results, capacities, and management, which shows a variation of **51** to **57** points between the national result and that of the municipalities where Ecopetrol operates.
2. The identification of future projects in municipalities with high potential for transformation where Ecopetrol's activities can truly impact the quality of life of its inhabitants, thus strengthening sustainable territorial development.
3. Simulations of production increases or decreases, or of new clean energy businesses in local economies.
4. Guiding the dialogue with national authorities, including mayors and governors, with regard to social and economic benefits.

In terms of local procurement, Ecopetrol has designed a Strategic Plan for Goods and Services, Labor, and Various Productive Ventures that have contributed to the strengthening of local economies by promoting sustainable growth and boosting the competitiveness of suppliers, while sourcing products and/or services from the local market under the criteria of legality, transparency, plurality, competitiveness, reasonable prices, free and fair competition, and equitable inclusion.

Savings Generated

As a consequence of the economic situation faced by the industry, the supply function has not only focused on the development of competitive advantages but also on the generation of greater value, with the management of savings throughout the supply chain as one of the main mechanisms. An indicator has been established to this end, to measure the savings generated by supply strategies, contract renegotiations, and purchases, when applicable, as well as logistics management and inventory optimization, in addition to the income obtained by circular business models, austerity measures, and the optimization of goods and service purchases orders.

The evolution of the indicator and the percentage of compliance with annual goals are specified below:

Table 25. | Savings Generated

Year	Real	Goal	Compliance with the Goal	BCOP*
2019	9%	5%	180%	2,024
2020	9%	8%	112%	2,590
2021	7.83%	7.5%	104%	2,287
2022**	7.1%	5%	142%	2,639

Source: Vice Presidency of Supply and Services.

* This amount includes savings for the year plus savings in previous periods that can be capitalized in the year (lags).

** Note explaining the decreasing target: an unusual inflationary scenario arose in 2022, with historical highs in different categories associated with the Oil & Gas industry and important increases in Producer Price Index (PPI), Consumer Price Index (CPI) for food products 27.8%, and a CPI of 13.12%. This inflationary environment impacted the direct cost of services, making it more difficult to generate savings in this environment of rising prices.

Since 2017, accumulated savings of more than **11.1 TRILLION COP** have been recorded. In 2022, 1,455 BCOP were generated compared to the 24.7 TRILLION COP assigned; **58%** of the savings (0.84 TRILLION COP) had an impact on CAPEX and **42%** (0.61 TRILLION COP) corresponded to OPEX, in addition to the 1.058 BCOP in previous periods capitalized in 2022. Furthermore, **126 BCOP** were generated in savings due to value generation initiatives, consisting of 56 BCOP in income from the sale of non-required goods, **37 BCOP** in synergies with Ecopetrol Group companies, and **24.5 BCOP** due to the digitalization of the process to improve contract execution.



Suppliers and Contractors

(GRI 2-6-b-ii)
(WEF 17)

Ecopetrol invites the companies and/or legal entities that are able to meet the specific needs to participate according to their magnitude or complexity. The bidders are chosen from different sources of information, such as market intelligence and the Ecopetrol Supplier Information System (SIPROE).

(GRI 11-10-8)

This functionality includes recruitment mechanisms to understand suppliers and contractors more in depth, looking into their legal, financial, and technical capacity, experience, and compliance with HSE requirements; this information is queried on **23 restrictive** and control lists to identify findings or possible coincidences with counterparts and their related parties. Additionally, for each selection method and in accordance with the recruitment strategy developed, the bidders must comply with the specific requirements requested.

(GRI 2-6-b-ii,
2-13)(WEF 17)

Table 26. | Number of contracts managed by Ecopetrol S.A.

Year	2018	2019	2020	2021	2022
Number of contracts	12,213	10,488	8,521	9,887	7,208

Source: Vice Presidency of Supply and Services.

Note: The contracts managed correspond to goods and services contracts in force each year [celebrated, executed, or in the closing stage].

(GRI 2-6, 2-13)
(WEF 17)

Table 27. | Number of contractors by the end of each year

Origin	2018	2019	2020	2021	2022
National	3,575	3,660	3,264	3,285	3,281
Foreign	242	266	216	269	272
Total	3,817	3,926	3,480	3,554	3,553

Source: Vice Presidency of Supply and Services.

With regard to the procurement of goods and services, in 2022, the Company had 4,379 suppliers authorized in SIPROE in the different goods and service categories required. A total of **7,208** contracts and **3,553** contractors were managed, **92%** of which correspond to contracts with domestic suppliers and the remaining **8%** to contracts with foreign suppliers.

Local Recruitment by Contractors

(GRI-2-8)

44,939 contractor workers were reported as of December 2022, dedicated exclusively to the activities hired by Ecopetrol S.A., **86%** of which (38,841 workers) correspond to local labor in the regions where the Company operates.

Table 28. | Number of Ecopetrol S.A.'s Contractor Employees

Number of workers distributed according to origin	2019	2020	2021	2022
Local*	29,462	28,579	35,948	38,841
Non-local**	6,249	5,385	5,495	6,098
Total workers	35,711	33,964	41,443	44,939
Percentage of employment of local workers	83%	84%	87%	86%

Source: Vice Presidency of Supply and Services.

*Local labor: person accrediting his/her residence with the certificate issued by the municipal mayor's office.

**Non-local labor: workers residing in other regions of the country. Should the required workforce not be available in the municipality where the projects are being developed, the necessary labor will be recruited from neighboring municipalities.

(GRI 2-13,
413-1, 11-15-2)
(WEF 17)**Table 29.** | Number of contractor employees distributed by gender

Region	Year			
	2019	2020	2021	2022
Caribe - Pacific	1,208	3,416	3,952	4,001
Female	169	370	464	514
Male	1,039	3,046	3,488	3,487
Central	15,205	15,409	18,673	18,980
Female	3,787	3,682	4,614	4,771
Male	11,418	11,727	14,059	14,209
Oriente	4,614	3,950	6,854	8,058
Female	640	528	825	1,015
Male	3,974	3,422	6,029	7,043
Orinoquía	11,401	8,478	9,360	11,190
Female	2,104	1,629	1,968	2,448
Male	9,297	6,849	7,392	8,742
South	3,283	2,711	2,604	2,710
Female	554	478	507	529
Male	2,729	2,233	2,097	2,181
TOTAL	35,711	33,964	41,443	44,939

Source: Vice Presidency of Supply and Services.

In terms of the prioritization of local labor, Ecopetrol acts in accordance with Colombian legislation when undertaking hydrocarbon exploration and production projects, which provides for the employment of 100% of unskilled labor and minimum 30% of skilled labor. To learn about the detailed evolution of local labor hired by contractors, in accordance with Decree 1668 of 2016, visit the Ecopetrol website or click [here](#).



Ecopetrol was granted **two (2)** recognitions for the implementation of the inclusive employment policy:

- **ANDESCO GRAND SUSTAINABILITY PRIZE – LARGE COMPANIES**, awarded to companies with outstanding practices in six aspects:
 - i) Market – Diverse Productive Ventures
 - ii) Social
 - iii) Labor – Generation of Employment
 - iv) Corporate Governance
 - v) Environmental
 - vi) Best Inclusion Practices

- **2022 VI IBEROAMÉRICA INCLUYE AWARD**, granted by the Ibero-American Network of Inclusive Companies and the Ibero-American Social Security Organization (OISS). This award recognizes the work of companies that contribute to improving the quality of life of people with disabilities and their participation in employment. It values creativity, innovation, and leadership in corporate labor diversity policies.

(GRI 412-2)

Ecopetrol, by means of its internal labor regulation applicable to hired activities, establishes the labor standards to be met by all suppliers when conducting activities for the company. This policy emphasizes on the commitment to respect all human rights, with special consideration of the supply chain:

- Dignified, favorable, and adequate working conditions.
- Freedom of union affiliation and collective bargaining.
- Equal employment and occupation.
- The abolition of any form of child labor.

(WEF 17)

Ecopetrol's main strategies continue to promote the "Labor Inclusion" of people of difficult placement in the activities hired, thereby contributing to the consolidation of fundamental pillars such as equity, equality, and the right to work. In 2022, with the inclusive employment strategy (VLI, as per its Spanish acronym), contractors recruited **19,857** workers of difficult job placement, including 16,237 women, 143 people with disabilities, 1,678 people starting their first job, **1,322** people from ethnic minority groups, and 477 victims of armed conflict.

Table 30. | Inclusive employment (VLI)

LABOR-RELATED GOAL	Inclusive employment (VLI) 2021	Inclusive employment (VLI) 2022
GOAL	15,310 people	Increase the annual accumulated VLI percentage to 22%
REAL	16,622 people VLI / 78,721 = 21%	19,857 people VLI / 88,801 = 22.4%
% OF COMPLIANCE WITH THE GOAL	109%	102%

105

Source: Vice Presidency of Supply and Services.

Local Procurement of Goods and Services

In accordance with Ecopetrol's operating supply model and the applicable regulatory regime, the allocation of contracts takes place within the framework of a selection method, as established in the Company's Procurement Manual, and it similarly provides for the local procurement of goods and services in the areas where the Company operates, for which it has implemented a local goods and services strategy to promote sustainable growth and the competitiveness of local suppliers in the market.

In 2022, local goods and services were procured in the approximate amount of **4.6 TRILLION COP** from suppliers in the municipality or department where the contract is executed, representing **67%** of the total potential procurement¹¹ by Ecopetrol¹² and its partners.

To learn about the evolution of the percentage of local procurement by Ecopetrol and its partners in the different regions of the country between 2018-2022, visit the Ecopetrol website by giving click [here](#).



11 Potential means the procurement carried out by Ecopetrol S.A. in the subcategories identified with local potential + the total procurement reported by the partners.

12 The calculations of local procurement by Ecopetrol S.A. are based on the analysis and measurement of categories with local potential instead of regional.

[GRI 204-1,
11-14-6]
[WEF 18](ODS 8)

Table 31. | Distribution of Ecopetrol's Domestic Procurement (COP)

Local Procurement and Business Environment	2019	2020	2021	2022
[A] Local Procurement and from the Business Environment	7,299,754,112,650	6,209,468,442,326	8,413,035,379,158	11,640,437,310,281
[B] Procurement from the Rest of the Country	5,582,956,175,721	6,003,572,900,536	7,410,495,029,867	11,935,266,114,750
A-B Procurement	12,882,710,288,371	12,213,041,342,863	15,823,530,409,025	23,575,703,425,030
Percentage of Local Procurement	57%	51%	53%	49%

Source: Vice Presidency of Supply and Services.

Note 1: The figures include Reficar's procurement and contracts executed in Bogotá.

Note 2: Local procurement: procurement of goods and services from suppliers registered in the municipality where the contract is being executed.

Note 3: Procurement from the business environment: procurement of goods and services from suppliers registered in other municipalities in the department where the contract is being executed.

Note 4: Total local procurement: local procurement + procurement from the business environment.

Local Procurement Indicator

The objective of this indicator is to measure the impact that both Ecopetrol and its contractor partners have on the procurement of local goods and services in the territories where they operate, in order to increase the participation of local suppliers in the supply chain.

The evolution of the indicator is specified below in terms of the goals set per year, the fulfillment thereof from 2019 to 2022, and the calculation premises for each of the periods:

Table 32. | Evolution of the Local Procurement Indicator

	2019	2020	2021	2022	
Local Procurement Goal	Ecopetrol	38%	25%	57%	65%
	Partners	15%	46%		
Results	Ecopetrol	57% [\$7,299 bn]	34% [\$1,549 bn]	70% [\$4,194 bn] \$ 2,570 bn Ecopetrol + \$1,624 bn Partners	67% [\$4,577 bn] \$3,170 bn Ecopetrol + \$1,407 bn Partners
	Partners	47% [\$2,422 bn]	54% [\$1,508 bn]		
Percentage of Compliance	Ecopetrol	150%	136%	123%	103%
	Partners	313%	117%		
Notes regarding the evolution and calculation premises of the Indicator (if applicable):	Goal does not include procurement from foreigners, the Business Group, or reimbursable expenses.	From foreigners, the Business Group, and reimbursable expenses, as well as contracts executed in Bogotá. For Ecopetrol, the categories and subcategories without local supply available were excluded from the denominator.	The goal is consolidated for Ecopetrol and its Partners. The measurement is taken with respect to Ecopetrol's local procurement potential + total procurement by the partners.	The goal is consolidated for Ecopetrol and its Partners. The measurement is taken with respect to Ecopetrol's local procurement potential + total procurement by the partners. Ecopetrol's local potential is updated and characterized according to the local offer available by region.	

Notes:

- Figures from the First Link as of December 31, 2022.
- In the period between 2019 and 2022, the premises for calculating the Local Procurement Indicator have been evolving and adjusting so that Ecopetrol's impact on the procurement of local goods and services in the regions where it operates can be measured more accurately. In 2021, the Company migrates to an analysis to identify the goods and services with the potential of being procured locally (local potential) in order to deploy actions to promote the local procurement of these lines. The indicator and its respective measurement respond to the procurement behavior of these lines of goods and services.
- The partners began to measure local procurement in 2018, for which they set a goal in terms of increase compared to the previous period and with the purpose of setting a baseline for 2019. In this sense, local procurement goals were set in percentage terms as of 2019 for both Ecopetrol and its partners.



Diverse Productive Ventures Program

For three years, Ecopetrol has promoted the Diverse Productive Ventures (EPD, as per its Spanish acronym) program to contribute to the economic growth of MSMEs, generating opportunities for the consolidation and growth of more than 976 companies and the materialization of business deals in the amount of 57.245 BCOP, thus contributing to the generation of more than 6,098 inclusive, non-oil jobs (without exclusive dedication to Ecopetrol) and benefiting more than **30,000 households**.

Development of Local Suppliers

In 2022, Ecopetrol contributed to the development of local suppliers by training them on social media and digital marketing, advertising, marketing, green businesses, business leadership, innovation and technology, energy transition, among others. Furthermore, the *Emprende con Energía* School was established, which contributed to the closing of business gaps for micro, small, and medium-sized entrepreneurs (MIPYMES), with instructors from different entities, suppliers, and champions of Ecopetrol S.A.'s Diversity and Inclusion Program.

Supplier Segmentation

(WEF 14, 17, 21E, 22E)

Supplier segmentation seeks to capture value in the supply process, in contribution to the **2040 Strategy**, by strengthening interactions with suppliers, optimizing costs, and identifying and defining new strategies and opportunities.

Based on international standards, the supplier segmentation process was strengthened in 2022 through the analysis of **two (2)** new criteria: supplier performance and strategic potential, totaling five (5) criteria for classification:



With this new methodology, Ecopetrol went from classifying its suppliers from four **(4)** to nine **(9)** quadrants, distributed in the three **(3)** hubs listed below:

- 
Key suppliers:
 Those with potential for innovation and technology, with whom the Company seeks to develop a set of goods and services, establish long-term relationships, and generate investments to be more competitive.

- 
Suppliers to be strengthened:
 Suppliers that the Company will work with to increase and improve their performance and maximize their added value.

- 
Challenging suppliers:
 Low-performing suppliers that require more support to maximize their opportunities for improvement in the chain and ensure their operating continuity.

3,345 Ecopetrol suppliers with valid contracts as of December 31, 2021, were segmented in 2022, and differentiated engagement strategies were established for each segment to maximize added value in accordance with the new segmentation methodology. These strategies will be developed throughout 2023 under the framework of the supplier engagement plan.

(GRI 2-29-a)

Engagement with Suppliers

A hybrid (virtual and in-person) supplier engagement plan was designed in 2022. The main activities conducted with suppliers in 2022 include the following:

- (i) Supplier Summit, for the first time, as the Ecopetrol Group.
- (ii) First TSEG Congress.
- (iii) *Somos Colombia* Roundtables.
- (iv) Diversity and Inclusion in the Supply Chain, among others.

To learn more about the activities conducted with suppliers in 2022, as well as the frequency and coverage thereof, visit the Ecopetrol website by clicking [here](#).



Supplier Performance Evaluation

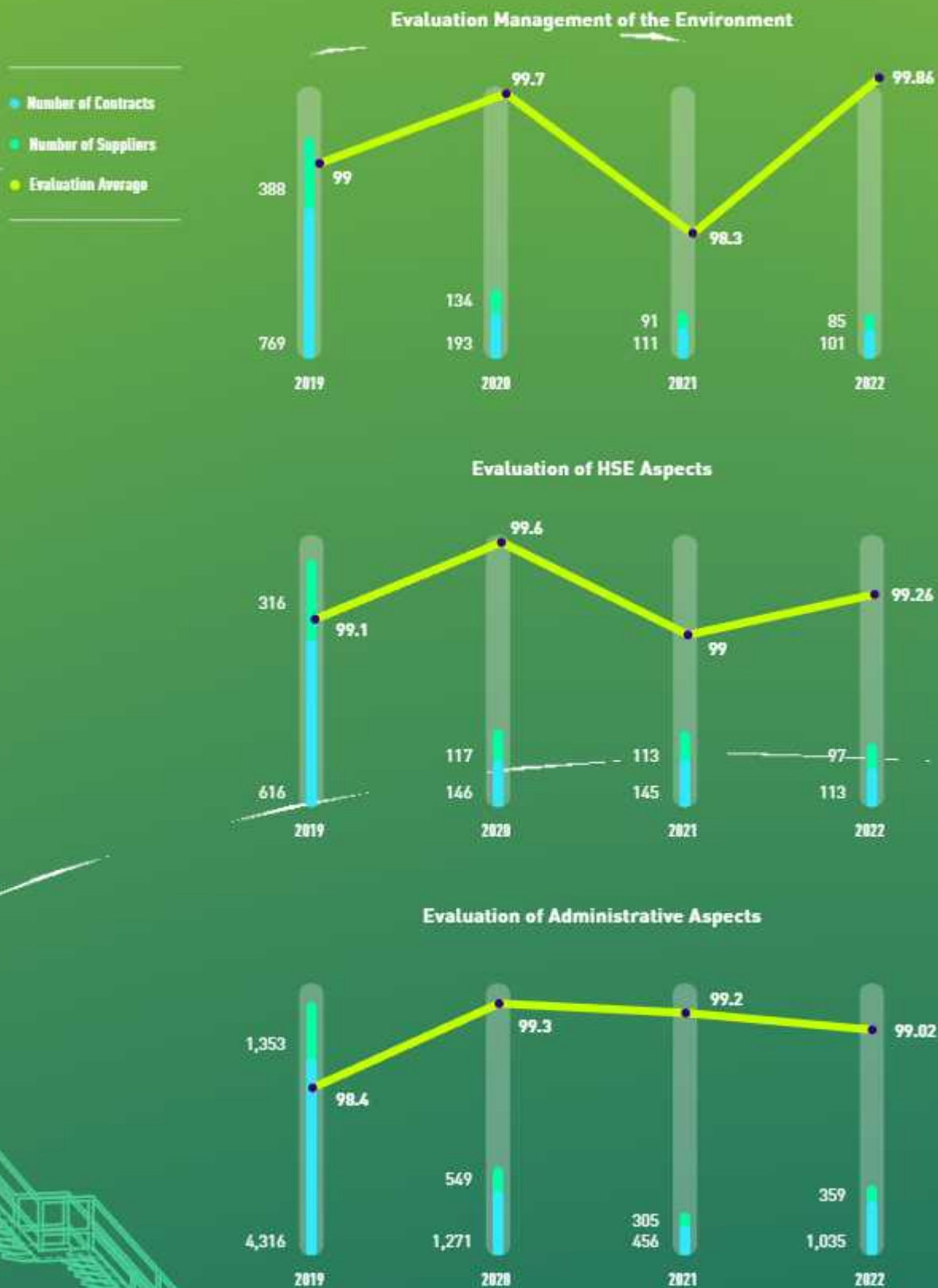
(GRI 414-2)
(ECP016)

Ecopetrol's supply chain process defines any event or action with negative impacts on economic growth and social well-being as being of high risk for TSEG. For this reason, the Company monitors and evaluates critical environmental, social, and economic aspects to ensure harmony in its operations and reduce TSEG risks.

(GRI 308-1,
308-2, 414-1,
414-2, 11-10-8)

Ecopetrol has designed a methodology and different criteria to conduct its supplier performance evaluation to ensure the proper execution of contracts and objectively establish long-term commercial relationships. The criteria appraised include operational efficiency, compliance with deadlines, labor, commercial, and administrative aspects, and environmental management, in order to identify potential social impacts and HSE indicators leading to opportunities for improvement in occupational health and safety and environmental protection.

Figure 24. | Supplier Performance Evaluation Results Cross-cutting Criteria



Source: Vice Presidency of Supply and Services.

Note: Below is the historical evolution of the cross-cutting criteria for performance evaluation (administrative aspects, management of the environment, and HSE).

[ECP 013]
[SFC X]

Ethics, Transparency, and Compliance in the Procurement Process

Ecopetrol requires its contractors, workers, and their related companies to strictly comply with ethical principles and regulations on the prevention of conflicts of interest and ethics, fraud, corruption, bribery, money laundering, financing of terrorism, and free competition practices.

All Ecopetrol contractors declare that they are aware of and comply with the obligations of ethics, transparency, and compliance in the procurement process, which are a key part of the contract minutes and include the following, among others: Code of Good Governance, Code of Ethics and Conduct, anti-bribery laws, accounting standards, and implementation of internal control mechanisms.

Supply management has established a reinforced framework with high standards of ethics, transparency, and due diligence, leveraged on **three (3) fundamental pillars**:



Pillar	Due diligence	Ethics	Transparency
Mechanisms	<ul style="list-style-type: none"> Timely management and attention to ethical alerts. Commercial and labor assurance: 373 labor verifications and support in compliance with labor obligations by contractors. Human resource monitoring: zero authorized officials sanctioned. 56 controls, 32% of which are automatic. Acquaintance with counterparts: verification of suppliers and related parties in 23 restrictive and control lists. 	<ol style="list-style-type: none"> Reinforcement and requirement to comply with the corporate ethics regulation. Code of ethics and conduct. Ensuring the completion of more than 99% of the compliance formats [LAFT and Contractual Integrity Commitment] by contractors. Legality and Transparency Agreement with 14 Chambers of Commerce. Guarantors: CONFECAMARAS and CAMPETROL. 	<ol style="list-style-type: none"> Accountability. Segregation of roles and responsibilities. Corporate model - collegiate decisions with traceability: 74 strategies approved, amounting to more than 20.723 BUSD. Disclosure of supply chain information.

[ECP012]

Promotion of Procurement Mechanisms

Ecopetrol promotes the procurement of goods and services by means of the following mechanisms:



Web page:

www.ecopetrol.com.co/wps/portal/en

which contains a special section for suppliers and contractors informing them about the regulations and the main changes in the supply function.



Supplier Portal in SAP:

consisting of the SIPROE-SLC, SRM, and SUS modules, where suppliers and contractors present their goods and services portfolio, received electronic offers, and store contractual execution documents.





IV. CORPORATE RESPONSIBILITY AND TESG



IV. Corporate Responsibility and T ESG

(GRI 3-1)(WEF 3) **Materiality**





(GRI 3-1-a-i) Ecopetrol periodically conducts a materiality assessment to identify, analyze, and prioritize corporate responsibility and T ESG concerns, including social, environmental, governance, and human rights issues, which may have an impact on the Company's business performance and on its Stakeholder Groups. Positive and negative impacts on the economy, the people, and the environment have been identified to this end, considering factors associated with the relevance of each of the issues for all Stakeholder Groups, as well as the level of risk that inadequate or poor management represents for the Company. Below are some of the internal and external sources of information that provide inputs for the prioritization of said issues:

1. The Ecopetrol Group's corporate strategy and strategic risk map.
2. Analysis of national and global corporate responsibility and T ESG trends. This includes the social, economic, and political context in which the Ecopetrol Group operates.
3. Stakeholder perceptions and expectations: the Company annually conducts the Stakeholder Perception and Expectation Survey, which shows the Stakeholders' assessments and expectations regarding the Company's management efforts. Based on the results of this survey, Ecopetrol is able to analyze the priorities of the groups that it interacts with and create engagement plans to inform and take action on the prioritized issues in the process.
4. Corporate responsibility and T ESG information requirements and requests pertaining to reporting instruments and disclosure of the contents in the Reporting Guide.
5. Mechanisms for filing requests, complaints, and claims.
6. Due diligence exercised on Human Rights.

Given that this exercise takes place every three (3) years, both the materiality of the Ecopetrol Group and that of its Stakeholder Groups is expected to be updated in 2023.

(GRI 3-1-a-i,
3-1-a-ii)

In 2020, the Ecopetrol Group updated its materiality, including inputs from all Stakeholder Groups, as well as the analysis of the risks, challenges, and goals associated with the corporate strategy and its long-term aspiration and vision. As a result of this exercise, potential positive and negative impacts were identified, which were integrated into **28 material elements** classified into **four (4) levels** of prioritization:

-  **Exceptional Elements** are those in which Ecopetrol is or aspires to be a leader and contribute to the advancement thereof at a global level.
-  **Notable Elements** are those in which the Company must adopt best practices and incorporate the most recent trends in its management efforts.
-  **Differentiated Elements** are those matters that Ecopetrol manages in a differentiated way with respect to other state hydrocarbon companies.
-  **Compliance Elements** are the aspects that respond to regulatory and legal compliance.

The results of the materiality analysis were reviewed and approved by Ecopetrol's Board of Directors, and constitute the foundation of the Generating Value with T ESG pillar under the 2040 Strategy: Energy that Transforms.

(GRI 3-2-a)

Below is the prioritization of Ecopetrol's material elements:



Exceptional Elements:

- Climate change
- Integrated water management
- Local development



Notable Elements:

- Biodiversity and ecosystem services
- Circular economy
- Use of alternative energy and sources
- Fuel quality
- Talent attraction, development, and retention
- Air quality
- Occupational health and industrial safety
- Process safety



Differentiated Elements:

- Corporate governance
- Diversity and inclusion
- Business ethics and risk culture
- Operational continuity system



Compliance Elements:

- Transparency and prevention of compliance risks
- Disclosure of information
- Disincorporation of wells and facilities
- Supply chain management
- Cultural heritage (ethnic and archaeological)
- Labor standards
- Management of real estate rights
- Land uses
- Conservation and environmental protection areas
- Public policy
- Comprehensive management system
- Access to information and citizen participation
- Prevention and management of incidents caused by third parties

Stakeholder Groups

Ecopetrol has identified **seven (7) Stakeholder Groups**, as listed below:

Figure 25. | Stakeholder Groups



Source: Vice Presidency of Corporate Affairs.

(GRI 3-1-b)
(SFC XIII)

The detailed Stakeholder subgroups can be consulted by clicking [here](#).



The perceptions and expectations of all Stakeholder Groups are considered for the definition and prioritization of the Company's material issues. To this end, Ecopetrol has adopted different tools to facilitate their participation, in terms of engagement management, corporate responsibility, and TESG.

● **Stakeholder Groups' perception and expectations survey:** in 2022, the Company conducted this survey with a total of **91,534** people and organizations according to the databases and the information provided by the vice-presidencies that lead engagement processes. The survey determined the perception of the seven (7) Stakeholder Groups regarding the fulfillment of Ecopetrol's value pledge to each of them, as well as the prioritization assigned by each of them to the material issues under the Generating Value with TESG pillar of the 2040 Strategy. Click [here](#) to access the 2022 survey results.

● The Citizen Participation Office (OPC, as per its Spanish acronym) creates and facilitates spaces for interaction between the Stakeholder Groups and Ecopetrol and receives and manages petitions, complaints, claims, and requests (PQRS), as well as the commitments deriving from them.

● The Commercial and Marketing Vice Presidency measures the service experience to customers every year. In 2022, **92% of the customers surveyed rated their level of satisfaction between 7 and 10** compared with the general quality of their experience with Ecopetrol (according to the Top Four Boxes methodology), showing results equal to the minimum level of excellence established for this type of study (89%). For its part, the Vice Presidency of Low Emission Solutions also conducts an annual assessment of its natural gas, LPG, and energy customers. In 2022, 91% of the customers surveyed rated their level of satisfaction between 7 and 10 compared with the general quality of their experience with Ecopetrol (using the same Top Four Boxes methodology).



● The Corporate Vice Presidency of Finance conducts shareholder and investor satisfaction surveys through the call center and via the chat service.

In 2022, 13,137 shareholders and investors took the survey, with an average satisfaction result of **90%**.

The Ecopetrol Group's Human Talent Vice Presidency measures the degree of adoption of the Declaration of Culture by applying the "Mirada al Espejo" (Looking into the Mirror) survey, which is conducted every two (2) years and validates the level at which the work team has internalized the Cultural Principles. In between the measurements, a continuous listening strategy has been designed to validate the progress in adoption, using Cultural Pulses to measure aspects such as leadership, work environment, employee experience, and commitment to consolidate the desired organizational culture.

The Vice Presidency of Supply conducts biannual surveys through the Americas contact center to understand the suppliers' perceptions on the engagement channels made available by the Company. Surveys are also conducted at the end of interactions with suppliers to find out their perceptions.

In fulfilling its commitment to respect Human Rights, Ecopetrol has participated in conversations with social and environmental leaders, and has also established protocols in the case of threats made against them by outsiders, and that are directly or indirectly related to the Company.

(GRI 3-1-b)

Stakeholder Groups' 2022 Perception and Expectations Survey

Ecopetrol conducts this survey annually for all Stakeholder Groups to evaluate the Company as a corporate citizen, as well as to find out their assessments and expectations regarding the Company's management efforts towards the Generating Value with TSEG pillar under its 2040 Strategy, represented by the material elements and other corporate responsibility matters. The results of the survey are presented to the Board of Directors' Corporate Governance and Sustainability Committee, and they also serve as an important input for the annual construction of engagement plans for each Group, as well as to conduct the materiality analysis that defines the structure and content of this report. In relation to the material issues, the Company's **seven (7) Stakeholder Groups** reached the following prioritization:

Figure 26. | Suppliers and their workers



Figure 27. | Employees, pensioners, and beneficiaries

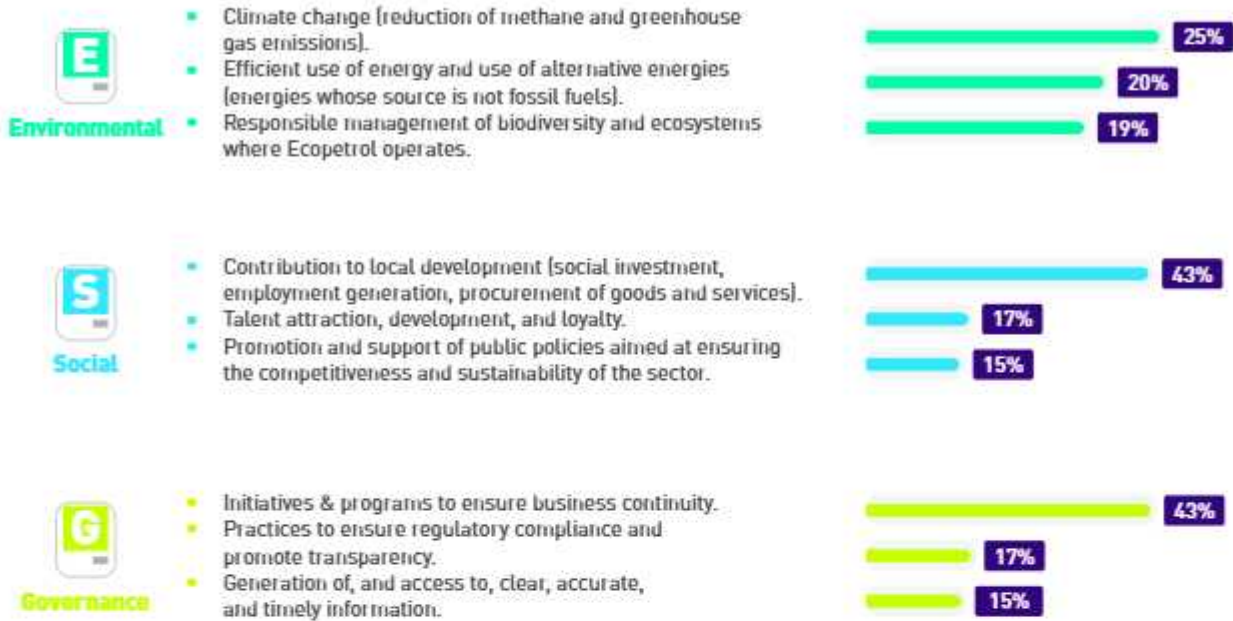


Figure 28. | Associates and partners

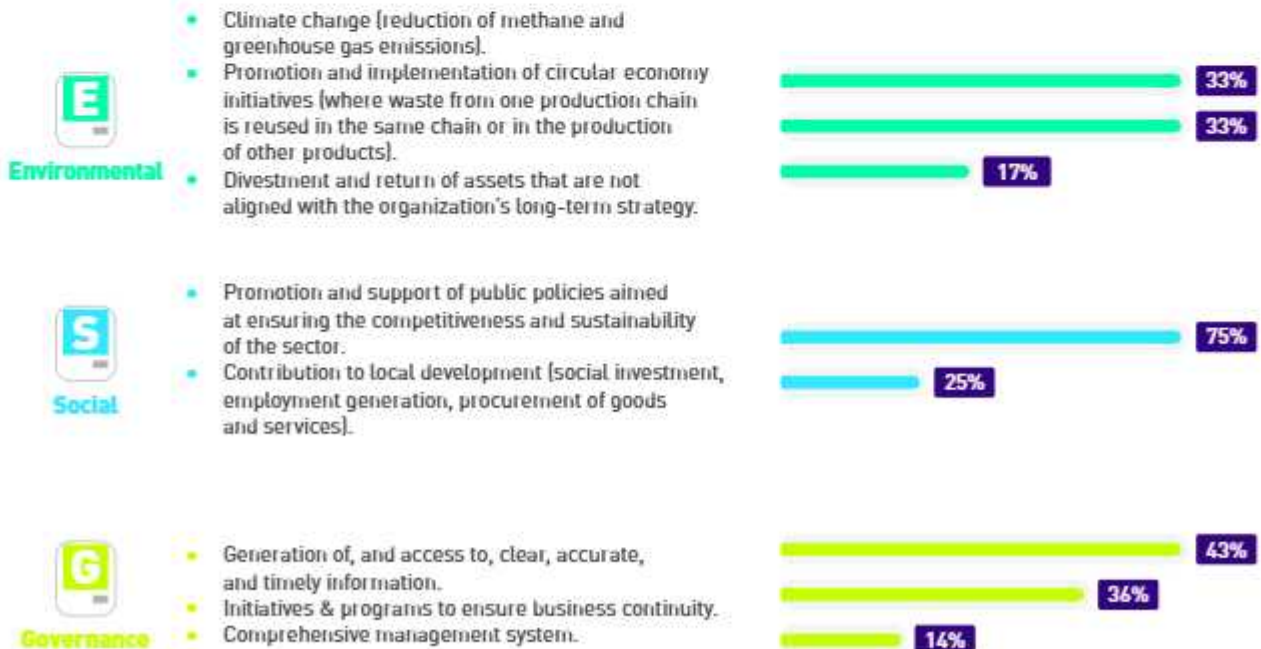


Figure 29. | Society and community

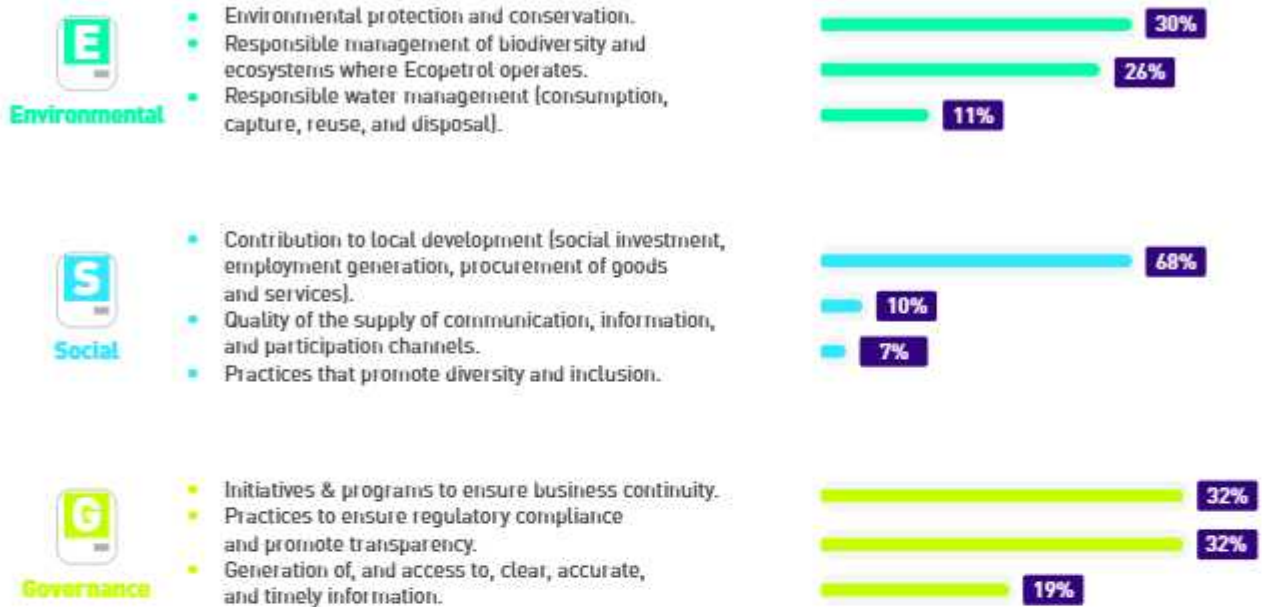


Figure 30. | Shareholders and investors

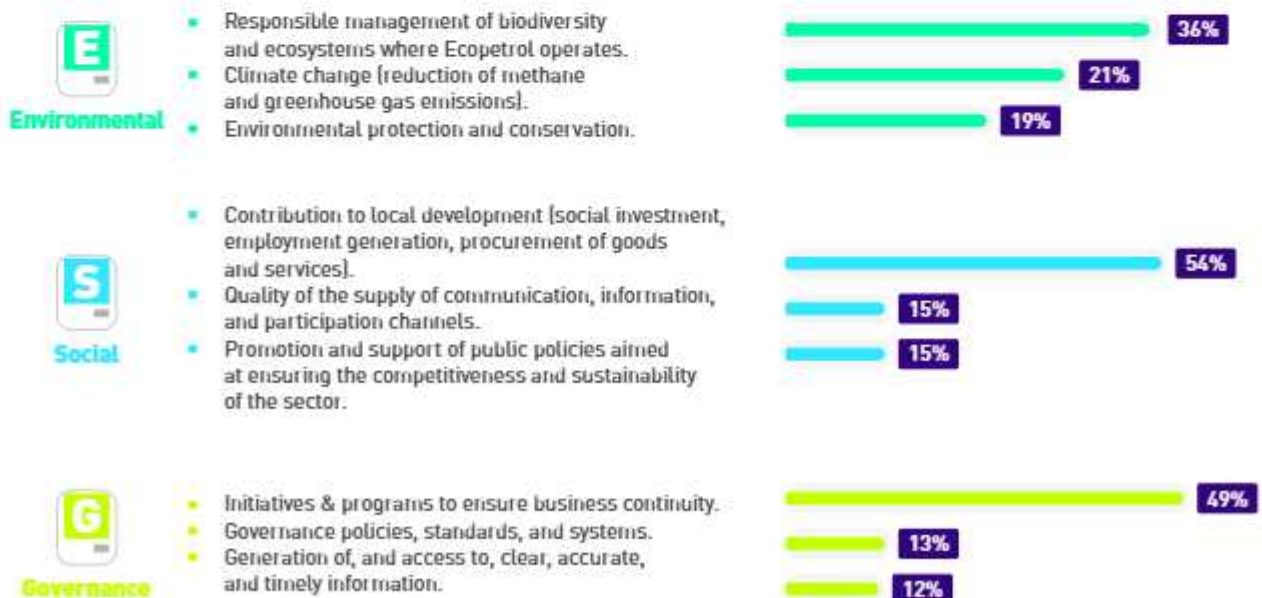


Figure 31. | Local state

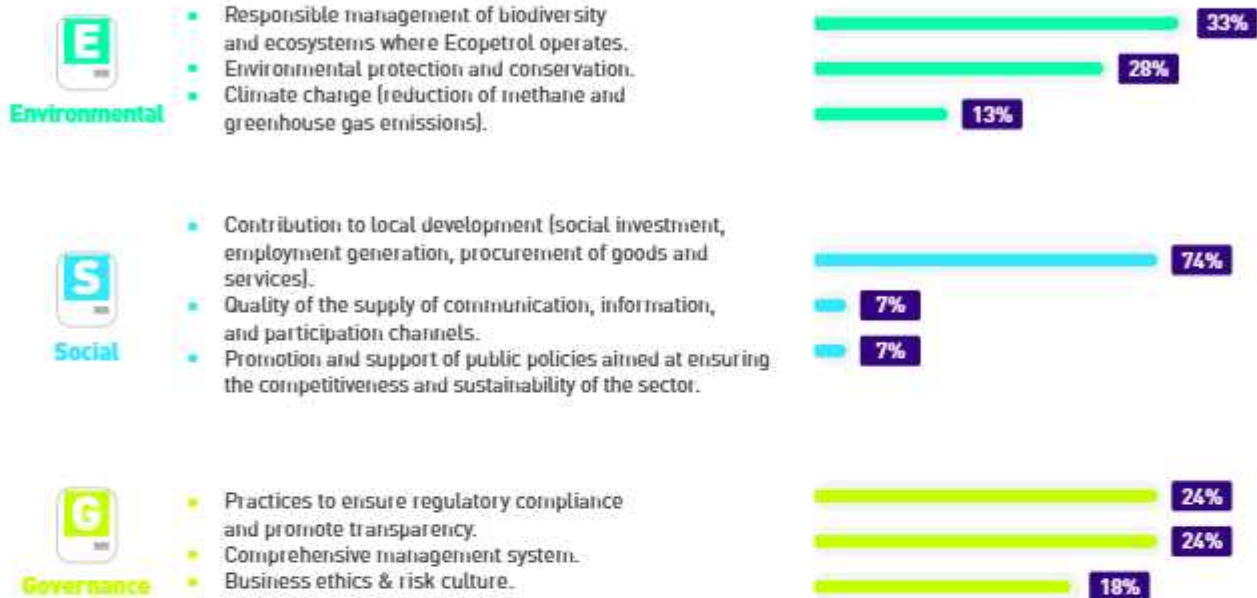


Figure 32. | Customers



IV.I. Governance



(WEF 1)

IV.I.I. Corporate Governance

(GRI 2-9-a)

The Ecopetrol Group and Ecopetrol's Governance Structure

For the Ecopetrol Group, Corporate Governance is the set of rules and practices that govern the decision-making process among the governing bodies of a company for the generation of value. The corporate governance model materializes the set of rules and practices applicable to the decision-making process of the governing bodies at Ecopetrol and defines the articulation and engagement mechanisms with the Group's companies.

Accordingly, the corporate governance model establishes the decision-making framework for the **2040 Strategy** and its short and long term business plans, and also promotes monitoring, strategic articulation, and the materialization of synergies and efficiencies within the Group, pursuant to the purpose and direction that unites them.

Ecopetrol is dual in nature; on the one hand, it is (a) a company operating in the oil and gas, and low emission solutions industries; and on

the other, it is (b) the parent company of, or investor in, the companies that make up the Ecopetrol Group, whose relationship is that of:

- (i) Direct or indirect control.
- (ii) Business group.
- (iii) Shareholding without control.

The corporate governance model is defined based on the applicable law, international standards, the corporate governance principles of the Organization for Economic Cooperation and Development (OECD), good corporate governance practices, and the Group's strategy.

In 2022, under the framework provided for in the corporate governance model, decisions continued to be made to move towards the goals outlined in the Ecopetrol Group's 2040 Strategy, with a structure leveraged on guidelines that ensure decision-making geared towards the generation of value and sustainability.

(GRI 2-9-a)
(WEF6E)
(SFC 7.4.1.3.II)

Board of Directors

Ecopetrol's Board of Directors is its highest management body and defines the strategic direction for the Ecopetrol Group, acting in the best interest of society, considering the **rights of shareholders**, and based on the sustainability and growth of the Company. All of the above, in accordance with applicable regulations, which guide directors to perform their duties in good faith, independently, and with due diligence.

Article 23 of the bylaws establishes the duties under the responsibility of this corporate body, in addition to those allocated by law and other statutory provisions.

(SFC 7.4.1.3.II)

Additionally, the Board of Directors follows a set of **Rules of Procedure**, which establish the basic rules of organization and operation for this body, as well as its nomination process, the regulation behind the principles of action, and the rules of conduct of its members.



(GRI 2-9-b, 2-12)
(WEF2, 6E)
(SFC 7.4.1.3.II)

Board of Director Committees

The committees support the management efforts of the Board of Directors and are governed by internal regulations, without prejudice to the provisions set forth in the bylaws and the applicable law, especially in the case of the Audit and Risk Committee.

Each of these bodies supports the Board of Directors in the exercise of its duties, with the primary objective of analyzing the issues that the Board should be aware of in advance and issue the corresponding recommendation. For operation purposes, in addition to the provisions of applicable regulations, each committee has an internal regulation establishing its objectives and duties.

The six (6) Committees supporting the management of the Board of Directors are made up of its own members, appointed by the Board.



Audit and Risk Committee

It is the highest control body of the Board of Directors and it is responsible for the surveillance, management, and effectiveness of the Ecopetrol Group's Internal Control System.

Corporate Governance and Sustainability Committee

It is a body that supports the management efforts carried out by the Board of Directors to ensure the good governance and sustainability of the Company. Its duties include recommendations to the Board of Directors regarding the adoption of specific measures associated with the governance of the Company, the sustainability agenda, and the governance model applicable to the Ecopetrol Group, among others.

Business Committee

It is the management support body for the Board of Directors, responsible for the budget and investment plan, investment projects, and the incorporation of subordinate companies and new businesses, among others.

Compensation, Nomination, and Culture Committee

This management support body assists the Board of Directors in duties such as studying and making recommendations to the Board of Directors on the approval of the President's succession policy, the compensation policy for Company workers, the compensation guidelines for the Group, and the top-level organizational structure.

HSE Committee (health, safety, and environment)

This management support body assists the Board of Directors in the monitoring of the HSE management model adopted by Ecopetrol and the Ecopetrol Group, as well as the Group's HSE strategy, and others.

Technology and Innovation Committee

This management support body assists the Board of Directors in matters related to business technology, development, and innovation in the use of emerging technologies, the Group's digital strategy, among others.

Table 33. | Standing Committees of the Board of Directors

Committee	President
Audit and Risks	Sergio Restrepo Isaza
Business	Carlos Gustavo Cano Sanz (until October 26, 2022)
	Luis Santiago Perdomo Maldonado (from October 27, 2022 to date)
Corporate Governance and Sustainability	Esteban Piedrahíta Uribe
Compensation, Nomination, and Culture	Juan Emilio Posada Echeverri (until June 6, 2022)
	Cecilia María Vélez White (from July 21, 2022 to October 23, 2022)
	Gabriel Mauricio Cabrera Galvis (from October 27, 2022 to date)
HSE	Hernando Ramírez Plazas (until October 23, 2022)
	Sandra Ospina Arango (from October 27, 2022, to date)
Technology and Innovation	Luis Guillermo Echeverri Vélez (until October 23, 2022)
	Saúl Kattan Cohen (from October 27, 2022, to date)

Source: Vice Presidency of Corporate Affairs and Secretary General.

* To date: as of December 31, 2022.

(GRI 2-9-c)
(SFC 7.4.1.3.II)

Composition of the Board of Directors

Ecopetrol's Board of Directors is made up of **nine (9) main members**, without substitutes. The composition of the Board of Directors meets the following legal and statutory criteria, as well as best corporate governance practices:

123

(GRI 2-10,
405-1)
(WEF2, WEF11)

Table 34. | Composition Criteria Applicable to Board of Directors

Profile	International expertise or experience in the activities under the Company's corporate purpose and/or expertise and experience in the industrial and/or commercial field, or in financial, business risk, stock market, administrative, legal activities, or related sciences.
	More than 15 years of professional experience.
	Good reputation and well-renowned for their professional suitability and integrity.
Appointment	Not simultaneously belong to more than five (5) boards of directors of different corporations, including Ecopetrol.
	At least three (3) current members will be included in the list of candidates presented for consideration by the General Shareholders' Meeting, without considering the candidates for the eighth and ninth rows, who will be nominated in accordance with the provisions set forth in the bylaws.
Independent	Most of the members of the Board of Directors are independent.
Experts	At least one of the members must be an expert in financial matters, in accordance with applicable regulations in the US stock market.
Production departments and minority shareholders	The list of candidates will include candidates proposed by the hydrocarbon production departments exploited by Ecopetrol and by minority shareholders in the 8th and 9th rows.
Gender, diversity, and inclusion	Gender, diversity, and inclusion criteria will be considered in the composition of the Board of Directors, with at least one (1) of the nine (9) members being a woman. The criteria of gender, diversity, and inclusion will be, in any case, concurrent with the provisions on the profiles of the members of the Board of Directors. The Company will seek to increase the participation of women, in line with its diversity and inclusion objectives.



Click [here](#) to learn more about the Diversity and Inclusion policy adopted by Ecopetrol's Board of Directors.

(GRI 2-10)
(SFC 7.4.1.3.II)

Appointment and Composition of the Board of Directors

According to the bylaws, the members of Ecopetrol's Board of Directors are elected by the General Shareholders' Meeting through the electoral quotient system for institutional periods of four (4) years and may be re-elected more than once for the same period of time, without exceeding three (3) periods in total.

This period responds to the need of guaranteeing the execution of the Ecopetrol Group's strategy, adding long-term value, and giving continuity to the strategic direction of Ecopetrol and its companies. It also strengthens the preservation of the Company's historical memory, and this period falls within the average of 4.4 years of other companies in the oil and gas sector.

If, for any reason, any of the members of the Board of Directors loses their status as independent, they shall notify the Secretary in writing, who shall then inform the Board of Directors of this situation.

Should the minimum number of independent member be reduced, the president of Ecopetrol shall summon an extraordinary General Shareholders' Meeting for the reinstatement of the Board of Directors.

The list of candidates is submitted by the Nation, represented by the Ministry of Finance and Public Credit in its capacity as majority shareholder of Ecopetrol. Notwithstanding the foregoing, the other shareholders have the same right to submit alternative lists other than the one proposed by the majority shareholder. Any list submitted for consideration by the General Shareholders' Meeting must meet the requirements set forth in the bylaws.

The current members of the Board of Directors were elected by the General Assembly on October 24, 2022. Their term extends until the ordinary General Shareholders' Meeting to be held in 2025, and it is currently composed as follows:

(GRI 2-9-c-ii,
2-10-b-iii)
(SFC 7.4.1.3.II)

Table 35. | Composition of the Board of Directors

BOARD OF DIRECTORS	
AS OF DECEMBER 31, 2022	
9 MEMBERS	
(Order according to the List approved by the General Shareholders' Meeting)	
INDEPENDENT MEMBERS	NON-INDEPENDENT MEMBERS
Gabriel Mauricio Cabrera Galvis	Gonzalo Hernández Jiménez
Saúl Kattan Cohen	Mónica de Greiff Lindo
Luis Santiago Perdomo Maldonado	
Sergio Restrepo Isaza	
Esteban Piedrahíta Uribe	
Sandra Ospina Arango	
Carlos Gustavo Cano Sanz	
PRESIDENT AND VICE PRESIDENT OF THE BOARD OF DIRECTORS	
Saúl Kattan Cohen (President of the Board of Directors)	
Gabriel Mauricio Cabrera Galvis (Vice President of the Board of Directors)	
FINANCIAL EXPERTS	
Sergio Restrepo Isaza	
Luis Santiago Perdomo Maldonado	

Source: Vice Presidency of Corporate Affairs and Secretary General.

From April 2021 to October 23, 2022, the Board of Directors was made up as follows:

(GRI 2-9-c-ii,
2-10-b-iii)
(SFC 7.4.1.3.II)

Table 36. I Composition of the Board of Directors (April 2021–October 2022)

BOARD OF DIRECTORS	
[Order according to the List approved by the General Shareholders' Meeting]	
INDEPENDENT MEMBERS	NON-INDEPENDENT MEMBERS
Cecilia María Vélez White	Germán Eduardo Quintero Rojas
Luis Guillermo Echeverri Vélez	
Juan Emilio Posada Echeverri (until June 6, 2022)	
Sergio Restrepo Isaza	
Luis Santiago Perdomo Maldonado	
Esteban Piedrahíta Uribe	
Hernando Ramírez Plazas	
Carlos Gustavo Cano Sanz	
PRESIDENT AND VICE PRESIDENT OF THE BOARD OF DIRECTORS	
Luis Guillermo Echeverri Vélez (President of the Board of Directors)	
Carlos Gustavo Cano Sanz (Vice President of the Board of Directors)	
FINANCIAL EXPERTS	
Sergio Restrepo Isaza	
Luis Santiago Perdomo Maldonado	

Source: Vice Presidency of Corporate Affairs and Secretary General.

Integration and Tenure of the Board of Directors

(GRI 2-9)
(WEF2)
(SFC 7.4.1.3.II, V)

At the beginning of 2022, the Board of Directors was made up of **nine (9) members** appointed by the General Shareholders' Meeting at its ordinary session on March 26, 2021. On June 6, 2022, director Juan Emilio Posada submitted his resignation after three (3) years and two (2) months in office.

Accordingly, from June 6 to October 23, 2022, the Board of Directors was made up of eight (8) members: four (4) of them had completed a tenure of three (3) years and seven (7) months; one (1) member completed a tenure of four (4) years and three (3) months, including periods prior to the current one; one (1) member completed a tenure of four (4) years and seven (7) months; one (1) member completed a tenure of four (4) years and nine (9) months, including

periods prior to the current one; and one (1) member completed a tenure of five (5) years and seven (7) months.

On October 24, 2022, the General Shareholders' Meeting appointed nine (9) members, in an extraordinary meeting, to form the **Board of Directors**. Between that date and December 31, 2022, the Board of Directors was made up as follows: four (4) members with a tenure of two (2) months; one (1) member with a tenure of two (2) years and two (2) months, including periods prior to the current one; two (2) members with a tenure of three (3) years and nine (9) months; one (1) member with a tenure of four (4) years and eleven (11) months, including periods prior to the current one; and one (1) member with a tenure of five (5) years and nine (9) months.

(GRI 2-9-c-i, 2-9-c-ii) (SFC 7.4.1.3.II, V, VI)

Most members of the Board of Directors are independent, in accordance with the independence criteria enshrined in Paragraph two of Article 44 of Law 964 of 2005.

As of December 31, 2022, none of the independent members of the Board of Directors lost their status, that is, 78% of the members (7 out of 9) are independent in compliance with the independence criteria. The foregoing exceeds the minimum required under the Colombian securities market law, which is 25%, as well as the independent majority requirement established by statutory provisions.

(GRI 2-9-c-ii, 2-10-b-iii)

Similarly, all independent members must sign a Letter of Independence, which is posted on the Ecopetrol website and can be consulted by clicking [here](#).



(GRI 2-9-c) (2-10-b-iii) (SFC 7.4.1.3.II, V, VI, VII)

Table 37. | Profile of the Members of the Board of Directors (April 2021 to October 23, 2022)

Name	Is he/she an independent member?	Is he/she president of the Board of Directors?	Committees in which he/she participates
Luis Guillermo Echeverri Vélez	Yes	Yes (until October 23, 2022)	Corporate Governance and Sustainability Committee Technology and Innovation Committee
Germán Eduardo Quintero Rojas	No	No	Corporate Governance and Sustainability Committee Technology and Innovation Committee HSE Committee
Juan Emilio Posada Echeverri <small>(He was a member of the Board of Directors until June 6, 2022)</small>	Yes	No	Audit and Risk Committee Business Committee Corporate Governance and Sustainability Committee Compensation, Nomination, and Culture Committee
Cecilia María Vélez White	Yes	No	Corporate Governance and Sustainability Committee Technology and Innovation Committee Compensation, Nomination, and Culture Committee
Hernando Ramírez Plazas	Yes	No	Business Committee Audit and Risk Committee HSE Committee



Attendance at Committee meetings	Attendance at Board meetings	Does he/she own shares at Ecopetrol S.A.?	Member of other Boards	Stakeholder Groups that he/she represents
Corporate Governance and Sustainability Committee: 100% (8/8 sessions) Technology and Innovation Committee: 100% (3/3 sessions)	100% (22/22 sessions)	No	During his term on the Ecopetrol Board, he also participated in the following Boards of Directors: Chamber of Commerce of Bogotá. Telefonica S.A. Pragma S.A. Colmédica Medicina Prepagada S.A.	
Corporate Governance and Sustainability Committee: 100% (8/8 sessions) Technology and Innovation Committee: 100% (3/3 sessions) HSE Committee: 100% (2/2 sessions)	95% (21/22 sessions)	No	During his term on the Ecopetrol Board, he also participated in the following Boards of Directors: Financiera de Desarrollo Nacional (FDN)	
Audit and Risk Committee: 100% (10/10 sessions) Business Committee: 100% (8/8 sessions) Corporate Governance and Sustainability Committee: 100% (5/5 sessions) Compensation, Nomination, and Culture Committee: 100% (4/4 sessions)	100% (13/13 sessions)	No	During his term on the Ecopetrol Board, he also participated in the following Boards of Directors: Financiera de Desarrollo Nacional (FDN). Sociedad de Acueducto, Alcantarillado y Aseo de Barranquilla S.A. E.S.P.	
Corporate Governance and Sustainability Committee: 88% (7/8 sessions) Technology and Innovation Committee: 100% (3/3 sessions) Compensation, Nomination, and Culture Committee: 100% (5/5 sessions)	100% (22/22 sessions)	Yes	During her term on the Ecopetrol Board, she also participated in the following Boards of Directors: Suramericana de Seguros S.A. United Way. Luker Foundation.	
Audit and Risk Committee: 93% (14/15 sessions) Business Committee: 93% (13/14 sessions) HSE Committee: 100% (2/2 sessions)	95% (21/22 sessions)	No	N/A	

(GRI 2-9-c)
(2-10-b-iii)
(SFC 7.4.1.3.II,
V, VI)

Table 38. | Profile of the Members of the Board of Directors
(October 24, 2022, to December 31, 2022)

Name	Is he/she an independent member?	Is he/she president of the Board of Directors?	Committees in which he/she participates	Attendance at Committee meetings	Attendance at Board meetings	Does he/she own shares at Ecopetrol S.A.?	Member of other Boards	Stakeholder Groups he/she represents*
Gonzalo Hernández Jiménez	No	No	Business Committee Corporate Governance and Sustainability Committee	Business Committee: 100% (4/4 sessions) Corporate Governance and Sustainability Committee: 100% (1/1 session)	100% (4/4 sessions)	No	Member of the Boards of Directors of: Administrator of the Healthcare Social Security Resources (ADRES) Financiera de Desarrollo Nacional (FDN) Grupo Bicentenario S.A.S.	Not applicable
Mónica de Greiff Lindo	No	No	Corporate Governance and Sustainability Committee Compensation, Nomination, and Culture Committee HSE Committee	Corporate Governance and Sustainability Committee: 100% (1/1 session) Compensation, Nomination, and Culture Committee: 100% (2/2 sessions) HSE Committee: 100% (1/1 session)	100% (4/4 sessions)	No	Member of the Boards of Directors of: Lagos de Aurea S.A.S. Aris Mining Corp One Young World EPS Sanitas S.A.S.	Not applicable
Gabriel Mauricio Cabrera Galvis	Yes	No	Business Committee Corporate Governance and Sustainability Committee Compensation, Nomination, and Culture Committee	Business Committee: 100% (4/4 sessions) Corporate Governance and Sustainability Committee: 100% (1/1 session) Compensation, Nomination, and Culture Committee: 100% (2/2 sessions)	100% (4/4 sessions)	Yes*	Financiera de Desarrollo Nacional (FDN) Association for the Promotion of the Arts - PROARTES LLOREDA S.A.	Not applicable
Saúl Kattan Cohen	Yes	Yes	Business Committee Technology and Innovation Committee Compensation, Nomination, and Culture Committee	Business Committee: 100% (4/4 sessions) Compensation, Nomination, and Culture Committee: 100% (2/2 sessions) Technology and Innovation Committee: did not meet in the last quarter of 2022.	100% (4/4 sessions)	No	Tikva S.A.	Not applicable
Luis Santiago Perdomo Maldonado	Yes	No	Audit and Risk Committee Business Committee Technology and Innovation Committee	Audit and Risk Committee: 100% (18/18 sessions) Business Committee*: 100% (4/4 sessions) *Member since October 27, 2022 Technology and Innovation Committee: 100% (3/3 sessions)	88% (23/26 sessions)	No	Mineros S.A.	Not applicable
Sergio Restrepo Isaza	Yes	No	Audit and Risk Committee Business Committee HSE Committee Corporate Governance and Sustainability Committee Technology and Innovation Committee Compensation, Nomination, and Culture Committee	Audit and Risk Committee: 100% (18/18 sessions) Business Committee: 100% (18/18 sessions) HSE Committee*: 100% (1/1 session) *Member since October 27, 2022	100% (26/26 sessions)	No	Grupo BIO S.A.S Odinsa S.A. Mineros S.A.	Not applicable
Esteban Piedrahíta Uribe	Yes	No	Business Committee Corporate Governance and Sustainability Committee Technology and Innovation Committee Audit and Risk Committee Compensation, Nomination, and Culture Committee HSE Committee	Business Committee: 83% (15/18 sessions) Corporate Governance and Sustainability Committee: 100% (9/9 sessions) Technology and Innovation Committee*: did not meet in the last quarter of 2022. *Member since October 27, 2022	96% (25/26 sessions)	No	Cementos Argos S.A. Seguros Comerciales Bolívar Compañía Seguros Bolívar Governing Councils of Fundación SIDOC Centro Internacional de Entrenamiento e Investigaciones Médicas (CIDEIM) Advisory Council of Fundación Panthera	Not applicable
Sandra Ospina Arango	Yes	No	Business Committee Technology and Innovation Committee HSE Committee Audit and Risk Committee Corporate Governance and Sustainability Committee Compensation, Nomination, and Culture Committee	Business Committee: 100% (4/4 sessions) HSE Committee: 100% (1/1 session) Technology and Innovation Committee: did not meet in the period of October to December 2022.	100% (4/4 sessions)	No	None	Not applicable
Carlos Gustavo Cano Sanz	Yes	No	Audit and Risk Committee Business Committee Corporate Governance and Sustainability Committee Technology and Innovation Committee Compensation, Nomination, and Culture Committee HSE Committee	Audit and Risk Committee*: 100% (3/3 sessions) *Member since October 27, 2022 Business Committee: 100% (18/18 sessions) Corporate Governance and Sustainability Committee: 100% (9/9 sessions)	100% (26/26 sessions)	No	Inversiones Minka S.A.S	Not applicable

* Indirectly.

Source: Vice Presidency of Corporate Affairs and Secretary General.

(SFC 7.4.1.3.1.IV) Click on the following [links](#) to see the resumes of each of the members of the Board of Directors.

(GRI 2-9-c) The Board of Directors is currently made up of two (2) women, in compliance with its gender, diversity, and inclusion criteria.



(GRI 2-9-c)
(SFC 7.4.1.3.1.IV)

Experience of the Board of Directors

The Board of Directors, with the support of its Corporate Governance and Sustainability Committee, analyzes the competence, training, and/or expertise of its members to fulfill their duties and lead the Company's strategy. To strengthen the profiles and diversity of the members of the Board of Directors, this body has therefore adopted the **Skills and Experience Matrix**, which includes the following:

(GRI 2-9-c,
102-19, 2-13)
(WEF2)
(SFC 7.4.1.3.1.V)

Table 39. | Experience of the Board of Directors
[January 1, 2022, to October 23, 2022]

Skills and experience	N.º of directors
Energy industry and/or energy transition	4
Administration, senior management, and/or leadership	9
Government affairs and/or public policy	6
Financial and/or stock market	8
Corporate risk management	4
Human resources and/or talent development	7
Legal and/or corporate governance	7
Technology and/or innovation	6
Health, safety, and/or environment	6
Sustainability	6
Business strategy and/or project management	8

Source: Vice Presidency of Corporate Affairs and Secretary General.

(GRI 2-9-c,
102-19, 2-13)
(WEF2)
(SFC 7.4.1.3.1.V)

Table 40. | Experience of the Board of Directors
[October 24 to December 31]

Skills and experience	N.º of directors
Energy industry and/or energy transition	6
Administration, senior management, and/or leadership	9
Government affairs and/or public policy	7
Financial and/or stock market	8
Corporate risk management	5
Human resources and/or talent development	8
Legal and/or corporate governance	8
Technology and/or innovation	4
Health, safety, and/or environment	3
Sustainability	5
Business strategy and/or project management	9

Source: Vice Presidency of Corporate Affairs and Secretary General.

(TCFD G 1.2)
(SFC XVII)

The members of the Board of Directors boast diverse skills, experience, and strong entrepreneurial qualities. In 2021, the Board implemented its Succession Policy, as well as the Skills and Experience Matrix, in order to determine the requirements for the fulfillment of its duties, classifying them as basic and complementary. The complementary requirements associated with climate change include:

- (i) Health, safety, and/or environment
- (ii) Energy industry and/or energy transition
- (iii) Sustainability
- (iv) Technology and/or innovation

The Board recurrently strengthens its competence and expertise in the field of climate change. In March 2022, for example, the directors attended the 40th edition of CERAWEEK, a five-day program held annually, which provides a comprehensive framework to discuss ideas, solutions, and challenges for the future of the global energy market.

(GRI 2-12)
(WEF 1E)
(SFC XVII)

Role of the Board of Directors and Senior Management in the Oversight of Impact Management

The Board of Directors performs various duties associated with value or mission statements, as well as sustainability strategies and objectives.

In 2020, the Board approved the Ecopetrol Group's Declaration of Culture, containing the purpose and the six (6) cultural principles that guide the Group. In 2021 and 2022, the Compensation, Nomination, and Culture Committee analyzed the advances made in the appropriation of the Declaration of Culture among workers.

On the other hand, the Board has periodically reviewed and updated the Group's corporate strategy, containing TSEG objectives, among others. In June 2021, it analyzed the TSEG strategy and made some recommendations on the matter. After two (2) strategic sessions analyzing the components and goals of the proposed strategy, **the Ecopetrol Group's 2040 Strategy: "Energy that Transforms" was approved in December 2021 and published in February 2022.** The strategy consists of four (4) pillars, one of them known as "Generating value with TSEG," which seeks to strengthen the bonds of trust with the Stakeholder Groups by

applying high standards of corporate governance, in order to achieve environmentally responsible, safe, and efficient operations, with innovation and technology acting as catalysts to accelerate solutions to future challenges. In August 2022, said governing body analyzed the progress made towards this strategy.

Finally, in accordance with Ecopetrol's bylaws, the Board has the responsibility of "approving the Ecopetrol Group's strategy and business plan while ensuring corporate responsibility, by including environmental, social, governance, technology, and innovation criteria." This is how this body incorporates elements of TSEG in its monitoring and approval of the Ecopetrol Group's objectives.

Senior management ensures compliance with the objectives and goals associated with TSEG, the energy transition, occupational health, industrial and process safety, corporate responsibility, and the management of the operations environment, with the conviction that the sustainability of the Company and its operations is only possible in a sustainable environment in which technology plays a relevant role.

(GRI 2-12-b)

The Board of Directors involves the Stakeholder Groups in the identification and management of Ecopetrol's positive and negative impacts on the economy, the environment, and on people. Ecopetrol periodically conducts Stakeholder Group perception and expectation surveys. The consultation includes their assessments on material economic, social, and environmental issues, and the results are presented annually to the Board of Directors' Corporate Governance and Sustainability Committee. To give continuity to this exercise, the Board of Directors is periodically informed of the trends of these Stakeholder perceptions and expectations.

the proposed annual HSE objectives and goals, as well as associated strategic business risks, and monitors the HSE strategy defined for the Ecopetrol Group.

In terms of people, all issues related to Ecopetrol's human talent are under the responsibility of the Compensation, Nomination, and Culture Committee, including the following: the Company's relationship with workers, retirees, and their beneficiaries; the organizational culture and the training processes for the staff; the workers' compensation policy, including long-term variable compensation; and the compensation guidelines for the Ecopetrol Group.

(GRI 2-12-a, 2-12-b, 2-24) (TCFD G-1.3, G-1.1) (SFC XVII)

The Board of Directors incorporates a perspective of Responsible Business Conduct through its focus and review of the different issues analyzed by the support committees according to their duties.

In turn, the Corporate Governance and Sustainability Committee is in charge of analyzing the sustainability agenda adopted by Ecopetrol and the Ecopetrol Group. Human Rights are a relevant issue for all Stakeholder Groups and are cross-cutting to the T ESG pillar under the Ecopetrol Group's 2040 Strategy. Accordingly, this Committee is also responsible for Human Rights management and the progress made in this regard.

Economic matters are presented to the Board of Directors' Audit and Risk Committee, which analyzes the following topics, among others: the profit distribution project; additional reserve funds; the reacquisition of the Company's own shares; the interim and year-end financial statements, both separate and consolidated; the Company's debt situation and the acquisition of additional financing; and the issuance and placement of shares and bonds.

On the other hand, by virtue of applicable Colombian regulations, every year, the Board of Directors has approved Ecopetrol's partaking in the Works for Taxes mechanism, which has enabled projects around the Colombian territory, with initiatives associated with energy transition, road infrastructure, education, access to drinking water, and basic sanitation.

The impacts on the environment are the subject of analysis by the HSE Committee. For example, it analyzes



THE BOARD OF DIRECTORS INCORPORATES A PERSPECTIVE OF RESPONSIBLE BUSINESS CONDUCT THROUGH ITS FOCUS AND REVIEW OF THE DIFFERENT ISSUES ANALYZED BY THE SUPPORT COMMITTEES ACCORDING TO THEIR DUTIES.



On the other hand, the internal regulations of all Committees, in general, grant them the power to intervene in actions related to their duties, geared, in their opinion, towards the best deployment of Ecopetrol's activities, for which they may ask Management to issue the relevant reports. In this sense, the directors can request detailed information on specific topics, such as those related to Ecopetrol's impact on the economy, the environment, and on people.

(GRI 2-13)

Delegation of the Responsibility of Managing Impacts

(GRI 2-13-a)

The Company strives to manage its impacts on the economy, the environment, and on people through the clear assignment of responsibilities to its employees. This assignment is specified in the job descriptions and in a decision and attribution matrix containing the most relevant key decisions for the Group, as well as the people responsible for making such decisions in the Company, and their scope with respect to the Ecopetrol Group.

(GRI 2-13-b)
(SFC XVII)

Ecopetrol's Board of Directors annually approves its meeting schedule with the dates on which this corporate body and each of its Support Committees will meet, as well as the thematic work agenda with the relevant issues that must be included by legal requirement, and the different issues suggested by the different areas of Company according to the needs of the business.

Based on this thematic agenda, Senior Management and the work teams responsible for the different subject areas report on the results and the management efforts exerted on issues with economic, social, and environmental impacts.

(GRI 2-14)

The Board of Directors' Corporate Governance and Sustainability Committee is responsible for studying and issuing recommendations for the consideration and decision of the Board on the Company's Integrated Management Report prepared for the General Shareholders' Meeting.

To ensure the relevance, quality, and veracity of the information, the Report is reviewed by the Vice Presidency of Corporate Affairs and Secretary General, the Management Committee, and the President of the Company before presenting it to the Board of Directors' Corporate Governance and Sustainability Committee.

Management of the Board of Directors

A total of **23** Board of Directors meetings were held during the period, broken down as follows: twelve (12) ordinary, eleven (11) extraordinary, one of them to analyze the progress made on the Company's 2040 Strategy, and three (3) to deliberate and reach a decision by outstanding votes.

Of the 23 meetings, 11 were completely virtual, that is, 48%; 11 were hybrid (some directors attended in person and others virtually), also 48%; and 1 was held in person, equivalent to 4%.

Total attendance at the sessions by the directors accounted for **98%**. The schedule for the sessions was previously approved by the directors, and their notification ratified with due time by the Vice Presidency of Corporate Affairs and Secretary General, which interacted permanently with the president of the Board of Directors.

The deliberations of the Board of Directors took place with a number equal to or greater than five (5) of its members.

The decision-making process in the Board of Directors allows decisions to be made in an informed manner at each of the stages, based on the powers of the different instances, in such a way that its management efforts can focus on strategic issues.

The Vice Presidency of Corporate Affairs and Secretary General organizes the topics according to the corresponding matter and assigns them to the different support committees of the Board of Directors based on their powers. Each one of them studies and analyzes the issues submitted for their consideration, in order to make recommendations to be decided on by the Board of Directors, which will then adopt the necessary measures after the corresponding deliberations. For further details on this process, refer to the Corporate Governance Report/Process applicable to the support committees of the Board of Directors by clicking [here](#).



Relevant Decisions of the Board of Directors

Some of the most relevant decisions made by the Board of Directors in 2022 include the following:

- Approval of the 2023 Investment Plan, by means of which the Ecopetrol Group will invest between 25.3 TRILLION COP and 29.8 TRILLION COP in 2023 to accelerate the path towards energy transition and sovereignty.
- Approval of financing operations with the update of the 2022 and 2023 financing plans.
- Approval of the updated guidelines for the retention, transfer, and mitigation of the Ecopetrol Group's financial risks.
- Approval of the 2021 statement of resources and reserves.
- Approval of interim and year-end financial statements, both separate and consolidated.
- As part of the duties of the Audit and Risk Committee, the Board approved Ecopetrol S.A.'s updated General Audit Plans for 2022 and 2023.
- In consideration of the contributions to the country and the benefits obtained by the Ecopetrol Group by partaking in the Works for Taxes mechanism, the Board approved Ecopetrol's participation in this mechanism as a method of paying income tax for taxable year 2022.
- In terms of compensation matters for 2023, the Board approved the variable compensation model for that year, as well as the Ecopetrol Group's balanced management board (TBG) for the period of 2023-2025.



To learn about other relevant decisions, refer to the Corporate Governance Report by clicking [here](#).

In 2022, each of the Board of Directors' support committees met periodically and especially, but not exclusively, analyzed the topics below:

Total number of sessions held in 2022	Committee
Audit and Risk Committee	
18 sessions	<ul style="list-style-type: none"> • Evaluation of the statutory auditor, the internal auditor, and the Committee. • Approval of the general audit plan. • Business risk map. • Reserves. • Quarterly and annual separate and consolidated financial statements. • Profit distribution project. • 20F Report. • Calculation of variable compensation for 2021. • Monitoring of the actions conducted by Ecopetrol and the other Ecopetrol Group companies to verify their internal control, risk management and ethical, corruption and fraud reporting systems. • Follow-up on judicial proceedings. • Statutory auditing reports. • Financing plan for 2022. • Results on the management of the compliance program. • Guidelines for the retention, transfer, and mitigation of the Ecopetrol Group's financial risks. • Monitoring of the Fuel Price Stabilization Fund [FEPC]. • Transfer pricing certification.
Business Committee	
18 sessions	<ul style="list-style-type: none"> • Financial and investment plan for the period of 2023-2025 and financial and investment plan for 2023. • Follow-up on the acquisition of 51.4% of Interconexión Eléctrica S.A. E.S.P. - [ISA]. • Follow-up on the investment in the Permian and the 2023 development campaign. • Divestment potential in non-strategic assets. • Clearance of resources for the execution of several projects. • Updated capital discipline criteria. • OPEX budget addition. • Incorporation of Ecopetrol US Trading LLC.
Corporate Governance and Sustainability Committee	
9 sessions	<ul style="list-style-type: none"> • Evaluation of the Board of Directors. • Comprehensive sustainable management report. • Annual corporate governance report. • Statutory reform. • Measures to guarantee the protection of the rights of minority shareholders for the General Shareholders' Meetings held in 2022. • Candidates to join the Board of Directors. • Monitoring of the Ecopetrol Group's Corporate Governance Model. • Progress made on the Human Rights strategy in 2022. • Training Program in Corporate Governance for Leaders and Boards of Directors. • Updated regulations for the Board of Directors and the Support Committees. • Reports, radars, and TSEG ratings and action plan.
Compensation, Nomination, and Culture Committee	
7 sessions	<ul style="list-style-type: none"> • Salary increase. • Collective labor agreement. • Balanced Management Board [TBG]. • Legal assistance aid. • Evaluation of the President. • Long-term incentives plan. • 2023 variable compensation model. • Appraisal of the top-tier organizational structure (areas that report directly to Ecopetrol's Presidency). • Cultural transformation. • People Retooling.
HSE Committee	
3 sessions	<ul style="list-style-type: none"> • 2021 HSE Performance. • Management, results, and projections arising from the pandemic. • Water neutrality roadmap. • Follow-up on climate change roadmaps, integrated water management, and industrial safety. • Analysis of the methane reduction goal.
Technology and Innovation Committee	
3 sessions	<ul style="list-style-type: none"> • Advances in cybersecurity. • Follow-up on the CT+I Strategy. • Follow-up on the technology and innovation plan. • Follow-up on the digital agenda.

Source: Vice Presidency of Corporate Affairs and Secretary General.

(GRI 2-16-a)

Notification of Critical Concerns to the Board of Directors

According to Board regulations, different subjects may be submitted for consideration, such as critical concerns or issues, and the areas will analyze the relevance and frequency in which these matters are brought to the attention of this body.

In the event of any critical situation that requires the intervention of the Board, the bylaws grant it the power of serving as a consultative body for all matters required by the President of the Company.

The issues raised by the Stakeholder Groups serve as input for the analysis of trends and expectations, which are presented to Ecopetrol's Board of Directors, as well as opportunities for improving Stakeholder engagement plans.

(GRI 2-16)

For this reporting period, two (2) critical concerns associated with Human Rights issues and the climate change roadmap were communicated to Ecopetrol's Board of Directors.

The mechanisms used to address and solve critical concerns involved the adoption of due diligence measures for the prevention and mitigation of risks, as well as the evaluation of scenarios, risks, and opportunities.

(GRI 2-15)
(SFC 7.4.1.3.1.1,
X, IX, XII)

Conflicts of Interest

The bylaws, the Code of Good Governance, the Internal Regulations of the Board of Directors, the Code of Ethics and Conduct, and the Instructions for the Management and Prevention of Conflicts of Interest and Ethical Conflicts at Ecopetrol, all define the internal policy and procedures applicable to knowledge management, administration, and the resolution of situations under the conflicts of interest regime. Rejection and zero tolerance shall apply to any behavior that may constitute a breach of said regime, either due to the existence of particular (direct) circumstances, or due to indirect issues (related to third parties: related parties, shareholders, suppliers, customers, and contractors).

Should an Ecopetrol administrator, including members of the Board of Directors, be in a situation of conflict of interest, he/she shall comply with the provisions of the aforementioned regulations, including the duty to disclose the conflict of interest to the Board of Directors and withdraw from the matter, and the situation shall be recorded in the corresponding minutes.

Moreover, they must periodically sign and update the Independence Document - Declaration of Conflicts of Interest or the form indicated by the Corporate Vice Presidency of Compliance, as applicable, in order to report situations of conflict, affiliation to different boards of directors, or any occurrence that they might be exposed to that may influence their decision-making or fulfillment of duties, as well as any direct or indirect relationship among them or with Ecopetrol, or other entities or structures belonging to the Ecopetrol Group, or with the issuer, the suppliers, clients, or with any other Stakeholder Group. However, this provision expressly warns that the periodicity determined shall not be an obstacle for any conflict of interest to be disclosed immediately, much less that it excludes the duty to disclose the situation if it occurs in the interregnum between one update and another.

The Corporate Vice Presidency of Compliance has a matrix of related parties to monitor any potential conflicts. Chapter 3.2.7 of the Business Group's Accounting Policy Manual is applicable to

related parties, which provides for the determination and disclosure requirements in separate and consolidated statements, the duty and the procedure to identify them, and the disclosure requirements, among others.

In cases involving workers who are not administrators, the employee shall report the situation of conflict in writing to the immediate superior and send a copy to the Corporate Ethics and Compliance Affairs Management team. In contractual procedures, an informative copy of the statement must also be sent to the designated authorized official. The immediate boss shall adopt a substantiated decision, which must be recorded in writing, indicating whether or not the conflict exists and, if it did, the boss shall order the worker to refrain from taking action, appoint his/her replacement, and send a copy of all proceedings to the aforementioned Management.

Ecopetrol's guidelines pertaining to conflicts of interest extend to bidders, contractors, suppliers, customers, partners, or allies by means of the Code of Ethics and Conduct; these parties are subject to the clauses and contractual forms applicable to

them, and they therefore agree and accept that they will take actions in accordance with Ecopetrol's ethical principles, without engaging in situations of conflict.

In the event of any potential conflict with the counterparts, the designated authorized official, or whoever acting as such, shall be informed of said situation and shall analyze and issue a written and substantiated response resolving the matter and adopting the pertinent mitigation measures. A copy will be similarly sent to the Corporate Ethics and Compliance Affairs Management. If deemed necessary, a consultation may be raised with the aforementioned Management, which shall issue an opinion prior to making the relevant decision.

The instructions define the characteristics and classification of conflicts according to their nature and temporality (permanent, sporadic, direct, indirect, real, supervening, potential, and apparent), with examples of situations that materialize them and events in which they are elevated to the categories of inabilities, incompatibilities, and prohibitions, among other aspects.



ECOPETROL'S GUIDELINES PERTAINING TO CONFLICTS OF INTEREST EXTEND TO BIDDERS, CONTRACTORS, SUPPLIERS, CUSTOMERS, PARTNERS, OR ALLIES BY MEANS OF THE CODE OF ETHICS AND CONDUCT; THESE PARTIES ARE SUBJECT TO THE CLAUSES AND CONTRACTUAL FORMS APPLICABLE TO THEM, AND THEY THEREFORE AGREE AND ACCEPT THAT THEY WILL TAKE ACTIONS IN ACCORDANCE WITH ECOPETROL'S ETHICAL PRINCIPLES, WITHOUT ENGAGING IN SITUATIONS OF CONFLICT.

[SFC 7.4.1.3.1.IX]

Operating Relations with Related Parties

In accordance with the Bylaws, the Board of Directors is responsible for ensuring that Ecopetrol's economic relations with its shareholders, including the majority shareholder, and with its subsidiaries, take place within the limitations and conditions established by law and by the regulations on the prevention, management, and resolution of conflicts of interest, and in any case, under market conditions.

The transfer pricing guide between Ecopetrol's economic related parties determines the parameters to be considered when determining the remuneration for operations, be it of goods or services, between Ecopetrol and its subsidiaries, in such a way that the conditions set forth in the operations under analysis are consistent with those agreed with or determined between independent third parties, thereby avoiding any impacts on the income statements by control or subordination relationships.

In this sense, the economic relations with the Nation and with the subordinate companies, consolidated during 2022 by means of agreements or contracts, were conducted under the above parameters. These relationships are not intended to benefit the Nation or the subordinate companies, nor are they detrimental to the interests of minority shareholders.

Every six months, the Tax Consulting and Planning Management submits a report to the Board of Directors on the operations, agreements, or contracts entered into between the Company and its subsidiaries within said period, confirming that the conditions thereof correspond to market conditions.

In the event of a conflict of interest between the companies of the Ecopetrol Group, the parties involved shall comply with the corresponding procedure according to applicable regulations.



[GRI 2-17]

Collective Understanding of Sustainable Development

In order to contribute to the permanent training of the Board of Directors and to create spaces for debate and construction of joint knowledge, some of the directors attended the following sessions in 2022:

- CERAWeek
- Corporate Governance Effectiveness and Accountability in the Boardroom- Kellogg School of Management
- League of Directors Training Program- Kearney, Universidad de los Andes and the Center for Corporate Governance Studies



As part of the education and training plan for the members of the Board of Directors, the directors also attended talks on risk management by Deloitte and by Miller & Chevallier, and on stock market regulation in the US by Shearman & Sterling, and participated in a few ethics and conduct, and cybersecurity training sessions organized by Ecopetrol.

For their part, the current members of the Board of Directors participate in different induction sessions and operating visits in order to learn about the Ecopetrol Group's strategy, the operation of the Board of Directors and its support committees, the Group's new businesses, the duties, organizational structure, and objectives of the business areas, as well as the main production and refining activities taking place in the areas of operation.

The nine (9) members of the Board of Directors are periodically trained in risk management. In 2022, the directors completed their risk management education pertaining to:

- i) The Board as a key player in risk oversight.
- ii) Navigating US Securities Laws and Regulations: risk-based analysis of business partners and intermediaries, risk assessment for an effective anti-corruption compliance program, traditional high-risk areas for non-US persons.
- iii) Conscious challenges for the transformation of the business towards a higher purpose, including case studies of companies related to the risks applicable to the business in terms of "Impact on financial sustainability and value generation" and HSE events due to operating causes.
- iv) Podcast "Understanding the risk landscape in the world of O&G".

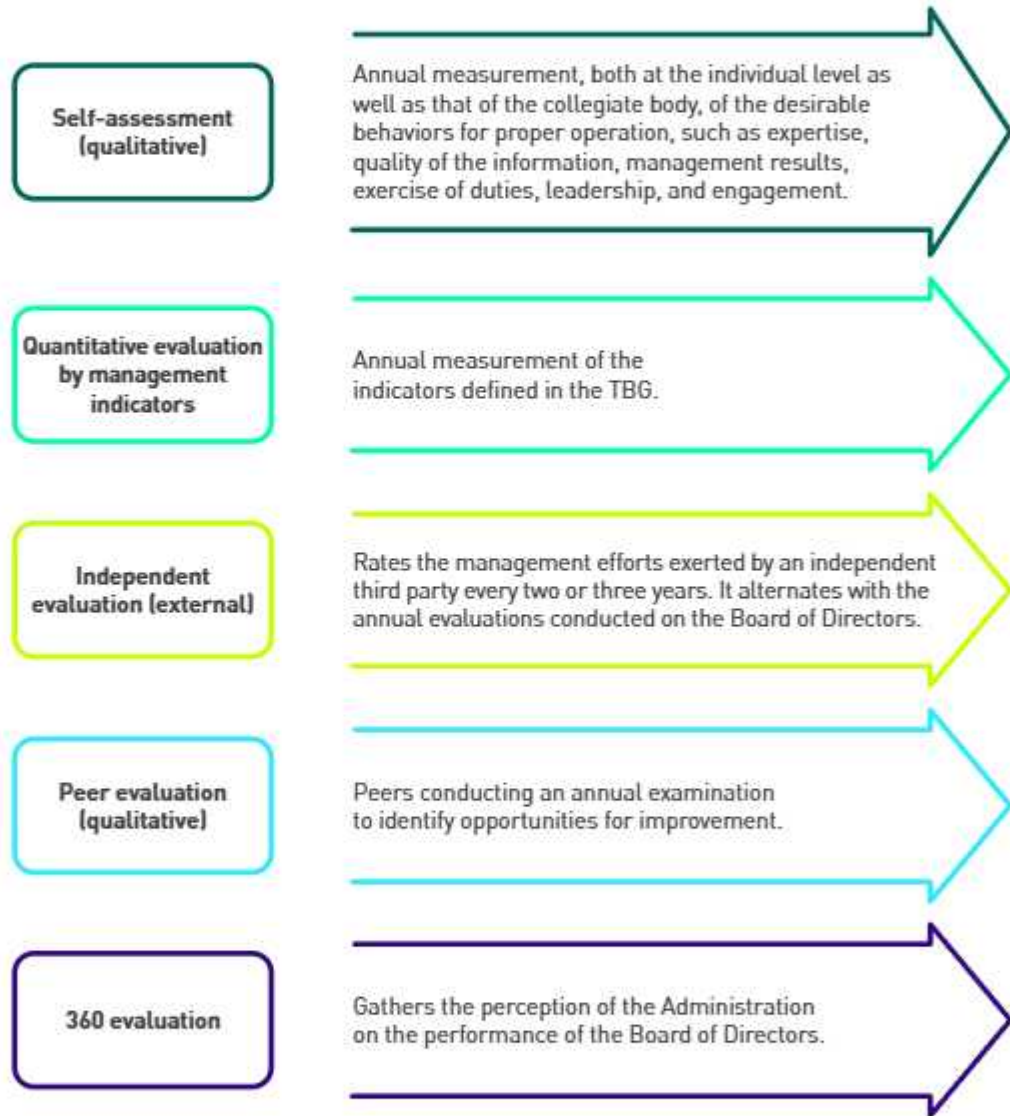
(GRI 2-18)

Performance evaluation of the Board of Directors

(GRI 2-18-a, 2-18-b) (SFC VIII)

To ensure alignment between the interests of shareholders and the performance of the Board of Directors, and in accordance with the best corporate governance practices, Ecopetrol has implemented the following evaluation mechanisms for its Board of Directors:

Figure 33. | Performance Evaluation of the Board of Directors



Source: Vice Presidency of Corporate Affairs and Secretary General.

(GRI 2-18-c)

The recommendations made by the external advisor in the evaluation of the Board of Directors, served as input for the construction of the Skills and Experience Matrix, which helped in determining the skills and experience required for the Board of Directors as a collegiate body.

Board of Directors' Evaluation Results

The Board of Directors' evaluation results were reported by its Corporate Governance and Sustainability Committee in February 2022, which consisted of self-assessment, peer evaluation, and a 360 evaluation by the Administration to understand the latter's perception of its performance. The results show and highlight the teamwork and trust inspired by the relationships and the alignment of interests between the Board of Directors and the Administration with regard to the Company's strategy.

The evaluation of the Board of Directors yielded outstanding results based, among others, on the following elements:

- (i) Its members acknowledge teamwork and harmony, and also the performance and contribution of their peers.
- (ii) The Administration appreciates the teamwork with the Board, characterized by trust and the concurrence of interests with regard to the Company's strategy.
- (iii) The Board has adequate experience and competencies to fulfill its duties.
- (iv) The individual work of each member contributes to the proper operation and harmony of said team as a collegiate body.

Moreover, the Board of Directors underwent the self-assessment process in March 2022, conducted by the General Directorate of State Interests (DGPE, as per its Spanish acronym) of the Ministry of Finance and Public Credit (MHCP), whose results were reported to the directors in July 2022.

As for the management efforts in 2022, the members of the Board of Directors will conduct their qualitative evaluation in February 2023 and the results will reflect both their behavior as a collegiate body, as well as that of each individual member. The performance of the President and Secretary of the Board will be assessed over the course of 2022.

Remuneration Policies

Remuneration of the Board of Directors

The fees payable to the directors for attending the meetings of the Board of Directors and/or the support committees are set by Ecopetrol's General Shareholders' Meeting. In the ordinary meeting of March 22, 2012, as stated in Minutes 026 of 2012, the General Shareholders' Meeting, after the analysis presented by the Administration on the fees paid to directors at a national and international level, the necessary conditions required to exercise as a member of Ecopetrol's Board of Directors, and a study by the Hay Group, decided to set the fees at six (6) current legal monthly minimum wages, a sum that equivalent to 6 MCOP in 2022 for each Board or committee session.

The General Shareholders' Meeting can set the fees in another unit of value, considering the nature of the Company, the responsibility entailed in the position, and market guidelines.

Furthermore, as set forth in the internal regulations of the Compensation, Nomination, and Culture Committee, the Committee may propose the remuneration policy for the Board of Directors, considering the nature of the Company, the responsibility entailed in the position, and market guidelines, which will be submitted for approval by the General Shareholders' Meeting.

(SFC 7.4.1.3.IV)

Composition of Senior Management

- President – Felipe Bayón Pardo
- Vice President of Corporate Affairs and Secretary General - Mónica Jimenez González (July 26, 2016, to August 17, 2022) and María Paula Camacho Rozo (in office since August 18, 2022, and formally appointed since August 27, October 2022)
- Internal Audit Corporate Manager - Ricardo Augusto Montes
- Corporate Vice President of Compliance - María Juliana Albán Durán
- Legal Vice President - Fernán Ignacio Bejarano Arias
- Commercial and Marketing Vice President - Pedro Fernando Manrique Gutiérrez
- Vice President of Supply and Services - Carlos Andrés Santos Nieto
- Vice President of Sustainable Development - Diana Patricia Escobar Hoyos
- Corporate Vice President of Strategy and New Businesses - Nicolás Azcuénaga Ramírez
- Vice President of Science, Technology, and Innovation - Ernesto José Gutiérrez de Piñeres Luna
- Corporate Vice President of Finance - Jaime Eduardo Caballero Uribe
- Corporate Vice President of Human Talent - Alejandro Arango López
- Executive Vice President of Operations - Alberto Enrique Consuegra Granger
- Vice President of Low Emission Solutions - Yeimy Patricia Báez Moreno
- Upstream Vice President - Jorge Elman Osorio Franco
- HSE Vice President - Mauricio Jaramillo Galvis
- Vice President of Refining and Industrial Processes - Walter Fabian Canova

Note: After the restructuring of the Upstream segment, it became necessary to review and modify the positions that were part of senior management. It was then determined that only direct reports to the President and the Vice Presidents with direct report to the Executive Vice President of Operations would be considered senior management.

(SFC 7.4.1.3.IV)

Senior Management Duties

- Define, guide, and evaluate the long-term strategy for the Company, for the Ecopetrol Group, and for the function, segment, and/or business line, guided by the environment, the guidelines of the Board of Directors, and the legal framework.
- Formulate the policies for the function, segment, and/or business line in the Company and/or the Ecopetrol Group, anticipating future conditions and global complexities.
- Create future scenarios and opportunities for the sustainability of the Company and of the Ecopetrol Group.
- Ensure compliance with the objectives and goals set, in terms of TESG, energy transition, occupational health, industrial and process safety, corporate responsibility, and the operations environment under its scope of management, focusing on sustainable operations leveraged on technology, free of occupational, process safety, and environmental incidents, and in harmony with the environment.

Duties of the Steering Committee

In accordance with Circular GOC-J-001, the Steering Committee is the body responsible for follow-up and alignment on matters relevant to the management of the President and the Ecopetrol Group. This body enables the cross-cutting communication of these topics. It is also the forum for its members and guests to inform the President of the progress and evolution of relevant issues, as it is responsible for exerting monitoring efforts.

Until December 19, 2022, the members of the Steering Committee were:

- President (Chair)
- Executive Vice President of Operations
- Vice President of Exploration
- Vice President of Development and Production (now Upstream Vice President)
- Midstream Segment Vice President
- Vice President of Refining and Industrial Processes
- Vice President of Transportation Operations and Logistics
- Commercial and Marketing Vice President
- Vice President of Projects and Drilling (now Vice President of Development and Projects)
- Corporate Vice President of Finance
- Corporate Vice President of Strategy and New Businesses
- Digital Vice President (now Vice President of Science, Technology, and Innovation)
- Corporate Vice President of Human Talent
- Vice President of Sustainable Development
- Vice President of Supply and Services
- Legal Vice President
- Secretary General (now Vice President of Corporate Affairs and Secretary General)
- Corporate Vice President of Compliance
- Vice President of Gas (now Vice President of Low Emission Solutions)
- HSE Vice President
- Director of the Center for Innovation and Technology - ICP

As of December 19, 2022, the members of the Steering Committee are:

- President of Ecopetrol (Chair)
- Executive Vice President of Operations
- Upstream Vice President
- Midstream Segment Vice President
- Vice President of Refining and Industrial Processes
- Commercial and Marketing Vice President
- Corporate Vice President of Finance
- Corporate Vice President of Strategy and New Businesses
- Vice President of Science, Technology, and Innovation
- Corporate Vice President of Human Talent
- Vice President of Sustainable Development
- Vice President of Supply and Services
- Legal Vice President
- Vice President of Corporate Affairs and Secretary General
- Corporate Vice President of Compliance
- Vice President of Low Emission Solutions
- HSE Vice President



(SFC 7.4.1.3.IV)

Duties of the Executive Committee

According to Circular GOC-J-001 (version 6 of 18/02/2021) issued by the President of Ecopetrol (circular 01), the Executive Committee (ExCo) is the body through which Ecopetrol's Senior Management monitors or approves (specifically those matters defined in the Decisions and Attributions Matrix) several strategic matters related to Ecopetrol's corporate and support areas, as well as business goals, objectives, and initiatives that cut across more than one of the segments of the Ecopetrol Group. It exerts approval and monitoring responsibilities.

On December 19, 2022, the president of Ecopetrol approved Version seven (7) of Circular 01 that modified its scope as follows: The Executive Committee (ExCo) is the instance which:

- (i) Monitors the pillars of the Ecopetrol Group's strategy, the long and short term Business Plan, and the strategic issues that also span across the business lines.
- (ii) Approves the strategic plans of the business lines, as well as those defined in the Decisions and Attributions Matrix. It exerts approval and monitoring responsibilities.

144

(SFC 7.4.1.3.IV)

Composition of the Executive Committee

In accordance with Circular GOC-J-001 (version 6 of 18/02/2021) issued by the President of Ecopetrol (Circular 01), below are the members of the ExCo:

- President of Ecopetrol
- Executive Vice President of Operations
- Corporate Vice President of Finance
- Upstream Segment Vice President
- Midstream Segment Vice President
- Downstream Segment Vice President
- Commercial Segment Vice President
- Legal Vice President
- Corporate Vice President of Strategy and New Businesses

On December 19, 2022, the President of Ecopetrol approved Version seven (7) of Circular 01, which modified its composition with the following members:

- President of Ecopetrol
- Executive Vice President of Operations
- Corporate Vice President of Finance
- Vice President of Corporate Affairs and Secretary General
- Commercial Segment Vice President
- Legal Vice President
- Corporate Vice President of Strategy and New Businesses
- Vice President of Low Emission Solutions

* In addition to its composition, the leader of the transmission and toll roads business line also attends as a participant in the Executive Committee, as well as other guests according to the different topics discussed in the committee.

(GRI 2-11)

In accordance with Article 44 of Law 965 of 2005, with regard to the boards of directors of securities issuing companies such as Ecopetrol, whoever holds the capacity of legal representative of the entity may not act as president of its board of directors. Similarly, Article 22 of the Company's bylaws establish that in no case may the President of Ecopetrol be appointed as president of its Board of Directors.

(GRI 2-19-a,
2-20-a)
(WEF 3E)

Remuneration Policies

A reference study is conducted every year, facilitated by consulting firms specializing in the use of quantitative methodologies for the evaluation of job positions, best compensation practices, and organizational issues. This reference study is compared against the national mining-energy market.

Based on the conclusions of the study, actions are reviewed and adopted to define a competitive compensation policy for Ecopetrol, in order to attract and retain the required talent according to the strategy and needs of the Company.

(SFC 7.4.1.3.I)

Senior Management Remuneration

The purpose of the compensation policy is to maintain a competitive scheme vis-à-vis the Colombian sector and executive market, in order to attract and retain the best talent to guarantee the long-term sustainability of the Company.

To monitor Ecopetrol's ranking in the reference market, a salary competitiveness study is commissioned every year to a firm specializing in the use of a quantitative methodology for the evaluation of job positions, best compensation practices, and organizational issues. Based on the conclusions of the study, actions are reviewed and adopted to maintain competitive remuneration, in order to attract and retain the required talent to the strategy and needs of the Company.

For the compensation of Senior Management, the comparison is made against a select market of business groups and/or large national companies to monitor their level of competitiveness.

(GRI 2-19-b)
(WEF 3E)
(SFC 7.4.1.3.I)
(TCFD G-2.3)

Ecopetrol's compensation scheme includes **two (2) components** associated with the achievement of business results:

- (i) Short-term variable compensation payable to the entire team of direct workers based on the achievement of the strategic objectives defined in the Ecopetrol Group's Balanced Management Board - TBG.
- (ii) Long-term incentives payable to management and some critical positions associated with the achievement of long-term objectives that guarantee the sustainability and protect the value and future of the Company.

Short-term variable compensation recognizes the achievement of annual objectives; it is reviewed and defined based on business results associated with the achievement of the strategic objectives established in the Ecopetrol Group's TBG. At the end of every year, the variable compensation for each worker is calculated based on their individual target, which corresponds to a percentage of their annual salary; business results are reviewed, and discounts are made for HSE events and issues associated with adherence to internal control, to then assign the final amount, differentiated by individual performance.

For 2022, the Ecopetrol Group's TBG integrates the relevant topics of the Business Plan and reflects the main focuses aligned with the strategic challenges and the Declaration of Culture of the Group, prioritized as follows: Life first – HSE (10%), Growing with the energy transition (35%), Competitive returns (30%), Decarbonization (10%) and expertise (15%).

Long Term Incentives (ILP, as per its Spanish acronym): these are associated with the achievement of strategic objectives that guarantee the sustainability of the Company and encourage the cohesion of the management team. This element of compensation seeks to recognize and encourage the achievement of extraordinary long-term business results and favor the interests of shareholders.

Long term incentives consist of a percentage of the annual salary of the workers; this money is handed over to an authorized financial institution to invest it in Colombia in Ecopetrol's ordinary shares and it only becomes part of the workers' equity if the goals established in the plan are met.

Long term incentive plans are valid for three (3) years. Each year, a new edition of the plan is launched, with demanding objectives associated with the Group's strategy, and the participants are also defined. At this moment there are three (3) plans implemented for the periods of 2020-2022, 2021-2023, and 2022-2024, which will be recognized between January and April 2023, 2024, and 2025 respectively, if the defined goals are met.



The Ecopetrol Group's 2022 TBG and the current ILP plans include climate change objectives, focused on accelerating and prioritizing the decarbonization of operations through the implementation of energy efficiency projects and initiatives, as well as the reduction of fugitive emissions, venting, and flaring, and the incorporation of renewable energies, hydrogen, CCUS, and SNC, with a GHG reduction goal that measures the Ecopetrol Group's cumulative reduction of CO₂ equivalent emissions, in line with the long-term goals of net zero CO₂e emissions by 2050 (Scopes 1 and 2) and zero routine gas flaring by 2030.



Benefits:

The Company has adopted a portfolio of benefits to improve the quality of life of workers and their families, covering aspects such as health, education, savings and investments, and non-monetary benefits. The benefits are granted to workers who meet the requirements established for each benefit under the portfolio. Detailed descriptions can be found in the Human Talent section of this Report.

(GRI 2-21)

The total compensation for the President of Ecopetrol consists of an estimated ratio of **40%** fixed compensation and **60%** variable compensation. The President's short-term variable compensation is subject to compliance with the annual business results defined in the Ecopetrol Group's balanced management board, which includes financial and sustainability metrics (EBITDA and operating cash flow). The Long-Term Incentives (ILP) consider triennial extraordinary business metrics, with priority given to the Ecopetrol Group's strategic focuses.

(WEF 19E)

Fixed compensation for the President of Ecopetrol in 2022 was **7.9 times** the average fixed compensation of a company worker, and a general **7.32%** wage increase was paid to all workers.

IV.1.2. Ethics, Compliance, and Transparency



(GRI 2-23)

Commitments and Policies

(GRI 2-23-a, 2-23-b)
(ECP019) (SFC 7.4.1.3.X)

The Company's Ethics and Compliance Strategy

The Ecopetrol Group has a comprehensive policy that frames its actions around the fundamental pillars of ethics and transparency; accordingly, there is zero tolerance for all acts of fraud, corruption, bribery, money laundering, financing of terrorism and the proliferation of weapons of mass destruction, and violations of the Foreign Corrupt Practices Act (FCPA), in compliance with the Political Constitution of Colombia and applicable national and international laws. The same principles are mentioned in Article 46 of Ecopetrol's bylaws. In addition to the above, the principle of being **Ethical at All Times**™ was included as one of the pillars of Ecopetrol's Declaration of Culture, which implies being upright in all actions and complying with the guidelines of the Code of Ethics and Conduct, among others.

Ecopetrol's ethics and compliance strategy is based on the **Compliance Program**, which focused on the ethical and encompassing behavior of senior management, workers, beneficiaries, contractors, suppliers, partners and other related parties, assuming special responsibility for the internal control of the Company. The **Code of Ethics and Conduct** is the pillar of the Compliance Program.

The Code contains an express rejection of acts of money laundering, financing of terrorism, financing of the proliferation of weapons of mass destruction, fraud, bribery, and corruption in all its forms (violations of the FCPA Law, transnational bribery, gifts, entertainment and hospitality, conflicts of interest, facilitation payments), lobbying, political contributions, monopolistic and anti-competitive practices, among others.

(SASB EM-EP-510a.2)
(WEF 4)
(SFC 7.4.1.3.XVIII)

In accordance with Colombian regulations and the FCPA adopted by Ecopetrol, the Company conducts due diligence before engaging with a counterpart. This obligation is contained in the Code of Ethics and Conduct. Additionally, the **Manual for the Prevention of ML/FT/FPWMD risks** establishes the procedure for becoming acquainted with counterparts, as well as the definition of due diligence actions and warning signs. In turn, the Guide for the prevention of compliance risks in the process of entering new businesses at Ecopetrol, establishes the guidelines for conducting due diligence on the new businesses undertaken by the Company, such as mergers, acquisitions in any capacity, investments, operating agreements or joint bidding, divestments, and others.

On the other hand, Ecopetrol signs contractual clauses with its counterparts, with one of the ethics and transparency obligations being the right to conduct administrative, financial, operating, or compliance audits on the counterparts and on any third party providing services related to the object of the contract (suppliers or subcontractors), as well as to review the information that the Company deems pertinent to verify compliance with anti-bribery laws, the Ecopetrol Code of Ethics and Conduct, and the Company's ethics and compliance guidelines. Similarly, the third parties entering into these commercial relations sign contractual clauses and formats agreeing to comply with applicable ethics and compliance regulations and related national and international references, and to learn and respect Ecopetrol's Code of Ethics and Conduct.



Said Code of Ethics also contains superior guidelines of mandatory enforcement that specifically, and within the framework of social responsibility, include the rejection of any form of discrimination and sexual harassment in the workplace, and promote the respect for Human Rights.

Furthermore, the Compliance Program adheres to the laws, regulations, guidelines, and best practice manuals against corruption, fraud, bribery, money laundering, the financing of terrorism, and the financing of the proliferation of weapons of mass destruction.

Below are the objectives of this program:



Consolidate an ethical culture in the Company, under the principles set forth in the Code of Ethics and Conduct (integrity, responsibility, respect, and commitment to life).

Identify and manage the Company's compliance risks and ensure relevant oversight to prevent the materialization thereof, with special emphasis on fraud, corruption, bribery, money laundering, the financing of terrorism and the proliferation of weapons of mass destruction (ML/FT/FPWMD), violations of the Code of Ethics and Conduct and anti-bribery regulations, such as the FCPA, Law 1778/2016, among others.

Promote the adequate execution of the necessary processes for the expansion of the business to avoid the manifestation of risks deriving from failures in the controls implemented.



Generate trust in the Company from investors, society, the Stakeholder Groups, and the general public.

Contribute to the fulfillment of the Ecopetrol Group's strategic objectives and ensure the reasonableness of the financial statements.



To meet the objectives of the Compliance Program, four **(4) pillars** are considered with the following activities:

- 1 Prevention:** management of the ethics hotline, regular and permanent training and education, communications, follow-up and monitoring, assurance of control processes and the risk management cycle, collective initiatives, among others.
- 2 Detection:** ethical checks, disciplinary investigations, and cooperation with control bodies and other national and international authorities, such as the SEC- Securities and Exchange Commission, the DOJ- Department of Justice, the Office of the Inspector General of the Nation, the Office of the Attorney General of the Nation, the Office of the Comptroller General of the Republic, Superintendencies, the Financial Information and Analysis Unit - UIAF, and the Secretariat of Transparency under the Vice Presidency of the Republic.
- 3 Response:** corrective actions and ethical and disciplinary sanctions.
- 4 Continuous improvement:** adjustment of control processes, and regulatory updates, and strengthening of skills and management tools, among others.

(GRI 2-23-c)

The links to all commitments and policies are available on the Ecopetrol/Company/**Ethics, Transparency and Compliance**.



(GRI 2-23-d)

Ethics and compliance leadership must be conveyed from the highest level (Tone at the Top). Accordingly, the Board of Directors approves the Code of Ethics and Conduct and monitors compliance with the Code, and its Audit and Risk Committee. Also oversees reports associated with corruption, bribery, and accounting and financial fraud that may affect Ecopetrol's financial statements.

(GRI 2-23-e)

The commitments adopted in the Code of Conduct extend to the Ecopetrol Group, and also to:

- The staff members and boards of directors of Ecopetrol and all companies under the Business Group.
- Natural or legal persons that have any relationship with the Group, including beneficiaries, shareholders, contractors, suppliers, agents, partners (also joint ventures), clients, partners, and suppliers, as well as security service contracts.
- Personnel and firms engaged by the counterparts for the execution of activities with the Ecopetrol Group.



Every year, the workers at Ecopetrol and the Group ratify their pledge to ethics and transparency by means of the Commitment to Transparency.

The third parties that engage in commercial relations with Ecopetrol sign contractual clauses and forms, in which they agree to comply with national and international ethics and compliance regulations and benchmarks, and to learn and respect Ecopetrol's **Code of Ethics and Conduct**.

Given the above, the Code is of mandatory knowledge and implementation for all its recipients, who must ensure that their actions are always framed within the rules contained therein.

(GRI 2-23-f, 2-24-a)

In 2022, Ecopetrol provided training to 100% of its employees, ethical mentors, Board of Directors and senior management, contractors, associates, suppliers, and partners (including joint ventures), by means of preventive activities, targeted training, and dissemination of communication pieces. The activities conducted included virtual courses, supplier and contractor events, recreational activities, higher ethics workshops, ethical moments, streaming, e+ Knowledge talks, newsletters, lessons learned, comics, radio soap operas, dilemmas, use of internal social media (yammer), community of practice, and posting frequently asked questions, in order to generate awareness in our counterparts and ensure their commitment to the company's ethical principles and guidelines, promote the use of the ethics hotline, and set up anti-corruption compliance programs. 10 workshops were also held with the community.

Mechanisms for Advising on the Implementation of the Compliance Program and its Guidelines.

Ecopetrol offers the direct access Ethics Hotline to report any concern, submit inquiries, and obtain guidance^{13,14} on ethics and compliance issues. It can be accessed through the Company's website and it contains a list of frequently asked questions to guide stakeholders on how to use it. In 2022, Ecopetrol received 1,033 concerns and inquiries through the Ethics Hotline. The results of the Commitment to Transparency in 2022¹⁵ indicate that **99.7%** of the workers are aware of this channel.

Similarly, an Ethics and Compliance Office was set up for stakeholders to submit their questions. The Network of Ethical Mentors¹⁶ is also available at the national level to promote the use of the Ethics Hotline at the different levels of the organization.

The concerns and inquiries received are analyzed in accordance with the Management Procedure for Ethical and Compliance Issues (MEI-P-001), based on the principles of the Code and other applicable regulations, as necessary.

This is a corporate channel operated by an independent international company, ensuring full transparency in the process and availability throughout the year, **24 hours** a day, **7 days** a week in Spanish, English, and Portuguese.

The matters registered in the ethics hotline are managed by the Vice Presidency of Corporate Compliance, through Corporate Ethics and Compliance Management.

The channels below are available to access the hotline:

Link:

www.lineaetica.ecopetrol.com.co



International hotline
(free international
prefix) 018009121013



National hotline in
Bogotá 3103158600,
or extension 43900 for
Ecopetrol employees.

The ethics hotline -available to workers, contractors, suppliers, clients, associates, business partners, and other third parties- also allows people to report acts contrary to the Code of Ethics and Conduct. These mechanisms have allowed coverage of **100%** of the target population.

13 According to Ecopetrol's Code of Ethics and Conduct, some of the doubts that may arise in the actions of its recipients, with respect to the principles of the Code and its guidelines on conflicts of interest or ethics, include gifts, acts of hospitality, corruption, bribery, fraud, money laundering, financing of terrorism, the FCPA, human rights, social responsibility, the use of assets, and information management, among others. Accordingly, the purpose is for them to receive guidance so as not to engage in improper acts in breach of the Company's ethics.

14 These are due diligence requirements associated with the prevention of acts of fraud, corruption, bribery, money laundering, the financing of terrorism, and breaches of the FCPA. These consultations allow the review of possible signals pertaining to contractors, suppliers, partners or workers, among others, and recommendations are issued to mitigate the alert signals detected.

15 Survey included in the Compliance Program, taken annually by all Company workers, including senior management, which evaluates the awareness and implementation of ethical guidelines. This instrument ratifies the rejection of acts of corruption, local and transnational bribery, fraud, and violations of the provisions of the Code of Ethics and Compliance.

16 Ecopetrol created the Network of Ethical Mentors as a prevention tool to encourage outstanding ethical behavior and to turn the designation of Ethical Mentor into a recognition to the workers in each area who stand out for their spirit of leadership and ethical behavior. Currently, the Network of Ethical Mentors is made up of 68 workers who play an important role as ethics and compliance ambassadors in each of their areas.

Ecopetrol and its Group admit zero tolerance for retaliatory actions against whistleblowers, as indicated in the Code of Ethics and Conduct, for which the Company ensures the following:



The reports received are analyzed in accordance with the Management Procedure for Ethics and Compliance Issues (VEI-P-001), based on the principles of the Code and other applicable regulations, as necessary.

In 2022, **401** concerns and **632** queries were addressed. None of the issues verified during 2022 were related to bribery, facilitation payments, violations of the FCPA, financial fraud, or events that affect the Company's accounting records or reasonableness of financial statements.

Neither Ecopetrol, or the natural persons acting on its behalf and representation, were sanctioned or investigated by external authorities in connection to acts of corruption, bribery, fraud, or violations of the FCPA.

The Corporate Vice Presidency of Compliance is an independent area, with functional report to the Board of Directors' Audit and Risk Committee, responsible for the adoption and monitoring of the Compliance Program and assurance of the Risk Management and Internal Control Systems at Ecopetrol and its Group.

It is in charge of periodically reviewing and updating the activities deriving from the Group's Compliance Program, generating actions for improvement according to its effectiveness results; conducting preventive and corrective monitoring of the counterparts, and also against potential compliance risks (corruption, facilitation payments, political contributions and donations, fraud, national and transnational bribery, ML/FT/FPWMD, violations of the Code of Ethics and Conduct and the FCPA).

It also issues guidelines for Group companies on matters within its competence and monitors the management thereof. Its different areas are responsible for the processing of ethical, compliance, and disciplinary complaints, among others.

Periodic reports are submitted to the Board of Directors' Audit and Risk Committee pertaining to the activities conducted by the Vice Presidency and its work teams. This falls under the scope of work of the Ethics Committee, led by the President of the Company, whose purpose is to evaluate and issue recommendations to strengthen the ethical environment of the organization.

(GRI 2-24)

The Corporate Vice Presidency of Compliance assigns responsibilities through its different units:

- Coordination of Excellence in Transparency
- Monitoring Coordination
- Corporate Comprehensive Risk Management
- Corporate Management of Internal Control Assurance
- Corporate Management of Ethical Affairs and Compliance
- Disciplinary Investigation Management
- Disciplinary Judgment Management

[SFC 7.4.1.3.X] **Statutory Auditor**

The General Shareholders' Meeting appointed statutory auditing firm Ernst & Young Audit SAS for the period of 2021 on March 26, 2021, with the option of extending it to the period of 2022. The firm's fees are indicated below:

Figures in COP (not including VAT)		
	2021	2022
Fee	4,279,813,200	4,408,207,596

During 2021 and 2022, the firm executed the duties determined by law and the bylaws, including the evaluation and issuance of an independent opinion on the overall internal control system and in the scopes that have an impact on the preparation of financial information, in accordance with the provisions of the Sarbanes Oxley Act and Standard No. 5 of the Public Company Accounting Oversight Board (PCAOB), whose results have been periodically presented to the Board of Directors' Audit and Risk Committee. Additionally, to ensure the best practices regarding the rotation of the external audit firm/statutory auditing firm, Ecopetrol's bylaws provide for the appointment of said firm for periods of four (4) years, with the possibility of being reelected consecutively up to ten (10) years and rehired after being one (1) period away from office. The partner assigned to the Company must in any case rotate after completing **five (5) years** in practice.



(GRI 205-2)
(WEF 4)(SASB
EM-EP 510a.2)
(ECP 020)

To prevent acts of corruption, bribery, fraud, money laundering, and the financing of terrorism, the following actions were adopted within the framework of the Compliance Program:

Training, Education, and Instruction:

- 1 **99.64%** of the Company's employees, including all the members of the steering committee, signed the annual Commitment to Transparency, which evaluates the awareness and implementation of the Code of Ethics and Conduct and the internal regulations, and ratifies the rejection of violations of said internal regulations.
- 2 **100%** of the business partners (joint ventures) ratified their awareness of the principles and guidelines of the Code of Ethics and Conduct adopted by Ecopetrol and its Group.
- 3 **100% (68)** of the ethical mentors were trained in 2022, who launched more than 2,700 replications of the information in their areas, in support of the preventive plan.
- 4 Regular training in risk management and anti-corruption practices was provided to the members of the Board of Directors, senior management, all work teams, the special risk areas, and their counterparts.
- 5 **2022 Prevention Strategy - Ethical Tour: gamification exercise¹⁷** conducted throughout the business group (with more than a thousand pieces of evidence). Based on issues such as: conflicts of interest, Code of Ethics and Conduct, respect for and rejection of discrimination, sexual harassment, information leakage, money laundering, bribery, and others. This tour was also conducted with suppliers (more than 2,500 pieces of evidence).
- 6 **E+ knowledge streaming talks: 7,907** connections on the following topics: prevention of ML/FT/FPWMD, fraud, corruption, risks, conflicts of interest, sexual harassment, workplace harassment, bribery and the FCPA, ESG risks, domestic violence, and the prevention of discrimination, among other issues, with material published in the Community in Practice.
- 7 **Targeted training:** training and education was provided for specific recipients (population and the regions), selected based on the analysis of ethical reports and issues corroborated in previous periods, early warnings (mentors, reports on the ethics hotline, ethical leadership exercise, results arising from actions carried out by control entities), and regulatory requirements based on national and international standards, radars, and indicators. **13,139** participations were registered in 2022.
- 8 **The members of the Board of Directors received training on the following topics:**
 - i) Risks.
 - ii) Transparency.
 - iii) OFAC and FCPA sanctions.
 - iv) Induction to the Compliance Program adopted by Ecopetrol and its Group.

17 Gamification is a learning technique that transfers the mechanics of games to the educational-professional field in order to achieve better results, either to better absorb specific insights, improve skills, or reward specific actions, among many other objectives.

9

The Steering Committee received training on the following topics:

- i) Labor disconnection law.
- ii) Irregular management of contractor resumes.
- iii) Disciplinary control reform at Ecopetrol.
- iv) Right to petition.
- v) Audits by the Comptroller General of the Republic.
- vi) Ethical Leadership Tour results.
- vii) Recognition of ethical mentors, with 320 participants.

10

Moreover, to promote **ethical leadership** in Senior Management, permanent training was given to all leaders in the organization on critical ethics and compliance issues, with emphasis on the prohibition of specific economic activities and conflicts of interest (main behavior confirmed at the organizational level).

11

Training for contractors, suppliers, partners: communication pieces and bulletins were distributed in 2022 to all Ecopetrol contractors, suppliers, associates, and partners on the following topics:

- i) Code of Ethics and Conduct.
- ii) ML/TF/FPWMD.
- iii) Fraud.
- iv) Ethics hotline.
- v) Risks, among others.

Training and educational materials on issues related to the Code of Ethics and Conduct and the Compliance Program (including the issue of sexual harassment), conflicts of interest, ML/TF/FPWMD, and the rejection of discrimination and respect for human rights were also given to more than **3,500** suppliers and contractors, with more than **11,400** recipients in total.

12

Community: workshops on the Code of Ethics and Conduct and the Compliance Program were held in the municipalities impacted (Putumayo: Orito and Puerto Caicedo; Santander: San Miguel; Huila: Neiva and Aipe).

13


Ethical culture plan for risk prevention: this plan included the virtual course related to the Comprehensive Risk System, which was approved by **5,962** workers. Similarly, risk-based training was given to 381 people, and 358 work sessions were held with the personnel of each of the responsible areas to discuss Ecopetrol's comprehensive risk management model.

14

Communication actions: more than 100 communication pieces were designed and distributed, with **1,014,466** electronic receptions on the following topics:

- i) Code of Ethics and Conduct.
- ii) Compliance Program.
- iii) Prevention of ML/TF/FPWMD.
- iv) Transparency.
- v) Information security.
- vi) Conflicts of interest.
- vii) Disciplinary capsules.
- viii) Discrimination and sexual harassment.
- ix) Ethical hotline.
- x) Fraud.
- xi) The FCPA.
- xii) Fight against corruption.
- xiii) Labor exclusivity clause.
- xiv) Ethics in the access and use of health services.
- xv) Prevention of ML/TF/FPWMD.
- xvi) Anti-bribery, and others.

Preventive Monitoring:

- 

A data analysis routine plan was executed throughout the year, in order to mitigate ML/FT/FPADM risks and identify breaches of the FCPA or the Code of Ethics and Conduct. New analysis routines were implemented in 2022 (depending on the risks and needs of the Company), while execution activities were systematized using tools developed in-house and with the adoption of new analysis methodologies.

(SFC 7.4.1.3.XIII)

Internal Control System (SCI)

The Internal Control System is designed to provide reasonable assurance in the achievement of strategic, operational, reporting, and regulatory compliance objectives, through timely risk management and the effectiveness of the controls. Self-control is a fundamental pillar, understood as the attitude of undertaking daily work with self-criticism and self-management, promoting transparent and effective performance to streamline the achievement of organizational goals. Self-control is exercised permanently to confirm that the controls operate in accordance with their design and with the reality and context of the process in the Company.

As part of the self-control and supervision exercise, certifications and self-assessments are conducted periodically to corroborate the effectiveness of the controls,

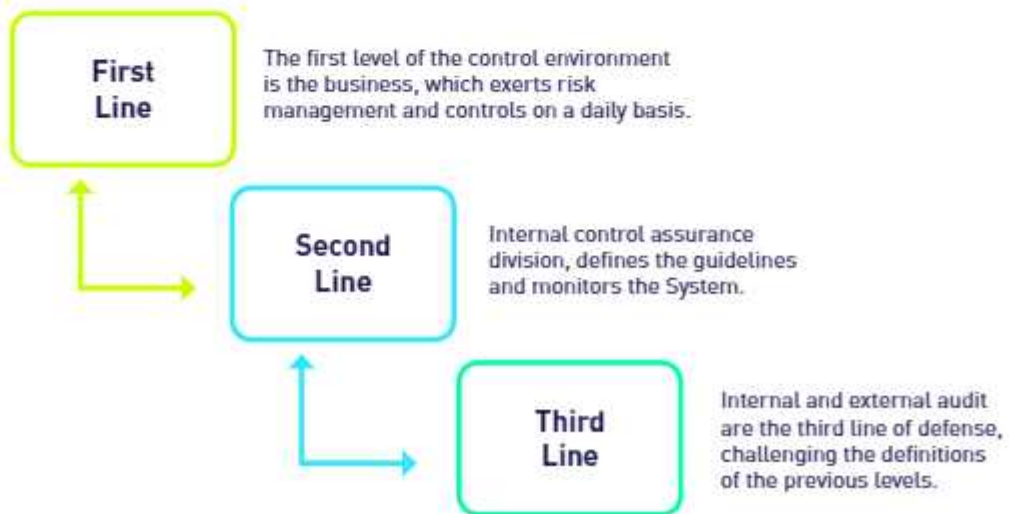
the existence of additional risks, relevant risk issues, and mitigation measures, and the monitoring of key risk indicators (KRIs).

This is a process involving the entire Company. It is supervised by the Board of Directors' Audit and Risk Committee as the highest control body responsible for monitoring the management and effectiveness of the internal control system.

In 2022, the management of **426** risks and **1,113** process controls were monitored at Ecopetrol, as well as **2,491** risks and **4,915** process controls in the subordinate companies, which contributed to the Statutory Auditor issuing an independent opinion, rendering the Company's internal control effective.

The SIC works under the following monitoring scheme:

Three Lines of Defense Model at Ecopetrol



Source: Corporate Vice Presidency of Compliance.

The Corporate Management of Internal Control Assurance, in its role as second line of defense, defines the guidelines for risk management and process controls and implements prevention and continuous monitoring schemes by verifying the internal control elements implemented in Ecopetrol's processes, including monitoring activities associated with the recommendations issued by external and internal control entities, together with the monitoring of risk management and process controls, which allow reasonable assurance in the achievement of the objectives, thereby guaranteeing the sustainability and continuous improvement thereof at Ecopetrol, as well as its affiliates and subsidiaries.

Regulatory Update:

- The following documents were updated:
 - (i) Form for the prevention of money laundering, the financing of terrorism and financing for the proliferation of weapons of mass destruction.
 - (ii) Form for the commitment to contractual integrity (contracts and agreements).
 - (iii) Form for the declaration of related parties, conflicts of interest, and independence of members of the Board of Directors.
 - (iv) Annex - ethics, transparency, and compliance obligations applicable to contracts and agreements.
 - (v) The ethics, transparency, and compliance rules applicable to the methods of choice.

Table 41. | Breaches of the Code of Ethics and Conduct or of Other Guidelines

Conduct Category	Total reported incidents	Closed reports that did not result in breaches	Reports currently under investigation	Closed reports that resulted in breaches
Conflicts of interest, corruption, bribery, theft	47	19	13	7
Failure to comply with rules or procedures	117	61	30	34*
Lack of respect, abuse, or hostile environment	11	5	6	1**
Discrimination	0	0	0	0
Sexual harassment	5	1	2	1
Other reasons	7	4	3	0

Note:

*Eight (8) of the 34 closed cases were reported as conflicts of interest, corruption, bribery, theft.

**This case was reported as sexual harassment.

(205-2)(WEF 4)

Anti-Corruption Policy

Ecopetrol adopts a zero tolerance stance for issues related to ethics and transparency. For this reason, it has adopted an **Anti-Corruption Policy** spanning across the Ecopetrol Group, which addresses issues such as bribery and provides guidelines on donations, sponsorships, and other contributions.



(GRI 205-1-a, 11-20-2)

Total Number of Operations Evaluated for Corruption-related Risks

Table 42. | Operations Evaluated for Corruption-related Risks

Categories	Unit of measurement	2022
Number of operations	#	45
Percentage of operations	%	100

Source: Vice Presidency of Compliance.

(GRI 205-1-b, 11-20-2)

Within the framework of the 2022 process risk management cycle, significant compliance risks were identified and assessed (including those associated with: corruption, fraud, bribery) in the processes executed in the organization, considering all locations and physical facilities where Ecopetrol conducts its operations.

71 risks have been identified in the anti-corruption/anti-bribery category and **122** associated with fraud. Below are the main corruption risks detected in this exercise:

- Irregularities in managing the procurement of goods and services.
- Conflict of interest between the participants and/or with the outsourced support for contract management.
- Inadequate management of trade negotiations with counterparts.
- Gifts, considerations, or acts of hospitality that may be perceived as bribery.

The respective controls are defined to mitigate this type of risk.



(SASB EM-EP-510a.1)

Table 43. | Percentage of Proven and Probable Reserves in the 20 Lowest-ranking Countries According to the Corruption Perception Index Published by Transparency International

Percentage of proven and probable reserves	Unit of measurement	2022
Proven reserves in the 20 lowest-ranking countries according to Transparency International's Corruption Perception Index	Bbbls	0
Probable reserves in the 20 lowest-ranking countries according to Transparency International's Corruption Perception Index	Bbbls	0
Total proven reserves	Bbbls	1,291,954
Total probable reserves	Bbbls	387,182
Percentage of proven reserves in the 20 lowest-ranking countries according to Transparency International's Corruption Perception Index	%	0
Percentage of probable reserves in the 20 lowest-ranking countries according to Transparency International's Corruption Perception Index	%	0

Fuente: Vicepresidencia Corporativa de Cumplimiento y Vicepresidencia Financiera.

(GRI 205-3, 206-1, 11-20-4, 11-19-2) (WEF 4)

Investigations Associated with Corruption Practices and Unfair Competition

There were no confirmed cases of corruption in 2022. Ecopetrol is not involved in cases of corruption, bribery, unfair competition, monopolistic practices, or practices against free competition, nor have any related cases, fines, or disputes been confirmed on these grounds in the last four (4) fiscal years.

159

(GRI 405-1, 11-11-5) (WEF 2, 11)

Annual Monetary Contributions and Other Expenses for Political or Related Purposes

Ecopetrol did not make any type of donation to political parties in 2022 or in previous years. Similarly, due to its legal nature, Ecopetrol does not participate in any lobbying activity. In Colombia, the Company formalizes its observations in the different legislative and regulatory initiatives that may affect the hydrocarbon or energy sector with the Ministry of Mines and Energy, as the head of the sector, and its affiliated entities.

The Company has a procedure for engaging with Congress, in which it describes step-by-step guidelines for the following actions:

- Attending meetings requested by members of the congress and following up on commitments to them.
- Attending invitations to political control debates.
- Responding to requests for information and questioning about invitations to political control debates presented by congressmen in due time and with high quality.
- Following up and monitoring draft bills of interest to Ecopetrol.

However, Ecopetrol is part of several associations and institutions in which it makes membership or affiliation contributions that are equally monitored. The contributions made to such associations can be verified on annex 12 of this report.

(WEF 6)

Risk Management System

Comprehensive risk management at Ecopetrol responds to the ISO 31000, COSO 2013, and COSO ERM 2017 standards, and it is governed by the internal regulations incorporated into the bylaws, as well as the comprehensive policy, the Code of Good Governance, manuals and internal guides and instructions defined for this purpose, all of which allow the Company to make informed decisions and contemplate possible events that positively or negatively impact the objectives of the Company and its Group.

The Comprehensive Risk Management System (SRI, as per its Spanish acronym) is led by the Corporate Vice Presidency of Compliance, as an independent area that ensures the design, implementation, administration, maintenance, and continuous improvement thereof, as well as its deployment to Group companies, and it is supervised by the Board of Directors' Audit and Risk Committee, which verifies the establishment of the system, analyzes and formulates recommendations to the Board for the approval of business risks, and learns about the management efforts exerted and monitors them.

(WEF 2)

At Ecopetrol, the Corporate Vice President of Compliance, María Juliana Albán, is the person in the highest ranking position, after the President, with the responsibility for risk management at the

operational level. Her reporting line on risk management issues is to the President of the Company and the Board of Directors' Audit and Risk Committee. For his part, the President of Ecopetrol, Felipe Bayón, holds the highest-ranking position with risk management and auditing responsibilities at an operational level. In this position, the reporting line is directly to the Board of Directors' Audit and Risk Committee.

Corporate Internal Audit Management is responsible for evaluating and proposing actions to improve the effectiveness of the Company's SRI.

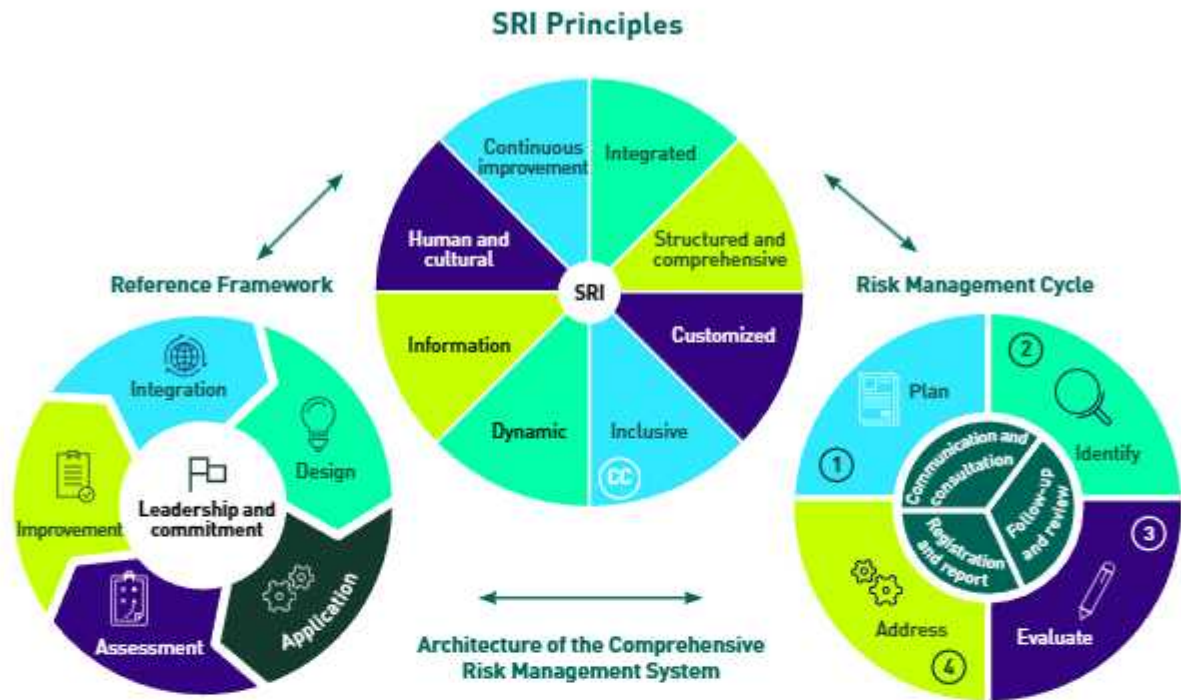
Employees are responsible for understanding and identifying the risks to which they are exposed in the exercise of their duties and within the processes in which they participate, and for adequately handling the risks that are manageable within the exercise of their duties, in compliance with the principles, framework, and processes under the SRI, and also with the Code of Ethics and Conduct.



In relation to the Ecopetrol Group companies, the Vice Presidency of Compliance exercises governance, steers, issues guidelines, defines practices, and monitors risk management, in order to unify guidelines, promote synergies, improve, and ensure oversight, and contribute to timely and appropriate decision-making. The management exerted in the subsidiaries is evidenced through periodic compliance reports to the Vice Presidency, which reports to Ecopetrol's Audit and Risk Committee.

The SRI allows the Company to manage the effects of uncertainty over the fulfillment of its objectives, in order to maximize opportunities, define strategies, and make informed decisions.

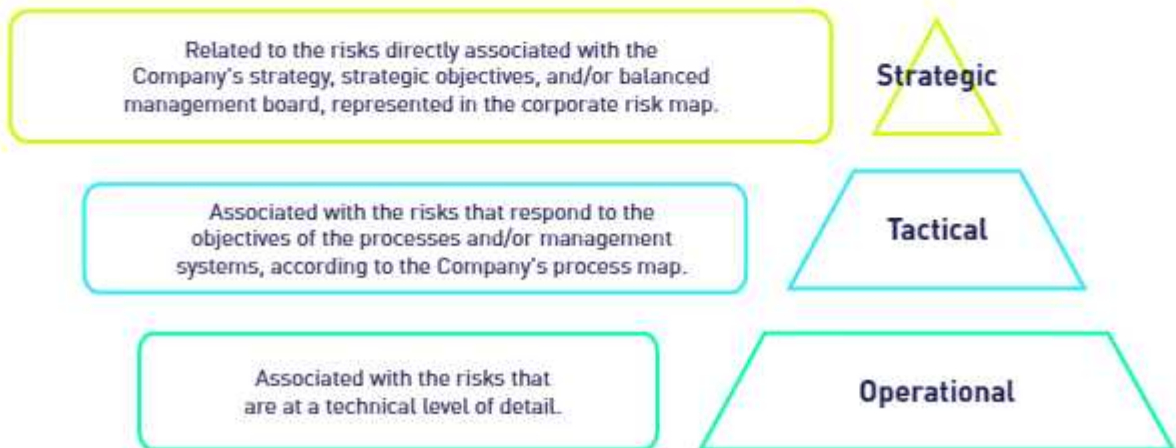
Figure 34. | Comprehensive Risk Management System



Source: Vice Presidency of Compliance.

The risk levels at Ecopetrol, managed under the SRI, are specified below:

Figure 35. | Risk Levels



Source: Vice Presidency of Compliance.



The SRI works by executing the risk management cycle, which analyzes the objectives (strategic or process-related) to identify risks and define the appropriate controls to mitigate them or restrain their impacts. This cycle comprises the following stages:

Figure 36. | Risk Management Cycle



- **Plan:** define the scope of the activities and analyze internal and external context.
- **Identify:** identify risks based on the perspectives of the people involved and the analysis of the information.
- **Evaluate:** analyze the causes and consequences. Assess according to probability and impact.
- **Address:** selection and implementation of options to address the risk.
- **Communication, follow-up, and registration:** information exchange, feedback, and continuous monitoring.

Source: Vice Presidency of Compliance.

The construction and updating of the business risk map is a collective process based on the analysis of the internal and external environment, considering market trends and the specific risks and management standards applicable to the Group companies and the industry, which are normally subject to analysis and review by sustainability indices and radars.

The monitoring of business and process risks serves to identify alerts, verify the execution of the mitigants, and ensure actions against the materializations reported by the persons in charge, in order to maintain the risks within defined tolerance and acceptance levels. The relevant results of this follow-up were periodically reported to the Executive and Audit and Risk Committees according to occurrence or criticality thereof, by means of management reports in the monthly sessions.

Market Risks and Procedure to Assess and Measure the Degree of Exposure to Relevant Risks

Relevant Risks Pressing on the Issuer and Mitigation Mechanisms Implemented

The risks that may affect the advancement of the corporate purpose, the strategy, the financial situation, the investment plan, the operating results, the cash flow, and the growth prospects are identified in the business risk map¹⁸. To appraise and measure the degree of risk exposure, Ecopetrol and its subsidiaries¹⁹ conduct a quantitative and qualitative evaluation considering the probability of occurrence²⁰ and the possible impact²¹ on the

people, the environment, the economic resources, reputation, and on customers. The risk levels are assessed using an established appraisal matrix²². The resulting assessment derives from the combination of probability and impact, as follows: Very High, High, Medium, Low, and Very Low.

Below are the probability estimates and level of economic impact (quantitative) for business risks:

	Business Risk	Probability	Level of impact Economic **
1	Unsuccessful protection and incorporation of resources and reserves	Unlikely	Level 5
2	Asset competitiveness in light of the energy transition	Unlikely	Level 5
3	Impact on financial sustainability and value generation	Possible	Level 4
4	Subordinates that do not fulfill the value promise	Possible	Level 5
5	Operational interruption incidents due to environmental causes	Likely	Level 3
6	Unsuccessful transition and incorporation of ISA to the Ecopetrol Group	Unlikely	Level 5
7	Spread of epidemics that affect the operation	Likely	Level 3
8	HSE events due to operating causes	Possible	•
9	Projects that do not meet their value expectation	Unlikely	Level 4
10	Ethics and compliance breaches	Likely	•
11	Cyberattacks, leakage or loss of information	Likely	Level 3
12	Organizational culture that does not leverage the strategy	Possible	•
13	Breach of commitments by third parties	Possible	Level 3
14	Impact on the operation or on corporate governance due to geopolitical or regulatory changes, or provisions set forth by control entities and the state	Unlikely	Level 5
15	Inadequate climate change and water management	Unlikely	Level 4

Source: Vice Presidency of Compliance.

**1 being the lowest level and 5 being the highest level.

*Its level of impact is given by qualitative estimates (e.g., people, environment, reputation).

18 For more information on business risks, visit <https://www.ecopetrol.com.co/wps/portal/Home/es/NuestraEmpresa/QuienesSomos/GestionDeRiesgos>

19 The Ecopetrol Group is made up of all subordinate companies and those in which it holds some shareholding, as well as the financial and investment vehicles in Colombia and abroad.

20 The probability of occurrence is defined using the following levels: most certainly, likely, possible, unlikely, and rare.

21 The dimensions of the impact are: catastrophic, major, moderate, minor, insignificant.

22 RAM-Risk Assessment Matrix.

Below is a description of the nature of the business risks identified, the corresponding monitoring and mitigation mechanisms, as well as a brief explanation of the materializations presented and the measures adopted for the reporting period:

Unsuccessful protection and incorporation of resources and reserves	Asset competitiveness in light of the energy transition	Impact on financial sustainability and value generation
<p>Risk description</p> <p>Inability to protect and incorporate resources and/or reserves (crude oil and gas) that impact the advancement of the exploratory and production portfolio and the management of new opportunities and resources associated with project management, thereby failing to meet the goal of incorporating resources and reserves for the term and causing an adverse variation in the reserve replacement rate compared with to the previous year.</p>	<p>Risk description</p> <p>Failing to achieve competitiveness and resilience for the Oil & Gas business and for Company assets in light of the energy transition, thus generating possible entrapments due to non-compliance with the required fuel quality and outside the parameters established by regulation, as well as non-compliance with environmental regulations that interrupt the development or operation of the asset.</p>	<p>Risk description</p> <p>Impact on Ecopetrol's financial sustainability and on the fulfillment of value generation due to illiquidity, access restrictions to bank debt or capital markets, financial ratios outside acceptable limits, significant breaches of EBITDA, lack of key coverage in the insurance market.</p>
<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Creation of the Exploration Tactical Control Committee. • Creation of Exploration Planning Portfolio Committee. • Monitoring and quarterly reporting of reserves to the Audit and Risk Committee. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Implementation of Ecopetrol's stake in Micro LNG (Liquefied Natural Gas) to supply a low-emission fuel. • Implementation of the chapters associated with the development strategy that impact the risk of entrapment and affect the competitiveness of the assets. • Definition and implementation of the methodology for identifying assets at risk of losing value prematurely. • Implementation of a digital tool to strengthen the management of upstream assets to avoid loss of value. • Execution of the Fuel Quality project at the Barrancabermeja refinery. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Implementation of price forecasting methodologies, both TRM and capex. • Monitoring activities on the accounts receivable of the Fuel Price Stabilization Fund. • Design of hedging strategies.
<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>

Subordinates that do not fulfill the value promise	Operational interruption incidents due to environmental causes	Unsuccessful transition and incorporation of ISA into the Ecopetrol Group
<p>Risk description</p> <p>Non-compliance by the subsidiaries that affect the financial performance of the Ecopetrol Group (operating profit, refining margin, EBITDA, and illiquidity), as well as the operating performance (negative deviation from the target for the incorporation of resources and reserves and unfavorable ruling in litigation against the subsidiaries).</p>	<p>Risk description</p> <p>Incidents of low manageability in the environment that make it impossible to maintain the Company's operation and cause deferred production, attacks, de facto actions, sabotage, seizure, and violent takeover of stations.</p>	<p>Risk description</p> <p>Unsuccessful transition of ISA to the Ecopetrol Group's control, consolidation, and reporting scheme, and incorporation of new business lines unrelated to ECP's traditional activity, thereby generating results that differ from those expected, due to causes attributable to management, as well as sanctions, operating interruptions, and reputational impacts.</p>
<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> Follow-up on the progress of the strategy and analysis of business performance by comprehensively monitoring the objectives and performance indicators of the Ecopetrol Group. Quarterly monitoring of compliance with EBITDA and financial debt ratios. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> Identification and implementation of preventive actions deriving from the analysis of materialized events. Social investment promotion plan. Implementation of the Human Rights Risk Management Cycle under the annual human rights plan. Strengthening the relationship with stakeholder groups. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> Design and implementation of the Corporate Governance model for ISA. Promote the strategic management of change and culture at Ecopetrol - ISA. Implementation and readiness for the ISA' alignment to Ecopetrol's Compliance Program.
<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>During the year, the Group reported 36 blockades, 24 attacks, and 759 illegal connections^[1].</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>
	<p>Response measures</p> <ul style="list-style-type: none"> Inter-institutional approach led by Ecopetrol, with the involvement of the Police, the Army, the Navy, the Prosecutor's Office, the Ombudsman, and Representatives to review joint actions. Application of transportation system inspection technologies. Permanent scanning of illegal connections in the transport assets of the Ecopetrol Group in the most affected areas. Monitoring together with community leaders, community actions, and the regional government. <p>[1] The blockades are attributed as follows: 21 to Ecopetrol, two (2) to Hocol, six (6) to OBC, and seven (7) to Ocesa. As for the attacks, four (4) correspond to Ecopetrol and 20 to Cenit. The 759 illegal connections are related to Cenit.</p>	

Spread of epidemics that affect the operation	HSE events due to operational causes	Projects that do not fulfill their value promise
<p>Risk description</p> <p>Possible massive spread of infectious, epidemic diseases that compromise the health of employees, contractors, third parties, and other stakeholder groups, which can lead to the suspension of critical operations, delays, or non-availability of equipment or supplies required for the operation, as well as impacts on trade agreements with suppliers and customers, and on the supply chain due to lower demand for crude oil and products.</p>	<p>Risk description</p> <p>Undesired and foreseeable events originating from the operation [industrial safety, process safety, or environmental events regarded as severity level 5 in terms of the impact on the people, property and infrastructure, the environment, the reputation and/or relationship with customers, and/or process safety events regarded as level 1] that may have an impact on people, assets and infrastructure, the environment, the reputation of the company and/or the relationship with the client.</p>	<p>Risk description</p> <p>Negative deviations in the value expectation (VPN and negative ENPV) of the projects, in the terms committed in the strategy.</p>
<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Incorporation of lessons learned from real activation scenarios in COVID-19 business continuity plans. • Evaluation of the response capacity of Ecopetrol S.A.'s critical facilities. • Communications plan associated with COVID-19. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Comprehensive management of high consequence scenarios. • Environmental risk assessment, aligned with the environmental studies methodology under Resolution 1402 of 2018, Decree 2127 of 2017, and with Resolution 40411 of 2021. • Implementation of HSE Committees in the boards of directors of the subsidiaries / HSE Agenda in current Boards of Directors. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Definition of alerts for changes in the variables that affect the VPN. • Determining value expectation (VPN) as a variable for assessing the risk impact of the projects. • Training in monitoring the value expectation of investments to improve their adoption.
<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>Ecopetrol recorded two (2) containment losses and ISA one fatality in 2022.</p> <p>Response measures</p> <ul style="list-style-type: none"> • Root cause analysis identifying the basic and immediate reasons that caused the event. • Training in reporting materialized events and root causes. • Staff training and qualification plan – training in working at heights with certified entities. 	<p>Materializations</p> <p>Project with a forecast lower than previous reserve estimates.</p> <p>Response measures</p> <p>Analysis by the Board of Directors on the continuity of the project.</p>
Ethics and compliance breaches	Cyberattacks, leakage or loss of information	Organizational culture that does not leverage the strategy
<p>Risk description</p> <p>Occurrence of inappropriate behaviors associated with breaches of the Code of Ethics and Conduct, fraud, corruption, bribery, money laundering, financing of terrorism, financing of the proliferation of weapons of mass destruction, and violations of the FCPA, which cause a reputational impact that affects the strategy.</p>	<p>Risk description</p> <p>Cyber-attacks (phishing, malicious code, brand theft, viruses, seizure of assets or data, service denial, cyber espionage, among others) that affect the Company's operations or critical infrastructure, as well as unauthorized access or extraction of classified or reserved information through information systems, technological devices, or unsafe cybersecurity behaviors by employees, contractors, or third parties.</p>	<p>Risk description</p> <p>Behaviors and competencies that are not governed by cultural principles or the business strategy, which must be leveraged in agile processes and technology, affecting the goals of cultural transformation, people retooling, and culture in terms of processes.</p>

<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Approval of preventive and corrective actions deriving from the monitoring of ethical performance, behavior management, and the organization's ethics and compliance program. • Supervising the efficiency and outcomes of the activities under the Compliance Program (prevention, detection, response, and continuous improvement), by following up on the management report presented by the Corporate Vice President of Compliance. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Supply Chain Protection (governance third-party cybersecurity risks). • Cybersecurity program to incorporate capabilities that reduce the probability of occurrence. • Upgrading and preparing the infrastructure for the 4.0 industry or for digital transformation and mitigating the risk of technological obsolescence in IT and OT. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Cross-cutting Cultural Transformation and People Retooling Plan. • Verifying the quality of the performance management process in planning, monitoring, and evaluation. • Verifying compliance with the parameters for the alignment of individual performance objectives and Ecopetrol's strategic objectives.
<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>
<p>Third party breaches</p>	<p>Impact on the operation or on corporate governance due to geopolitical and regulatory changes or provisions set forth by control entities and the state</p>	<p>Inadequate climate change and water management</p>
<p>Risk description</p> <p>Breach of contractual commitments by an associate in the course of a joint venture (activation of clauses for Ecopetrol to contribute the corresponding partner/associate resources, to request the removal of the partner/associate-operator, or for breaches in the execution of the exploratory or exploitation program, or of abandonments), as well as non-compliance by third parties (client/supplier) with the supply of required goods and services.</p>	<p>Risk description</p> <p>Events or situations that influence the Company's corporate governance and its actions or decisions, due to:</p> <ul style="list-style-type: none"> • Geopolitical instability. • Possible difficulty in the signing of civil liability policies. • Changes in regulations or the jurisprudence, or in the national or international regulatory environment. 	<p>Risk description</p> <p>The Company's exposure to negative impacts in its value chain (operating continuity, environment, reputation, regulatory, financial), as well as its ability to implement measures to reduce and offset carbon and methane emissions, adapt to climate change and variability, to the country's normal weather conditions that affect the availability and security of water in the regions, and to other climate-related transition risks, leading to non-compliance with the goal of reducing greenhouse gas emissions, restrictions on discharges, and catchment of water volumes for the execution of projects and the continuity of operations.</p>
<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Identification of potential improvements related to non-compliance in collaboration contracts. • Approving the negotiation conditions of commercial portfolio clients with trustworthy credit, confirming that they have the credit risk profile analysis. • Management of findings and recommendations deriving from audits for the joint operation of the exploratory asset. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Strategy to reduce recurrences in matters identified by the Comptroller General of the Republic (CGR). • Implementation of project deliverables with the update of Governance elements: Senior Management Committees and Engagement Model. • Review of roles and responsibilities in the regulatory management of issues contemplated within the scope of the Regulatory Strategy Procedure. 	<p>Management, monitoring, and mitigation mechanisms</p> <ul style="list-style-type: none"> • Monitoring and implementation of projects, actions, and initiatives to reduce greenhouse gas emissions and availability of resources. • Implementation of projects and nature-based solutions (SBN, as per its Spanish acronym) to contribute to the emission reduction goal. • Structuring and updating decarbonization and integrated water management portfolios. Execution of plans for conversion to clean technologies and management of discharges at the refineries.
<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>	<p>Materializations</p> <p>No materializations were reported in the year.</p>

Risk culture

Ecopetrol is aware that culture influences all aspects of risk management at all levels and instances in the Company. For this reason, it promotes a set of desired behaviors and attitudes pertaining to risk management, in line with the Declaration of Culture, which can be consulted by clicking [here](#).



To reinforce the risk culture, Ecopetrol established indicators that affect variable compensation on an annual basis, as part of the performance evaluation at all hierarchical levels:

- HSE: Fatalities or environmental incidents (5% to 10%).
- Internal control failures reported by the external auditor (2.5% to 100%).
- Ethical events or disciplinary judgments (100%).

The Company has also implemented a self-assessment exercise and a quarterly report by process owners through the Internal Control System.

Furthermore, in 2022:

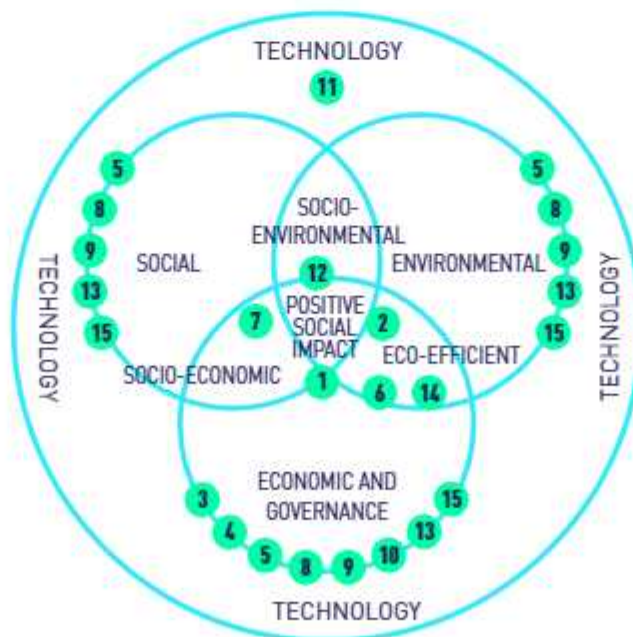
- i) The Risk Community of Practice was launched.
- ii) Communication pieces alluding to comprehensive risk management were produced.
- iii) A virtual Risk Management course was made available to all staff members.

168

(TCFD GR-1.4)

The Ecopetrol Group's business risks are directly related to social, socio-environmental, environmental, eco-efficiency, economic and governance, and socio-economic aspects and dimensions, as shown below:

Figure 37. | Business Risks and their Relationship with Environmental, Social, and Governance Issues



Source: Vice Presidency of Compliance.

The previous correspondence gave rise to the relationship of business risks with the 28 material elements identified by the Company in 2020.

Table 44. | Business Risks and their Relationship with TESG

Exceptional material elements	Business Risk
Climate change	2, 15
Integrated water management	15
Territorial development	5
Notable material elements	Business Risk
Biodiversity and ecosystem services	15
Circular economy	2
Use of energy and alternative sources	6, 9, 15
Fuel quality	2
Talent attraction, development, and retention	12
Air quality	2, 15
Health and security	5, 7, 8
Prevention and management of operating incidents	5, 8
Differentiated material elements	Business Risk
Corporate governance	4, 14
Diversity/inclusion	12
Business ethics and risk culture	10
Operational continuity system	5, 8
Compliance with material elements	Business Risk
Transparency and prevention of compliance risks	10
Publicity of information	11
Disincorporation of wells and facilities	1
Supply chain management	3, 13
Cultural heritage [ethnic – archaeological]	5
Labor standards	12
Management of real estate rights	5
Land use	5
Conservation and environmental protection areas	15
Public policy	3, 14
Comprehensive Management System	12
Access to information and citizen participation	5
Prevention and management of incidents caused by third parties	5, 8

Source: Vice Presidency of Compliance.

IV.2. Environment

(GRI 2-23)
(SFC VII)

Commitments and Policies

The Ecopetrol Group is committed to maintaining an accountable business conduct, as reflected in its 2040 Strategy, by means of its business policies, principles, and long-term commitments.

Cultural principle "Life First" under the **Declaration of Culture**, guides the Ecopetrol Group and its work team in their HSE actions, by establishing the commitment to preserve life in its different manifestations, as evinced in these behaviors:



- We take care of ourselves and take care of others.
- We act with rigor and discipline in light of the HSE management system.
- We protect the environment and our surroundings with future generations in mind.

170

Ecopetrol applies the principle of precaution under the principle of due diligence and as part of its environmental management efforts; that is, in the absence of knowledge of a potential impact or risk, the Company takes measures to study and technically understand the potential impact or risk during the planning stages of the projects, before they occur, and adopts preventive or mitigation actions that have proven to be effective over time, which are observed and evaluated within the framework of continuous improvement defined in the HSE Management System.

Environmental Strategy

(SASB
EM-EP-160a.1)
(SFC XVII)

Ecopetrol's **environmental strategy**²³, approved by the HSE Vice Presidency, establishes the guidelines for Ecopetrol's environmental management, including the vision, principles, and objectives, as well as the identification of strategic environmental pillars and levers.

It is articulated with the 2040 Strategy: Energy that Transforms, and it unfolds within the framework of the HSE Management System, in accordance with the guidelines set forth in the ISO 14001 standard.



23. The environmental guidelines were previously immersed in the Environment Strategy. In the search for continuous improvement, an independent Environmental Strategy was devised, in order to strengthen environmental management in the organization. This strategy is applicable to all Ecopetrol projects and activities and may, in turn, be adopted by the companies of the Ecopetrol Group.



The main specific objectives of the strategy are as follows:

- Environmental legal compliance.
- Systematic identification and management of potential environmental impacts and risks associated with Ecopetrol's activities, with a focus on continuous improvement and implementation of the mitigation hierarchy.
- Continuous improvement through the definition of strategic pillars and levers.
- Foster the environmental culture in employees, contractors, and the Ecopetrol Group.
- Generate long-term environmental value around our operations.
- Facilitate compliance with corporate environmental goals on the path towards the energy transition.

The environmental strategy is aligned with Ecopetrol's Risk Management System (SRI), in order to prevent the materialization of potential risks that can impact natural resources and the biota and be prepared to respond to potential emergencies that may pose risks on the environment. It is applicable to all Ecopetrol projects and activities and may, in turn, be adopted by the companies of the Ecopetrol Business Group.

The Environmental Strategy is based on the following basic principles:

- Environmental protection is a corporate responsibility that is fostered through its business culture.
- Environmental legal compliance is the foundation of environmental management.
- The mitigation hierarchy as the cornerstone for the environmental planning of projects and operations.
- Continuous improvement as a path to excellence in environmental performance.
- The environmentally intelligent challenge for the fulfillment of corporate goals.
- The path to net positive environmental impact.

The environmental strategy defined eight (8) strategic pillars:

1

Environmental planning and compliance

Prior awareness and diagnosis of environmental aspects and determinants, as well as the specific regulations of the areas where Ecopetrol S.A. undertakes its projects and operations, allow the identification of potential environmental impacts and essential opportunities for the conception and planning of measures focused mainly on the implementation of the mitigation hierarchy, thereby contributing to the successful advancement of operations, the viability of new projects, and sustainable development in the territories where the Company operates.

Ecopetrol, in managing and obtaining environmental authorizations, applies national regulations associated with citizen participation in the territories where it intends to carry out its operations and projects, in order to report on the scope of activities and the environmental and social impacts that may arise, as well as the joint construction of environmental management measures with the different social stakeholders in the area of influence of the projects and operations.

Similarly, during execution, the Company establishes permanent communication mechanisms with the authorities, communities, associations, and other stakeholders, in order to learn and respond to concerns associated with the environmental management of its projects and operations. For this, the company has created the Citizen Participation Office to address petitions, complaints, claims, and suggestions, and meet the requirements of the party concerned, in the times established by Colombian law.

It is important to highlight that the Colombian state, through ANLA, as part of the National Environmental System, is responsible for appraising and authorizing projects, works, or activities in the hydrocarbon sector. To fulfill the legal and environmental terms of a project, Ecopetrol



files the request for an Environmental License or the modification thereof with the relevant authority. It is a process used for the planning and administration of projects to ensure that human and economic activities adjust to ecological and resource restrictions, thus constituting a key mechanism to promote sustainable development in the Nation". (ANLA, 2020)²⁴.

The environmental licensing process begins by filing an Environmental Impact Assessment conducted by the party concerned, which includes, among other aspects, the identification of environmental and social impacts with and without the project, which can be classified as indirect, synergistic, and cumulative.

Similarly, the evaluation and assessment must be conducted using methodologies according to the nature of the project by justifying the assessment of each impact, be it negative or positive. Furthermore, the Environmental Impact Assessment proposes environmental management programs that comprise a detailed description of the set of actions, measures, and activities aimed at preventing, mitigating, correcting, and offsetting the environmental and social impacts arising from the development of a project, work, or activity.

In terms of environmental legal compliance based on the sub-element of the HSE Management System, corporate guidelines are available, and the Environmental Legal Compliance Index is also measured annually to monitor compliance with the requirements.

²⁴ https://www.anla.gov.co/01_anla/tramites-y-servicios/Servicios/licencia-ambiental/#--text=Licencia%20Ambiental&text=Es%20un%20proceso%20utilizado%20para,para%20promover%20el%20Desarrollo%20sostenible.



2

Climate action

Ecopetrol reaffirms its commitment to reduce its carbon footprint, thus adding efforts to limit the global temperature increase to below 1.5°C. To this end, the Company deploys actions to maintain its operations low in carbon emissions and resilient to the effects of climate change, by adequately managing climate-related risks and opportunities.

3

Towards water neutrality

Ecopetrol declared its commitment to be water neutral by 2045, which has been defined as the balance between the water required by the Company for its operations and the direct water footprint, considering efforts to reduce it as much as economically and technically possible, and subtracting the compensation of 100% of the remaining water required to operate through compensation projects executed in the water basin where the Company operates. To achieve this, Ecopetrol has committed to a **66%** reduction by 2045 in the catchment of fresh water for industrial use compared to the base year (2019), to eliminating 100% of industrial wastewater dumping into bodies of fresh water, and to offsetting 34% of the remaining water consumption through initiatives that contribute to improving availability in the water basins where it operates.



4

Comprehensive Waste Management

Ecopetrol adopts operating and organizational measures to reduce (up to economically and technically feasible levels) the quantity and hazard caused by the waste generated, based on three **(3) fundamental aspects:**

- a) Reduction at the source or origin.
- b) Recovery of materials through the use of waste by implementing the Multi-R or 9Rs concept of circular economy.
- c) Incorporation of technologies.



5

Biodiversity and ecosystem services

The strategic biodiversity pillar is intended to adequately manage the risks and opportunities associated with biodiversity and ecosystem services, while addressing the expectations of the Stakeholder Groups and maintaining the operating license. This pillar consists of four **(4) fundamental areas:**

- **Mitigation hierarchy:** its purpose is to prevent, avoid, and mitigate impacts on biodiversity and offset residual impacts. Ecopetrol does not intend, nor does it plan to conduct exploration, production, or refining activities in areas of high biodiversity value, categories I to IV according to the International Union for Conservation of Nature (IUCN), nor in areas declared World Heritage Sites by UNESCO.
- **Nature-based solutions:** they are designed to maintain biodiversity and ecosystem services in strategic areas, by identifying synergies between nature, society, and the local economy to respond to challenges such as climate change (Natural Climate Solutions), climate management, water resources, and biodiversity.
- **Generation of knowledge:** produces current information on biodiversity and ecosystem services to strengthen the decision-making process.
- **Biodiversity culture:** the purpose is to strengthen the Company, the value of biodiversity, and ecosystem services.





6

Circular economy

It has been defined as a "production and consumption system that promotes the efficient use of materials, water, and energy, considering the recovery capacity of ecosystems, the circular use of material flows through the implementation of technological innovation, partnerships, and collaborations between stakeholders, and the promotion of business models that respond to the foundations of sustainable development" (ENEC. MADS, Mincomercio, 2019). In this sense, the circular economy is adopted as an enabler that contributes to the fulfillment of goals associated with the energy transition, net zero carbon emissions, the reduction of the water footprint, the closing of the materials and waste cycle, and the diversification of new businesses, to ensure the competitiveness and long-term sustainability of the Company, while striving for the conservation of natural resources and the well-being of society.

7

Clean Air for the Environment

The clean air for the environment pillar focuses on monitoring and managing the contribution to reducing criteria pollutant emissions and/or improving air quality, based on specific initiatives to reduce pollutant emissions and the benefits of decarbonization, energy transition, and clean fuels. The main objectives are:

- Reduce criteria pollutant emissions to world-class standards and contribute to the improvement of air quality to protect the health of the environment.
- Adopt a Verified Inventory of Atmospheric Emissions in the assets operated by Ecopetrol.
- Contribute to achieving and sustaining the level of air quality in the areas of influence of the operations at the target levels specified in the WHO's Air Quality Guide.



8

Prevention and remediation

The prevention and remediation of environmental impacts caused by operational and process safety incidents focuses on prevention, by incorporating proactive risk management and analyzing the potential materialization of environmental risks inherent to the different businesses of the Company, for which the five **(5) lines** of work below have been proposed:

- Proactive risk management.
- Incorporation of technology in the management of environmental information.
- Analysis for continuous improvement.
- Remediation and improvement of the condition.
- Impact on culture.



Ecopetrol aligns the pillars of the environmental strategy with applicable national and international commitments, such as the Paris Agreement, the Sustainable Development Goals, national policies, and the National Development Plan, among others, in order to leverage environmental goals and contribute to sustainable development in the country.

Similarly, the environmental strategy and the associated commitments are communicated to all Stakeholder Groups on a permanent basis and in accordance with their needs and expectations. In this regard, the Company publishes its strategy and commitments on its website and via external and internal communication, as well as the engagement plan with partners and environmental authorities, and other pertinent mechanisms.

For more information on the environmental strategy, visit the Ecopetrol website, under the TSEG/Environmental section, or click [here](#).



Environmental Investments and Expenses

In 2022, Ecopetrol invested roughly **1,404,485 TRILLION COP** in environmental management. This information is presented in Figure 37 and it is reported to the Comptroller General of the Republic in the first quarter of each year.

Figure 38. | Ecopetrol Environmental Investments and Expenses (MCOP)



Source: Ecopetrol, HSE Vice Presidency.

This figure shows an **11%** increase compared to 2021, mainly due to: operating investments due to administrative issues, water resource management, investment in forests, and projects associated with biodiversity.

The environmental management investment made in 2022 was distributed as follows:

- 1 182,617 BCOP** allocated mostly to environmental activities such as environmental education, dissemination of environmental activities, hiring of personnel for environmental management, preparation of environmental studies, and legal procedures, as well as the operation and maintenance of environmental monitoring equipment and networks.
- 2 67,773 BCOP** allocated to the management of natural water resources, conveyed in water recovery and protection programs, the purchase and assembly of equipment to control and monitor the quantity and quality of surface and/or underground water resources, and the protection of water basins.
- 3 52,024 BCOP** were intended for the recovery and protection of forests, including mandatory investments such as environmental compensation.
- 4 276,904 BCOP** for air recovery and protection, with the acquisition of equipment and development of productive technologies to reduce atmospheric emissions.
- 5 200,225 BCOP** for soil recovery and protection, represented in soil protection management and related physical works (geotechnical protection measures).
- 6 22,728 BCOP** in biodiversity, represented in preservation and conservation projects, incorporating flora and fauna components. Some of the most significant projects include the Ecoreserves, participatory monitoring (biomonitors), and related genetic studies.
- 7 427.106 BCOP** in drinking water and basic sanitation, conveyed in wastewater treatment projects, the construction and implementation of drinking water supply works, and the management and disposal of solid waste and hazardous waste.
- 8 175.108 BCOP** in risk management, represented in activities for the prevention of operational incidents that affect the environment and support in the development of environmental recovery plans and post-disaster activities.



Environmental Planning and Compliance

In terms of **environmental planning**, the guidelines for environmental viability diagnosis were updated in 2022 to incorporate the assessment of the impacts associated with strategic pillars in the early stages of the projects, based on the mitigation hierarchy, and incorporating early measures for the prevention and minimization of potential impacts and environmental risks.

Ecopetrol holds 426 current environmental authorizations issued by national and regional environmental authorities, distributed as follows:

Table 45. | Environmental authorizations

Business segment	Environmental Licenses/ Environmental Management Plans/ Environmental Management Measures	Permits for the use and exploitation of natural resources	Lifting of bans
Upstream (Exploration and Production)	172	228	6
Refining	2	14	0
Others	0	4	0

3,902 administrative acts issued by environmental authorities were notified to Ecopetrol in 2022, of which 1,657 contained requirements that are subject to systematic monitoring at the strategic, tactical, and operating level, to ensure compliance in time, manner, and place of the obligations set forth by said authorities.

195 procedures were managed and filed with ANLA and the Regional Autonomous Corporations (CAR) in 2022, and the following environmental authorizations were obtained:

National Authority for Environmental Licenses (ANLA)

- One (1) environmental license for PPII Kalé - YNC.
- One (1) modification to the environmental license issued by Resolution 373 of 1998 for the Medina Occidental exploratory drilling area.
- One (1) modification to the environmental license issued by Resolution 0886 of 1998 for the project in the area of the Cusiana TA development wells.
- One (1) modification to the environmental license issued by Resolution 0617 of 1994 for the project in the area of the Cusiana R and V development wells.
- One (1) modification to the environmental license issued by Resolution 944 of 1999, modified by Resolution 1224 of 2015 for the project in the Yaguará production field.
- One (1) modification to the comprehensive environmental management plan - PMAI for Mares (Centro, Lisama, and Llanito Blocks).
- One (1) modification to the comprehensive environmental management plan - PMAI for the Apiay Block.
- 44 environmental authorizations obtained through the legal channel referred to as *minor changes with pronouncements*.

Regional Autonomous Corporations (CAR)

- 68 environmental authorizations were obtained from the Regional Autonomous Corporations for the use and exploitation of natural resources in Ecopetrol fields.

In terms of **environmental legal compliance**, the guidelines for the Management of Environmental Legal Compliance Information were updated in 2022.

The annual Environmental Legal Compliance Index, to monitor compliance with the requirements, stood at **99.9%**, the highest registered in Ecopetrol.

Compensation for the Use of Natural Resources and Forced Investment of No Less Than 1%

The environmental obligations deriving from the use and exploitation of natural resources and the catchment of water from water basins are executed in accordance with the **1%** investment plans and the compensation plans for the use and exploitation of natural resources approved by the environmental authority and incorporated into control and monitoring instruments (environmental licenses, management plans, and environmental permits).

As of December 31, 2022, Ecopetrol was executing 105 1% investment plans and 115 environmental compensation plans that will contribute to the conservation of biodiversity in **13,000 hectares**.

The main mechanisms for complying with these obligations are:

- The signing of voluntary conservation agreements with incentives in kind through the participation of local communities.
- The acquisition of properties for protection, conservation, and preservation purposes.
- Actions for ecological restoration and the rehabilitation and recovery of ecosystems.

Some of the main achievements attained in compliance with these obligations are:

- Signing of **455 new** voluntary conservation agreements in the departments of Casanare, Meta, Huila, Santander, Norte de Santander, Putumayo, and Tolima, incorporating an additional conservation area of 3,705.17 hectares benefiting from 16 water basins.
- 295 hectares** under conservation through properties acquired and titled in the name of regional authorities for conservation purposes.
- Agroforestry and silvopastoral systems were implemented in **109.53 hectares** as an incentive in kind under the current voluntary conservation agreements.
- 617 new hectares** for the implementation of incentives in kind, including silvopastoral and agroforestry projects and dendroenergy orchards to be deployed in 2023.
- 80.2 hectares** of tropical humid ecosystems in the heart of Piedemonte undergoing ecological restoration in the department of Casanare.

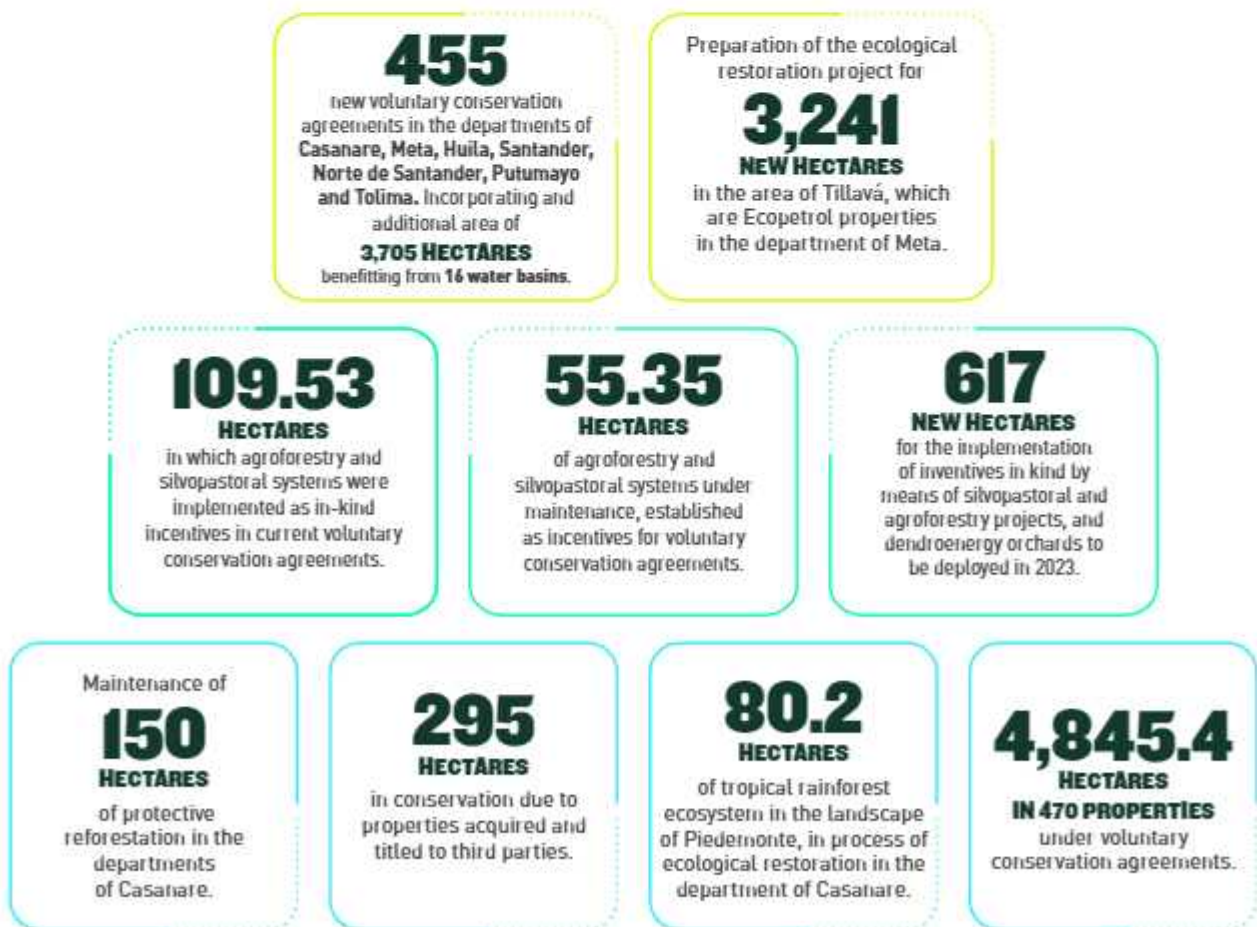
- f. Conservation measures implemented in the **4,845.4 hectares** part of the 470 properties under voluntary conservation agreements.
- g. Appraisal of the ecological restoration project of **3,421 new hectares** in the heart of Tillavá, which are properties owned by Ecopetrol in the department of Meta.
- h. Maintenance of **150 hectares** of protective reforestation in the department of Casanare.
- i. Maintenance of **55.35 hectares** of agroforestry and silvopastoral systems and dendroenergy orchards established as incentives in the voluntary conservation agreements.



In 2022, a total of **9,747 hectares** were covered with the activities of the environmental compensation plans and the forced investment of no less than 1%, by deploying conservation actions that include preservation, restoration, and sustainable use efforts.

The achievements in biodiversity and ecosystem services with the implementation of compensation plans for the biotic environment and the forced investment of no less than 1% in 2022 are shown in Figure 38 below:

Figure 39. | Achievements in Biodiversity and Ecosystem Services



Source: HSE Vice Presidency.

ROADMAP CLIMATE CHANGE

Exceptional Material Element



(GRI 3-3, 11-1-1) (WEF7, 7E, 11E, 13E) (SFC XV)

Impacted stakeholder groups	Areas that manage the impacts	Ecopetrol business line or segments generating the highest impact
Suppliers	VCU	Upstream
Associates and Partners	VAB	Midstream
Customers	VNE	Downstream
Employees	VCF	Commercial
Investors	VHSE	Low emission solutions
State	VPU	
Society and Community	VRP	
	VSE	

(GRI 3-3-a)

Why is the Element Material?

GHG emissions, including methane, and their effect on global temperature rises, are considered a negative impact due to the changes generated in long-term climate conditions, evinced in the occurrence of extreme weather events (floods and droughts) that mainly affect the most vulnerable populations, as well as the right to a healthy environment, personal safety, water, and development, among others. Given the above, Ecopetrol defined climate change as an exceptional material element, establishing a roadmap with short, medium, and long-term actions to manage its impacts.

The identification of low emission solutions and the consolidation of mitigation programs in the direct operations of the Company alleviates the effects of climate change and generates positive economic impacts, process efficiencies, and GHG emission reductions.

(GRI 3-3-b)

In the same way, the consolidation and development of Natural Climate Solution projects (avoid deforestation, restoration, reforestation, and rehabilitation) generate a positive impact on strategic ecosystems with tangible benefits for the communities, and also enable the options for the compensation of GHG emissions.

The operations undertaken by the Company in the production, transport, refining, and trading of hydrocarbons and their derivatives have an impact on climate change due to GHG emissions that may alter future climate conditions and cause changes in the climate dynamics of the territories.

Ecopetrol advances in the analysis of climate scenarios based on science, to dive into the identification of physical and transition risks, as well as financial and strategic impacts on the management of the Company.

(GRI 3-3-c)

Policies and Commitments



In developing the 2040 Strategy and the **Environmental Strategy**, the Ecopetrol Group announced its plan towards net zero carbon emissions by 2050 (Scopes 1 and 2). This plan includes the goal of reducing 50% of its Scope 1, 2, and 3 emissions by 2050, and 25% of its Scope 1 and 2 emissions by 2030, compared to 2019. This commitment includes compliance with other international agreements, such as the methane reduction initiative of

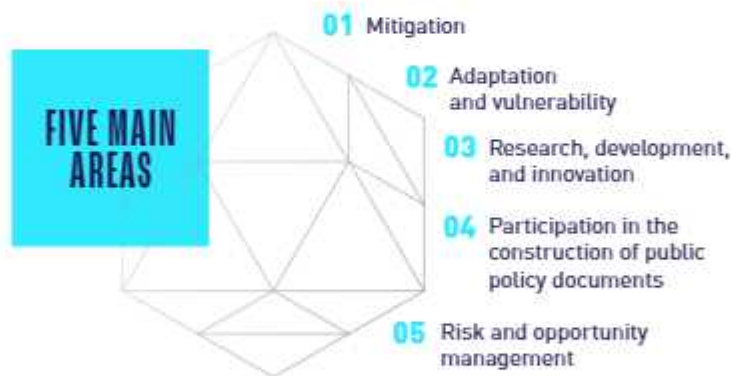
the Climate and Clean Air Coalition (CCAC) led by the United Nations and the "Zero Routine Flaring by 2030" initiative led by the World Bank. Additionally, the Company has an annual emission reduction goal in pursuit of advancing the Company's compliance levels in the medium and long term.

The GHG emissions target for 2022 was 262,761 tCO₂eq, which was exceeded by 59% with 416,672 tCO₂eq.

(GRI 3-3-d)
(SASB
EM-EP-110a.3)
(SFC XV, XVII)
(TCFD M-1.2.1)

How is the Material Element Managed?

In developing the **environmental strategy**, Ecopetrol has adopted a strategic pillar known as Climate Action, which seeks to maintain a low carbon emission operation, decrease the vulnerability of the infrastructure and the operations to climate variability and change, as well as adequately manage risks and identify opportunities associated with climate change. This strategic pillar includes **five main areas**:



To achieve the goals and contribute to the mitigation of climate change impacts, the Company has defined the decarbonization plan focused on the following measures:



Permanent updating and continuous verification of the GHG inventory by a third party every two (2) years.



Identification, development, and implementation of operating initiatives associated with energy efficiency, renewable energy, reduced flaring and fugitive emissions, and venting [methane].



Development of emerging technologies such as green hydrogen [H₂] and CCUS.



Implementation and consolidation of a compensation portfolio through Natural Climate Solutions, to offset residual emissions that cannot be avoided or reduced in the operation and which can, in turn, generate social and environmental benefits.



Diversification towards low emission businesses and optimization of the current portfolio by means of economic instruments such as the internal carbon price.

How is the material element evaluated?

It is evaluated by monitoring the advancement and compliance with the actions established in the TESH roadmap for the climate change element and the management indicators of the Company's Balanced Management Board (TBG), which includes the GHG emissions reduction indicator.

Progress is also measured in specific programs:

- (i) Energy efficiency.
- (ii) Renewable energy.

- (iii) Reduction of flaring and fugitive emissions.
- (iv) Natural Climate Solutions projects, among others.

With regard to the climate-related physical and transition risks that may affect the operation, the facilities, and the environment, the Company monitors the treatment actions, controls, and KRIs through the "Inadequate climate change and water management" business risk.

(GRI 3-3-e)

Short, Medium, and Long Term Goals and Projects

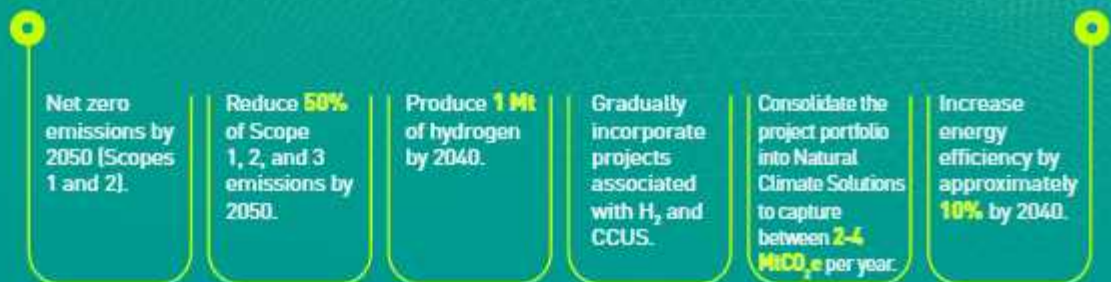
Short Term (2023-2024)



Medium Term (2025-2030)



Long Term (>2030)



(GRI 3-3-e) **Main Achievements in the Management of the Climate Change Roadmap**

- Reduction of **416,672 tCO₂e** (2020-2022) in energy efficiency and renewable projects, among others. Accumulated reduction of **910,113 tCO₂e** (2020-2022).
- **586,226 tCO₂e** verified by a third party.
- **95%** of production assets operated with methane detection and measurement. **1,699 leaks** fixed out of the 1,690 planned.
- Implementation of the internal carbon price as a mandatory variable for economic evaluation to adopt decisions on current and future investments.
- Natural Climate Solution projects with Fundación Natura, TNC, WCS, and Conexión Jaguar - ISA, which enable the capture of **1.3 Mt of CO₂e**.
- Subsidiaries Cenit, ODL, ODC, Bicentenario, Ocesa, and Esenttia obtained the Carbon Neutrality certification.
- Sale of **4 million** barrels of Castilla Blend crude and **300,000 barrels** of offset extra-carbon gasoline.
- Publication of three (3) decarbonization clauses to promote mitigation actions in the supply chain.
- In 2022, the CDP [Disclosure Insight Action] acknowledged Ecopetrol for the results and leadership in the development of its Climate Change program with an A- rating, which positions the Company as an industry, regional, and global benchmark on the subject matter.



Climate Change Management and Governance

[TCFD G-2.1, G-2.2]

The Board of Directors defines and supervises the strategy defined by Ecopetrol and its Group. They permanently monitor and address issues associated with the TESG pillar under the 2040 Strategy, which includes climate change and the energy transition, among other topics.

The Company's senior management plays a fundamental role in executing the strategy defined by the Board of Directors, while integrating climate-related metrics and defining the short, medium, and long-term action plan.

Presidency (CEO):

responsible for steering and managing the Company. He is responsible for the Company's Balanced Management Board and for reporting on the progress made to the Board of Directors.

Executive Vice Presidency of Operations:

leads the Company's operations, the execution of the initiatives associated with the Decarbonization Plan, and the implementation of the Net Zero Emissions strategy for the hydrocarbons business, as well as the objective of improving fuel quality.

Vice Presidency of Low Emission Solutions

leads the advancement of the Company's energy transition, integrating the areas of gas, biogas, liquefied petroleum gas (LPG), energy, renewables, hydrogen, and CCUS.

Vice Presidency of Corporate Strategy and New Businesses:

designs the energy transition strategy, including the generation of low emission opportunities.

HSE Vice Presidency:

guides climate change, the circular economy, and biodiversity efforts through the Sustainability and Decarbonization Management team. Specifically in terms of climate change, it leads the implementation of the Decarbonization Plan, defines emission reduction and compensation goals, manages the Atmospheric Emissions Management System (SIGEA), defines the guidelines for the management of emission compensations, and sets climate change adaptation measures to reduce climate-related vulnerabilities and risks.

Vice-Presidency of Corporate Affairs and Secretary General: ensures the governance of the different reporting instruments (including RIGS, DJSI, and CDP Climate Change and Water, among others), the monitoring and analysis of the “Generating Value with TESG” pillar, and the roadmaps of the material elements.

Corporate Vice Presidency of Compliance: responsible for the SRI and the management of business risks, including those associated with climate change and the energy transition.

Corporate Vice Presidency of Finance: leads the implementation and analysis of the internal carbon price, and responsible for portfolio management and capital allocation. Evaluates and analyzes the financial impact of climate-related risks and opportunities and sustainable financing alternatives. Similarly, it leads the engagements with investors such as *Climate Action 100+* and *Net Zero Asset Managers Initiative*, risk rating agencies and environmental, social, and governance radars-ESG (e.g.: MSCI, *Sustainalytics*, and others). It is responsible for the coordination and publication of the TCFD and SASB reports.

Upstream Vice Presidency: leads the implementation of decarbonization projects and climate change adaptation measures for exploration and production operations.

Marketing Vice Presidency: participates in the process of estimating GHG emissions from hydrocarbon operations until they are marketed, and manages the acquisition of carbon credits to supply the internal demand of the Ecopetrol Group and to offset the emissions associated with some products marketed by the Company.

Vice Presidency of Refining and Industrial Processes: responsible for the identification, evaluation, and implementation of initiatives aligned with the Company’s energy transition, decarbonization, and integrated water management strategy.

Vice Presidency of Science, Technology, and Innovation: leads the technological and digital transformation to leverage the TESG pillar under the 2040 Strategy, as well as the decarbonization and energy transition process.

(GRI 11-2-2)
(TCFD E-1.2,
E-1.3, GR-1.2)
(SFCXV)

Climate-related risks

In 2022, Ecopetrol advanced in the process of identifying and evaluating physical and transition climate risks, considering short, medium, and long-term climate scenarios.

Physical and transition risks are often seen as opposites. The greatest transition risks are associated with the most aggressive reduction policies, such as the goal of net zero emissions, while physical risks are greater in lax policy scenarios, in which emission increases are expected to cause more extreme weather events. Accordingly, the IEA, the IPCC, and the SSP have set in motion multiple future climate scenarios that capture a series of policy decisions and climate outcomes.

Ecopetrol identified and analyzed **seven (7) physical risks** related to chronic threats (drought

and thermal stress) and acute threats (precipitation, coastal flooding, river flooding, fires, and winds) in 95 sites associated with the Group's most important assets. The modeling was conducted using Cervest's EarthScan platform with the following IPCC scenarios:

- (i) Scenario aligned with the objective of the Paris Agreement (SSP1- RCP2.6).
- (ii) Peak emissions scenario in 2040 (SSP2- RCP4.5).
- (iii) Business as usual scenario (SSP5- RCP8.5).

EarthScan uses regional climate models with diverse data sets to analyze the physical vulnerability of assets, relative to the potential impact of climate hazards. The probability and severity of climate events are estimated up to 2100.

In terms of transition risks, **six (6) market, technology, reputation, and regulation-related risks were identified.** Market and regulatory risks were prioritized for the modeling, using the following analysis avenues:

- (i) Quantification of the impact on income arising from a changing demand for hydrocarbons.
- (ii) Quantification of the impact on costs due to changes in carbon prices.
- (iii) quantification of the financial repercussions deriving from higher abatement costs due to limitations on the use of compensations.

The model used the scenarios in the 2022 WEO of the International Energy Agency:

- (i) Net Zero Emissions (NZE).
- (ii) Announced Pledges Scenario (APS).
- (iii) Stated Policies Scenario (STEPS).

[GRI 11-2-2]
[SFCXV]
[TCFD E-1.3]

Impact of Climate-related Risks on the Organization's Business, Strategy, and Financial Planning

The physical risks arising from climate change can cause [acute] events, which are related to climate variability phenomena such as the "El Niño" or "La Niña", in the case of Ecopetrol, or long-term (chronic) changes in weather patterns. Physical risks may entail financial repercussions for the Company, such as direct damage to assets or indirect impacts caused by interruptions in the production chain.

In 2022, Ecopetrol conducted the assessment of physical risks in its assets in Colombia to understand the Company's vulnerability to future climate scenarios. The results showed that the increase in maximum temperatures and the duration of heat waves pose the greatest threats to the entire asset portfolio. This is one of the most important risks in terms of worker safety and even operating interruptions. However, it is not expected to have a direct impact on the infrastructure. Moreover, six (6) locations are at substantially higher risk of coastal flooding (including the Cartagena refinery), and more moderate river flooding is anticipated at four locations (including the Barrancabermeja refinery). The rest of climate threats are not expected to increase substantially across the portfolio.

To mitigate potential impacts and guarantee the continuity of activities in the event of prolonged weather events, Ecopetrol has implemented regional climate variability adaptation plans, which incorporate measures for water resource management, climate resilient infrastructure, restoration and conservation of strategic ecosystems, and climate compatible operations.

With regard to the impact on financial planning, based on the assessment of the physical risks, Ecopetrol will advance in the estimation of potential losses in the assets with the highest probability of being impacted by the materialization of risks. Based on the analysis of financial implications, the Company will define actions to reduce the impact on its business strategy.

The transition to a low carbon economy may entail political, legal, technological, and market changes to address mitigation and adaptation requirements related to climate change. Depending on the nature, speed, and focus of these changes, transition risks can exert different levels of financial and reputational impacts on the organizations.



The evaluation conducted by Ecopetrol in 2022 included stress tests on the long-term strategy of the upstream asset portfolio. The portfolio's resilience was evaluated by comparing the VPN of future cash flows from IEA scenarios with the VPN of Ecopetrol's base case. In both cases, the hypotheses associated with the analysis avenues were applied. However, this first analysis will be subject to review and assessment to determine the potential impact on the Company's financial and strategic planning.

(GRI 201-2, 11-2-2)
(TCFD GR-1.1)
(SFC XV)

The process of identification and evaluation of climate-related risks (physical and transition) is conducted in line with Ecopetrol's risk management framework, TCFD guidelines, and best practices in the sector. The process broadly considers the following elements, which must be discerned separately into physical and transition risks:

1

Plan:

defining the context in which the external climate-related physical, regulatory, market, technological, and reputational risks that could materially impact the business are monitored. The methodology and parameters for modeling are also established.

2

Identify:

based on the analysis of the internal and external context, threats and opportunities, uncertainties, sources of risk, vulnerabilities, and capacities, with the purpose of defining the risks that can positively or negatively divert the Company's achievement of its strategic objectives.

3

Measure and evaluate:

risk assessment based on the defined parameters, hypotheses, and data to measure the impact on the company. The appetite, or level of risk that the company is willing to accept without taking measures must be defined, which will set an important precedent to assess the risk and to make decisions on the approach to be adopted. Risk assessment helps sustain the decisions adopted for future actions in each company, as well as the processes, activities, businesses, and others, and the prioritization thereof to guarantee that the available resources are used to address the most critical aspects.

4

Respond:

the company must evaluate the results of the risk assessment and determine specific action plans to mitigate or adapt to those that exceed a specific threshold for action. Response plans can be proactive (e.g. divestment or investment in an asset, engineering controls) or reactive (e.g. reinforcing emergency response plans, improving employee communication mechanisms), while action plans must assign responsible parties and be integrated into the company's annual risk management process.

5

Monitor and review:

according to the review cycles determined by risk management and the strategy, the parties responsible for the action plans must evaluate whether the interventions and actions have given the expected results, or if they need to be adjusted or modified. The team must review whether the initial hypotheses and the data used are still valid or need to be reassessed. The company must also monitor risk exposure and compare actual and projected impacts to validate and improve the modeling.

6

Report:

the company must document the results of the risk assessment, the measures adopted, the hypotheses, and the impact, to include them in the reports submitted to the parties interested in risk management, which must back the duties and responsibilities of senior management in this regard, as well as those of the Committees and the Board of Directors.



The foregoing must be based on Ecopetrol's Comprehensive Risk Management System, in alignment with ISO 31000 and COSO ERM 2017.

(TCFD GR-1.2)

To manage climate-related risks, Ecopetrol incorporated "Inadequate climate change and water management" into the business risk map, which includes **nine (9) mitigation measures, five (5) KRIs, and 10 controls associated with the process**. This is reviewed annually within the framework of the risk management cycle. The appraisal scenarios and mitigation measures will be updated in 2023 based on the analysis of physical and transition risks.

(TCFD GR-1.3)

The process of identifying, evaluating, and responding to climate-related risks is part of Ecopetrol's Comprehensive Risk Management System. The permanent management, monitoring, and oversight thereof keeps the risks within the defined tolerance and acceptance levels. Detailed information can be found in the TCFD 2021 report by clicking **here**.



[GRI 3-3-e]

Monitoring the Effectiveness of the Measures Adopted

The effectiveness of the actions and measures adopted to mitigate GHG emissions is monitored using the "Decarbonize operations: GHG reduction KRI" indicator, which is monitored monthly and reported quarterly. This indicator is part of the Ecopetrol Group's Balanced Management Board (TBG) and Long-Term Incentive Plans (ILP), directly monitored by the Board of Directors.

Similarly, there is a business risk called "Inadequate Climate Change and Water Management," which monitors compliance with emission reduction goals, as well as other specific climate change actions and controls such as the evaluation of internal carbon price guidelines, cost-effective technologies for water management and decarbonization, the probability of occurrence of extreme weather events, the monitoring of climate change regulations, among others.

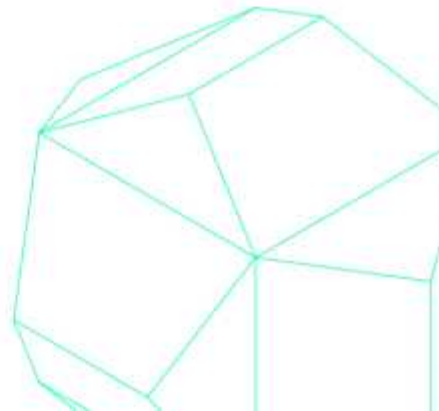
190

[GRI 3-3-e]

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

The reduction of GHG emissions, as the main measure to mitigate the effects of climate change, is incorporated at various levels of the Company. In terms of the "Energy that Transforms" long-term business strategy, it is linked to the areas of "Growing with the energy transition" through the diversification of energy and low emission businesses, and "Generating value with TEG" through the acceleration and prioritization of decarbonization and energy efficiency, and the Risk

Management System through the "Inadequate climate change and water management" business risk, against which operating actions have been implemented to minimize the materialization thereof. Similarly, the Company is conducting a more detailed analysis of physical and transition risks based on climate scenarios, in order to identify new opportunities and measures to mitigate strategic and financial climate-related impacts that can be incorporated into its financial and risk procedures.



[GRI 3-3-1]

How are Stakeholders Involved in Taking Action to Manage Climate Change?

Climate change management involves different Stakeholder Groups:



Suppliers:

adoption of decarbonization commitments related to: **(i)** the estimation of GHG emissions, **(ii)** the deployment of specific measures to mitigate and/or offset their GHG emissions, and **(iii)** the definition of specific short, medium, and long term emission mitigation or compensation goals.

Customers:

purchase of carbon-offset crude oil and premium gasoline shipments, with Colombian carbon projects, in Natural Climate Solutions, which benefit communities and have positive impacts on the environment.



National state:

establishment of emission reduction goals and national programs that contribute to defining the Company's climate ambition.

Shareholders and Investors:

constant interactions with this Stakeholder Group to address requirements and requests in this regard, in pursuit of demonstrating the adoption of real commitments for the management of GHG emissions and a fair and gradual energy transition that positively impacts their investments.



Associates and partners:

articulation and integration of measures related to climate change management.

Metrics

The GHG emissions target for 2022 was 262,761 tCO_{2eq}, which was exceeded by 59%, with 416,672 tCO_{2eq}.

(GRI 305-1,
11-1-5,
11-1-6, 11-1-7)
(WEF7, 7E)
(TCFD M1.2.1)

Table 46. | Direct and indirect Scope 1, 2 and 3 GHG Emissions

Emissions	Unit of measurement	2019	2020	2021	2022
Gross value of direct GHG emissions (Scope 1)	TonCO ₂ e	14,448,557	13,418,819	13,436,094	13,309,595
Gross value of indirect GHG emissions when generating energy (Scope 2)	TonCO ₂ e	636,803	859,944	574,750	416,501
Gross value of other indirect GHG emissions (Scope 3)	TonCO ₂ e	144,502,609	139,526,904	137,264,619	150,528,333

Source: HSE Vice Presidency.

Note 1. The gases included in this calculation are CO₂, CH₄, and N₂O.

Note 2. Ecopetrol's atmospheric emissions inventory for Scopes 1 and 2 is structured under the operational control approach. As recommended by ISO 14064 -1 and the GHG Protocol, base year emissions must be recalculated each time a company experiences major changes such as acquisitions, divestitures, and mergers, as well as significant changes in the emissions estimation methodology. This is recalculated not only for the base year but also for the historical series in order to maintain consistency in the reported data. In accordance with the foregoing, the emissions in the base year (2019) and in the historical series have been recalculated considering the following:

* Bottom-up and top-down methane measurements taken in the production segment, as part of the Company's plan to improve the detection, quantification, and closure of fugitive and vented emissions, covering 95% of the Company's facilities; adjustment and construction of own emission factors, and changes in the emission estimation methodology. These adjustments represent increased emissions in the order of 2.4 million tons of CO₂e/year.

* The reversal of the Nare asset in the production segment, which increases by approximately 0.9Mt of CO₂e.

* The update of the inventory in accordance with the NTC ISO 14064 - 2020 version, including transportation emissions in Scope 1 (these emissions were being reported in Scope 3).

(GRI 2-4-a)

(GRI 2-4-a)

Note 3. The 2022 report shows a significant reduction in Scope 2 emissions (28%), mainly due to changes in the sources of electricity generation, which are less CO₂ intensive. The emissions data for Scope 3 is structured under the operational control approach (same as Scope 1 and 2). The emissions associated with Ecopetrol S.A. and the Cartagena Refinery are estimated accordingly. Emissions increased in 2022, mainly due to rises in: i) national fuel sales (gasoline, diesel, and gas), ii) national crude oil purchases (for loading in refineries), and iii) refined product imports (especially gasoline).

Note 4. i) Data adjusted based on the update of the 2019, 2020, and 2021 SIGEA ii) The data for 2022 corresponds to information inventoried for the first 10 months of the year, and averaged for the months of November and December. This data may change once the final information is available.

(GRI 305-1, 305-2, 305-3, 11-1-5, 11-1-6, 11-1-7) (WEF7, 7E) (TCFD M1.2.1)

Table 47. | Biogenic emissions*

Emissions	Unit of measurement	2019	2020	2021	2022
Scope 1 biogenic CO ₂ emissions	TonCO ₂ e	1,254	1,222	1,115	1,005
Scope 2 biogenic CO ₂ emissions	TonCO ₂ e	0	0	0	0
Scope 3 biogenic CO ₂ emissions	TonCO ₂ e	265,184	224,087	276,338	297,901

Source: HSE Vice Presidency.

*Biogenic GHG emissions are the emissions from the combustion of biomass or derivative fuels (e.g., biodiesel and fuel alcohol), which are considered neutral, since they are generated in the natural carbon cycle.

Note. **i)** Data adjusted based on the updates of the 2019, 2020, and 2021 SIGEA **ii)** The data for 2022 corresponds to information inventoried for the first 10 months of the year, and averaged for the months of November and December. This data may change once the final information is available.

(GRI 11-1-5, 11-1-6, 11-1-7) (WEF7, 7E) (SASB EM-EP-110a.1) (TCFD M - 1.2.1)

In line with emission reduction goals, the base year for the GHG inventory was 2019. Ecopetrol's GHG emissions inventory is prepared using the ISO 14064-1 methodology. Specifically for Scope 1, the GHG Protocol Corporate Standard; for Scope 2, the GHG Protocol Scope 2 Guidance; and for Scope 3, the GHG Protocol Value Chain (Scope 3) Accounting and Reporting Standard.

The main estimation methodologies used in the atmospheric emissions inventory for Scope 1 are mass balance and emission factors. In some specific cases, engineering calculations or computer models are used. To estimate the fugitive and vented emissions of the production segment, own emission factors were established, based on bottom up and top down measurements taken in the field.

For Scope 2, the emission factor calculated by the Mining-Energy Planning Unit (UPME) is used in cases where consumption originates from the national grid. For cases in which the energy is self-generated, the emission factor of the corresponding generation center is used.

Various estimation methods are used for Scope 3, including: **i)** emission factors based on expenses, **ii)** supplier's own emissions, and **iii)** estimates based on information associated with GHG emissions using SAP-Environmental Compliance - SAP EC.

The global warming potentials used in the inventory are the ones reported in the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC-AR5).

Below are the most widely used sources within the inventory to obtain emission factors:

- Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Oil and Gas Industry - API
- FECOC
- UPME
- AP-42
- ARPEL
- CORINAIR

(SASB EM-EP-110a.1)
(TCFD M - 1.2.1)

Table 48. | Scope 1 Gross Global Greenhouse Gas (GHG) Emissions into the Atmosphere of the Seven GHGs Covered under the Kyoto Protocol

Emissions	Unit of measurement	2019	2020	2021	2022
Carbon dioxide (CO ₂) emissions	TonCO ₂ e	5,931,131	5,714,216	5,519,952	5,342,845
Methane (CH ₄) emissions	TonCO ₂ e	2,736,389	2,784,829	2,737,323	2,670,270
Nitrous oxide (N ₂ O) emissions	TonCO ₂ e	22,455	23,207	22,468	21,167
Hydrofluorocarbon (HFCs) emissions	TonCO ₂ e	NA	NA	NA	NA
Perfluorocarbon (PFCs) emissions	TonCO ₂ e	NA	NA	NA	NA
Sulfur hexafluoride (SF ₆) emissions	TonCO ₂ e	NA	NA	NA	NA
Nitrogen trifluoride (NF ₃) emissions	TonCO ₂ e	NA	NA	NA	NA
Scope 1 gross global emissions	TonCO ₂ e	8,689,974	8,522,251	8,279,742	8,034,282
Percentage of methane (CH ₄)	%	31.5	32.7	33.1	33.236

Source: HSE Vice Presidency.

Note 1. The consolidated emissions from the exploration and production segment of the hydrocarbon business line are reported.

Note 2. The option of Not Applicable is given to Hydrofluorocarbon Emissions (HFCs), Perfluorocarbon Emissions (PFCs), Sulfur Hexafluoride Emissions (SF₆), and Nitrogen Trifluoride Emissions (NF₃), which are not part of Ecopetrol's emissions inventory.

Note 3. The disaggregated emissions of each of the pollutants measured in the inventory are reported in the Exploration and Production segment for Scope 1. The sum of the three (3) GHGs reported (CO₂, CH₄, and N₂O) is equivalent to Scope 1 emissions for this segment.

(SASB EM-EP-110a.1)
(TCFD M - 1.2.1)

Table 49. | GWP used of the seven GHGs covered under the Kyoto Protocol

Emissions	Unit of measurement	2019	2020	2021	2022
Carbon dioxide (CO ₂) emissions	GWP	1	1	1	1
Methane (CH ₄) emissions	GWP	28	28	28	28
Nitrous oxide (N ₂ O) emissions	GWP	265	265	265	265
Hydrofluorocarbon (HFCs) emissions	GWP	NA	NA	NA	NA
Perfluorocarbon (PFCs) emissions	GWP	NA	NA	NA	NA
Sulfur hexafluoride (SF ₆) emissions	GWP	NA	NA	NA	NA
Nitrogen trifluoride (NF ₃) emissions	GWP	NA	NA	NA	NA

Source: HSE Vice Presidency.

Note 1. The consolidated emissions from the exploration and production segment of the hydrocarbons business line are reported.

Note 2. The option of Not Applicable is given to Hydrofluorocarbon Emissions (HFCs), Perfluorocarbon Emissions (PFCs), Sulfur Hexafluoride Emissions (SF₆), and Nitrogen Trifluoride Emissions (NF₃), which are not part of Ecopetrol's emissions inventory.



(SASB EM-EP-110a.1)
(TCFD M - 1.2.1)

Emissions Under Regulatory Limits

No information associated with this indicator is reported because there is no regulation associated with said emissions (or the methane emitted) in Colombia; therefore, a percentage covered under the regulatory limit of GHG emissions is not applicable.

(SASB EM-EP-110a.2)
(TCFD M - 1.2.1)
(GRI 11-1-5)

Table 50. | Amount of Scope 1 Gross Global Emissions from Hydrocarbons Burnt, other Combustions, Process Emissions, other Emissions, and Fugitive Emissions from the Operation

Scope 1 gross global emissions	Unit of measurement	2019	2020	2021	2022
Amount of hydrocarbons burned- flaring	TonCO ₂ e	1,167,505	921,565	905,422	953,120
Amount from other combustions	TonCO ₂ e	4,705,861	4,713,633	4,536,010	4,274,770
Amount of process emissions	TonCO ₂ e	2,413,994	2,475,349	2,439,135	2,430,017
Amount of vented emissions	TonCO ₂ e	NA	NA	NA	NA
Amount of fugitive emissions from the operation	TonCO ₂ e	402,613	411,704	399,165	376,375
Amount of Scope 1 gross global emissions	TonCO ₂ e	8,689,974	8,522,251	8,279,742	8,034,282

Source: HSE Vice Presidency.

Note 1. The consolidated emissions from the exploration and production segment of the hydrocarbons business line are reported.

Note 2. The process emissions category includes emissions associated with gas treatment, storage tank venting, and well venting.

(GRI 305-4,
11-1-8)
(TCFD M-1.2.1)

GHG Emissions Intensity

The intensity of the upstream segment is estimated by dividing Scope 1 and 2 emissions generated in the segment into production, which includes crude oil, gas, and white products, expressed in terms of barrels of oil equivalent -BOE-, under the organizational limit set by operating control.

The intensity of the downstream segment is estimated by dividing Scope 1 and 2 emissions generated in this segment into the annual inflows to the Barrancabermeja and Cartagena refineries, expressed in terms of barrels of oil equivalent -BOE-, under the organizational limit set by operating control.

(GRI 305-4,
11-1-8)
(TCFD M-1.2.1)

Table 51. | Intensity of GHG emissions in Scopes 1, 2, and 3

Process	Unit of measurement	2019	2020	2021	2022
Production	KgCO ₂ e/BOE	40.39	43.51	43.36	41.46
Refining and petrochemical	KgCO ₂ e/BOE	41.95	41.59	39.68	40.12

Source: HSE Vice Presidency.

Note 1: **i)** Data adjusted based on the updates of the 2019, 2020, and 2021 SIGEA; **ii)** The data for 2022 corresponds to information inventoried for the first 10 months of the year, and averaged for the months of November and December. This data may change once the final information is available.

Note 2. The carbon intensity of the production segment underwent significant changes throughout the historical series, mainly associated with the inclusion in the inventory of bottom up and top down methane measurements taken from the different assets of the Company and the reversal of the Nare asset.

Note 3. The gases included in the table are CO₂, CH₄, and N₂O.

(GRI 2-4-a)

Reduction of GHG Emissions

(GRI 305-5,
11-2-3, 11-1-7)
(TCFD M-1.2.1)
(WEF7, 7E)
(SFC XV, XVI)

Table 52. | Tons of GHG Emissions Reduced or Avoided as a Direct Consequence of Reducing Initiatives in Each of the Projects

Emissions	Unit of measurement	2019	2020	2021	2022
Energy efficiency	TonCO ₂ e	161,473	128,596	186,713	154,976
Fugitive and vented emissions	TonCO ₂ e	0	23,257	59,817	101,602
Flaring optimization	TonCO ₂ e	210,370	47,994	45,135	150,852
Renewable energy	TonCO ₂ e	8,760	0	1,929	9,243

Source: HSE Vice Presidency.

Note: **i)** Data adjusted based on the updates of the 2019, 2020, and 2021 SIGEA; **ii)** The data for 2022 corresponds to information inventoried for the first 10 months of the year, and averaged for the months of November and December. This data will change once the final information is available.

[GRI 11-2-3]
[TCFD M - 1.2.1]

Table 53. | Projects Advanced in Order to Reduce or Avoid Emissions

Description of the initiative	Gases included in the calculation	Scopes that presented reductions	Standards or methodologies used for the calculation	Development stage
<p>Energy efficiency: Includes projects associated with changes in the energy matrix for another with less impact and process optimization. 76 projects were executed in the period of 2019 - 2022 [3 in 2019, 14 in 2020, 24 in 2021, and 35 in 2022].</p>	CO ₂ CH ₄ N ₂ O	Scope 1	Reductions estimated through mass balance and/or emission factors in Ecopetrol's own calculation model.	Implemented
<p>Fugitive and vented emissions: Includes projects associated with the elimination of leaks and venting in the processes. 18 projects were executed in the period of 2019 - 2022 [6 in 2020, 8 in 2021, and 4 in 2022].</p>	CH ₄	Scope 1	Reductions estimated through mass balance and/or emission factors in Ecopetrol's own calculation model.	Implemented
<p>Flaring optimization: Includes projects associated with the flaring optimization volumes through the sale, self-generation, or optimization of the process. 19 projects were executed in the period of 2019 - 2022 [2 in 2019, 6 in 2020, 9 in 2021, and 7 in 2022].</p>	CO ₂ CH ₄	Scope 1	Reductions estimated through mass balance and/or emission factors in Ecopetrol's own calculation model.	Implemented
<p>Renewable energy: Includes projects associated with the generation of energy based on renewable sources. 7 projects were implemented in the period of 2019 - 2022 [1 in 2019, 2 in 2021, and 4 in 2022].</p>	CO ₂	Scope 2	Reductions estimated through mass balance and/or emission factors in Ecopetrol's own calculation model.	Implemented

197

Source: HSE Vice Presidency.

[GRI 11-2-3]

Note: Ecopetrol establishes an emissions reduction goal each year, which is defined based on the implementation of new projects in the different operating areas of the Company. For this report, projects of the same type were grouped into four (4) large programs defined in the climate change roadmap (energy efficiency, fugitive, and vented emissions, flaring optimization, and renewable energy). The reductions reported each year for the four (4) programs were estimated using the immediately preceding year as the reference year. Accordingly, N/A is selected in the box labelled "reference year for the calculation of reduction".

[GRI 11-2-3]
[TCFD M-1.2.1]

The implemented emission reduction projects are quantified through mass balance and emission factors. The reference emission factors below are used for the calculation:

- Compendium of Greenhouse Gas Emissions Estimation Methodologies for the Oil and Gas Industry
- FECOC
- UPME
- AP-42

Management Strategy for Fugitive and Vented Emissions and Flaring

[TCFD M-1.2.1]

Ecopetrol has implemented a fugitive and vented emissions management strategy, approved in 2020 by the Executive Committee – ExCo, with the following lines of action:

- Update and adjustment of the inventory, construction of own emission factors, and definition of reduction goals.

- Incorporation of design criteria and best engineering practices to reduce fugitive and vented emissions.

- Implementation of the methane emission leak detection and repair program (LDAR - Leak Detection and Repair).

- Within the framework of the Coalition for Climate and Clean Air (CCAC), a UN-led initiative that Ecopetrol has been a member of since 2019, the Company adhered to OGMP 2.0 in 2020 (Oil and Gas Methane Partnership), by acquiring the following commitments:
 - Defining a methane goal that leverages compliance with the sectoral goal proposed by CCAC member companies to reduce methane emissions by **45%** by 2025 and between **60%** to **75%** by 2030 over the levels estimated for 2015.
 - Reaching level 4/5 proposed by the CCAC, for which the following actions are necessary: **i)** increase direct measurements by combining bottom up and top down technologies, **ii)** calculate own emission factors, and **iii)** generate higher levels of transparency and credibility in the reports.
 - Attaining measurement level 4/5 by 2024 in 100% of the assets operated directly, and by 2026, in 100% of the assets not operated directly.



The following activities have been furthered to meet these commitments:

- Detection and quantification of fugitive and vented emissions using different state-of-the-art technologies such as infrared cameras and flow meters (bottom up approach), as well as analysis of satellite images and flights with methane sensors (top down approach), covering close to **95%** of the Company's operations.
- Update and adjustment of the inventory based on own emission factors built from bottom up and top down measurements taken in the field.
- Repair program for identified leaks, repairing more than 1,800 leaks and reducing more than **100,000 tons of CO₂e**, including HocoL.



IN 2023, THE COMPANY WILL ESTABLISH ITS OWN METHANE EMISSIONS REDUCTION GOAL IN LINE WITH THE PROVISIONS SET FORTH BY THE CCAC.

With regard to the reduction of flaring, Ecopetrol aims to eliminate its routine flaring by 2030, in line with the World Bank's "Zero Routine Flaring by 2030" initiative, through which it seeks to terminate routine flaring in existing fields as soon as possible and no later than 2030, and not conduct routine flaring in new oilfield developments.

[SFC XV]

Internal Carbon Price

In 2022, Ecopetrol approved the Internal Carbon Price as a mandatory variable, established as a base scenario in the economic evaluation to adopt current and future investment decisions. This scenario considers the impact of Scope 1 and 2 GHG emissions on Net Present Value (VPN, as per its Spanish acronym) and mitigation alternatives. The Company annually reviews the value assigned to the Internal Carbon Price, with a price curve that currently stands at 20 US/tCO₂e and rises to 40 US/tCO₂e by 2030.

(ECP007)
(GRI 11-2-4)

Participation in Climate Change Public Policy

Ecopetrol takes on the challenges of the energy transition by seeking a balance between its contribution to mitigate the effects of climate change and the development and socioeconomic well-being of the country.

To this end, the Company contributes to the construction and discussion of climate change policies and regulations in different spaces and initiatives, both at the public and private level. Since 2022, it has been a member of Asocarbono (Colombian Association of Carbon Market Actors), whose purpose is to review government regulatory propositions and issue recommendations. Similarly, it is part of ANDI's (National Association of Industrialists) environmental committee, where regulatory issues on climate change are discussed and proposals are generated in line with the purposes of each organization. At the public level, Ecopetrol has a direct relationship with the Ministry of Mines and Energy and the Ministry of Environment and Sustainable Development, to address the regulatory agendas of the oil and gas sector.

In 2022, we participated in the following regulatory consultations:

- Draft resolution "Regulating the conditions, criteria, and requirements for validation and verification processes in greenhouse gas mitigation initiatives and also issuing other provisions".
- CONPES Document "Energy Transition Policy".
- Foundations of the 2022-2026 National Development Plan, on issues related to climate change.
- Draft decree "Regulating Articles 22 and 57 of Law 2099 of 2021 issued by the MME on Carbon Capture, Use, and Storage (CCUS) technologies".
- "Guidelines for the preparation of Comprehensive Management Plans for Business Climate Changes in the Mining and Energy Sector".
- Draft decree for the modification of Carbon Tax-related articles under Decree 1076 of 2015 of the MHCP.
- Review of the considerations associated with carbon management in the Terms of Reference of ANH's "Open Area Nomination Process - PANA".

ROADMAP INTEGRATED WATER MANAGEMENT

Exceptional Material Element



(GRI 3-3, 11-6-1)
(WEF7, 11E, 13E)

Impacted stakeholder groups	Areas that manage the impacts	Ecopetrol business line or segments generating the highest impact
Society and Community	VRP	Upstream
State	VPU	Downstream
	VHSE	
	VTI	
	VDS	

(GRI 3-3-a,
11-6-1)
(WEF7, 7E,
11E, 13E)

Why is the Element Material?

The impacts arising from the use and exploitation of water resources may be related to the effect on the water supply of the basins and on water quality. On the one hand, its extraction and consumption, given certain circumstances, could lead to changes in the availability of the resource for downstream users. On the other hand, the discharges could change the quality of surface and underground water bodies. The foregoing can generate impacts on the right to water and other related rights.

However, positive impacts are also generated on the environment through Integrated Water Management at Ecopetrol, in the form of conservation, restoration, and preservation of water basins, as well as improved access to drinking water and sanitation for the communities near the areas of operation of the Company.

of deposits. However, the water consumption of the assets in no case exceeds 2.5% of the water supply of the basins, thus avoiding significant negative impacts on the water availability for downstream users.

On the other hand, the activities in the upstream, followed by the downstream, generate the largest volumes of industrial discharges into bodies of water. To prevent negative impacts from these discharges, environmental assessments are conducted from the planning stage based on the load and the assimilation and dilution capacity of the receiving body to confirm that no significant impacts are generated on them.

Ecopetrol treats 100% of its wastewater before it is discharged, thus ensuring compliance with the maximum permissible values established in environmental regulations. Quality monitoring is also conducted in the receiving bodies to confirm that they are not affected by the Company's discharges.

(GRI 3-3-b)

The activities in the downstream, followed by the upstream, concentrate the largest volumes

(GRI 3-3-c)

Policies and Commitments

Responsible water management is a corporate responsibility that seeks to protect and preserve said resource and the availability thereof. It is also essential for the operating continuity of the different areas of the business. For this reason, integrated water management is classified as an exceptional material element due to:

- Its significance in the generation of ecosystem value in the short, medium, and long term.
- It is included in the Company's corporate risks.
- Its relevance for the Stakeholder Groups, which is why water-related conflicts need to be prevented and water availability must be ensured for the environment.
- Ecopetrol is publicly committed to sustainable water management by adhering to the CEO Water Mandate.

Towards water neutrality:

Ecopetrol declared its commitment to be water neutral by 2045, defined as the balance between the water required for operations and the direct water footprint, considering efforts to reduce it as much as economically and technically possible and subtracting the compensation of 100% of the remaining water required to operate by executing compensation projects in the water basins where it operates.

To this end, Ecopetrol has committed to a **66% reduction by 2045 in the catchment of fresh water for industrial use** compared to the base year (2019), as well as the elimination of industrial wastewater discharges into fresh water bodies, and with the compensation of 34% of the remaining water consumption, through initiatives that contribute to improving water availability in the basins where the Company operates.

This ambition implies taking proactive actions, beyond environmental compliance, in order to manage the physical, regulatory, and reputational components of water-related risks and generate benefits for the community and the environment, with more control over the sustainability of the business in territories that gradually continue to raise their social and environmental protection expectations.



(GRI 3-3-d)

How is the Material Element Managed?



Water neutrality is a strategic pillar of the **environmental strategy**, based on the integrated water management strategy, for which a roadmap has been defined to achieve the goals set by 2045.

The roadmap establishes three (3) strategic lines of action:



How is the Material Element Evaluated?

The water neutrality strategy is periodically evaluated using the following indicators:



Reduction in the volume of fresh water collected for industrial use.



Percentage of reuse of collected water and production water that leverages the reduction of fresh water catchment and discharges into surface water bodies.



Water volume to be reused in agroforestry activities.

(GRI 3-3-e)
(WEF7, 11E, 13E)

Short, Medium, and Long term Goals and Projects

Short Term (2023–2025)

Short-term goals are defined every year by means of the three (3) year business plan to advance towards the fulfillment of long term goals. In this sense, the goals set for 2023* are indicated below:

Maximum catchment limit: **724 KBWPD**, that is, a 12% reduction compared to the baseline.

Reuse of production water: **31.5%**

Reuse of collected fresh water: **40.1%**

Reuse of **60 KBWPD** of treated production water in agroforestry cultivation pilot.

*The goals include the commitments adopted by the Upstream and Downstream Vice Presidencies, as well as the incorporation of the Tren Nare assets operated by Ecopetrol since November 2021.

Long Term (>2030)

The water neutrality commitment includes the following goals by 2045:

66% reduction of freshwater catchment for industrial use, compared to the baseline year (2019)**.

Zero industrial discharges into bodies of fresh water.

Compensation of the remaining catchment (**34%**) through compensation projects in the same basins from which the water is extracted.

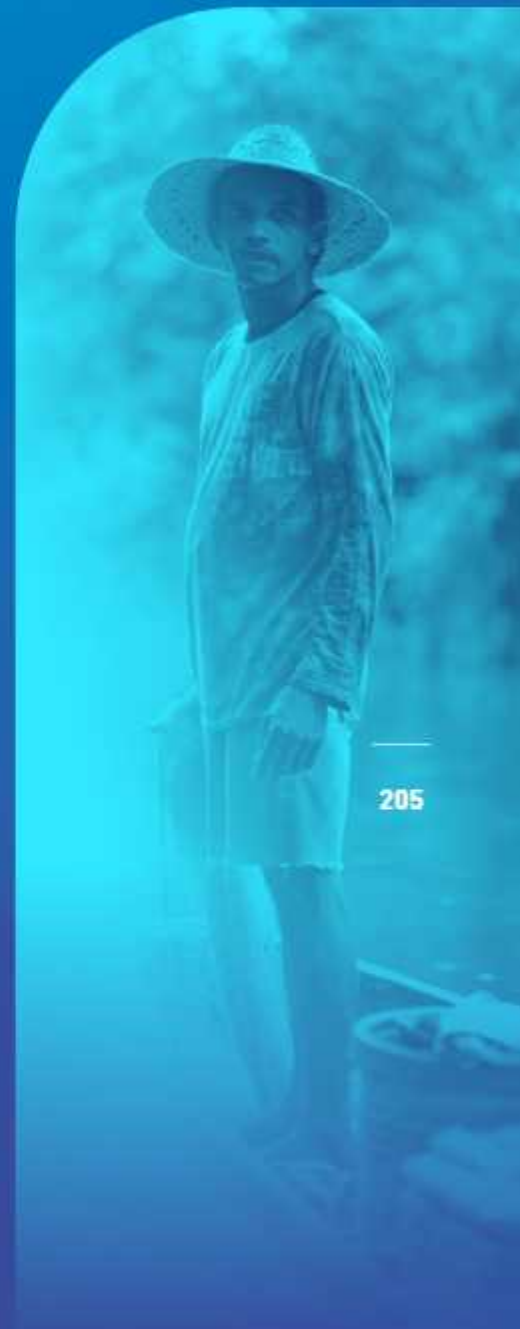
**If new assets are received, their water management volumes will be included in the baseline to maintain comparability with it.



(GRI 3-3-e)
(WEF7, 7E,
11E, 13E)

Main Achievements in Managing the Integrated Water Management Roadmap

- 26% reduction²⁵ in the volume of water collected for industrial use, thereby meeting the projected 14% goal for 2022.
- Reuse of 131.5 million m³ (77.5% of the water required to operate).
- 58% increase in the volume of reused production water.
- Deep aquifers: establishment of the local isotopic baseline and hydrochemical model for the Valle Medio del Magdalena aquifer system.
- Completion of early water polishing tests.
- 100% of assets operated with water footprint calculation, four (4) of them verified by Icontec.
- Completion of the short, medium, and long term water availability study.
- Updating and monitoring of the hydrological environmental baseline and surface water quality of Valle Medio del Magdalena.
- Reuse of 3.8 million m³ of production water in agroforestry crops.
- Progress in the collective action mechanism for the management of water security in Villavicencio and Acacias, together with 11 public and private entities.



²⁵ The reduction takes place in comparison with the baseline year (2019), which includes the Tren Nare assets operated by Ecopetrol since 2021.

Interaction with Water as a Shared Resource and Management of Discharge-related Impacts

(GRI 303-1, 11-6-2)
(WEF11E)
(TCFD M-1.1)

131.5 million m³ of water were used in 2022, equivalent to **77.5%** of the total required to operate, which represents an **18%** increase compared to the previous year, as a consequence of larger volumes of production water reused for recovery, mainly in the Castilla, Casabe, and Rubiales fields and larger volumes of water collected reused in the Barrancabermeja refinery.

On the other hand, **38.1 million m³** of fresh water were collected from surface, underground, and aqueduct sources, equivalent to **22.5%** of the water required to operate, thus registering a 6% decrease in catchments compared to 2021 (-13% without including the Tren Nare), mainly due to the entry into operation of the Casabe Field ReInjection Plant, which reduced catchments by **90%**. **61%** of total catchments derived from surface sources, **19%** from underground, and **20%** from aqueducts and external suppliers, through **104** water catchment points in 23 basins.

In terms of effluent management, **430.6 million m³** of production water (11% more than in 2021 and, on average, 11 barrels of water per barrel of crude oil extracted) and **34.5 million m³** of wastewater were generated from the use of collected water and the intake of rainwater in the treatment systems.

58% of production water was reinjected for final disposal, **26%** was reused mainly in reinjection for recovery purposes, 15% was discharged into bodies of water (prior treatment), and 1% was reused in the irrigation of agroforestry crops in the Agro-energy Sustainable Area (ASA) of Castilla.

The Company's total discharges, including wastewater from all segments, amounted to **80.3 million m³**, which represents a 23% increase compared to the previous year, mainly due to the impact of closing the discharge of the Castilla field, which was reactivated in June 2021. The upstream segment generated **81.3%** of total discharges (mainly production waters), downstream accounted for 18.6%, and corporate areas 0.1%.

95.8% of the discharges were into surface water bodies, 3.2% into the sea, 0.8% into the ground, and 0.2% of discharges in 23 water basins were delivered to external managers and sewers. The upstream segment generated **81.3%** of total discharges (mainly production waters), downstream accounted for 18.6%, and corporate areas 0.1%. In total, 21 basins were used for the disposal of discharges.



THE ENTRY INTO OPERATION OF THE CASABE FIELD REINJECTION PLANT REDUCED BY 90% WATER CATCHMENT.

(GRI 3-3-d)

Environmental planning identifies the potential impacts that each operation or project can generate on water bodies, determining their supply and quality conditions and defining the management measures in the environmental management plans. The impacts can be mainly related to a potential effect on the water supply and quality of the basin for downstream users. However, in addition to avoiding the materialization of negative impacts, Ecopetrol also generates positive impacts on the environment through its Integrated Water Management, in terms of conserving, restoring, and preserving water basins, as well as improving access to drinking water and sanitation in the communities near the areas of operation.

To avoid the materialization of negative impacts, the environmental assessment is conducted from the planning phase of the projects and operations, which defines the conditions (i.e. maximum use flows, ecological flow, use restrictions in periods of less rainfall, operating times, discharge volumes, flows to guarantee dilution/assimilation, among others) for the use of water in operations so as to not generate a significant impact on the availability or quality of the resource. These conditions are subject to the approval of an environmental permit by the competent authority, which is generally an integral part of the environmental license. In the operating phase, Efficient Use and Water Saving Programs (PUEAA, as per its Spanish acronym) are implemented to optimize the use of fresh water collected through reuse or recirculation initiatives, which in turn reduce discharges.

Similarly, the resource is continuously monitored to determine the supply conditions and quality of the water bodies and discharges,

so that no discharges are not made if the dilution capacity lowers during the periods of less precipitation, for example. The monitoring results are recorded in the SIGAR - Water tool to identify any deviations and trigger the corresponding action plans. These are also reported periodically in the Environmental Compliance Reports (ICA, as per its Spanish acronym) for verification and monitoring purposes by the environmental authority.

The Company has robust treatment systems to remove pollutants in wastewater, and thus meet the quality standards established in environmental regulations for discharges into bodies of surface water, seawater, or into the ground. These quality criteria are defined by the competent environmental authorities, who determine the maximum permissible limits for discharges into surface water bodies and sewers (Resolution 631 of 2015), seawater (Resolution 0883 of 2018), and to the ground (Decree 1076 of 2015), for each productive sector of the industry. For the specific case of the hydrocarbon sector, the most relevant parameters and their maximum limits were defined for each activity in the value chain (exploration, production, refining, and transportation), with more than 40 quality parameters in mind.

The strategic line of knowledge integration chases after technological alternatives through polishing pilots, enrichment with nano fertilizers, and optimizations in the reuse of treated production water for irrigation in agroforestry activities. It is worth noting that conversion plans to clean technologies have been implemented, which have improved the quality of discharges and eliminated more than **5 million m³/year** of industrial discharges.

(GRI 303-1-b,
303-2-a, 11-6-2)
(TCFD M-1.1)

Water Footprint

Ecopetrol uses the water footprint methodology in direct operation assets based on the provisions of the ISO 14046:2014 standard and the Water Footprint Network WFN, respectively, to identify impacts and show the benefits of reducing pressure on water resources by implementing measures to achieve operating efficiency in water management, as well as decarbonization and circular economy initiatives. Based on the analysis of the indirect water footprint, the raw materials and inputs that generate the highest impact have been identified, as well as the product and service suppliers that could adopt initiatives to reduce water-related risks.

This methodology is based on the following impact indicators:

1

Consumption footprint:

Extracted fresh water that evaporates or is incorporated into the product, or is not returned to the basin.

2

Water scarcity footprint:

Impact of water consumption with respect to available fresh water.

3

Degradation footprint:

Deterioration of the quality of fresh water due to the presence of polluting substances. It also allows the identification of priority substances in the discharges with the following indicators:

- **Human toxicity:** based on the USEtox model, which appraises the hazard of wastewater discharges in terms of carcinogenic and non-carcinogenic toxicity for humans (CTUh).
- **Ecotoxicity in freshwater:** based on the USEtox model, which evaluates various toxicological mechanisms caused by the release of substances with a direct effect on the health of the ecosystem (CTUe).
- **Ecotoxicity of seawater:** based on the Recipe model.
- **Freshwater acidification:** based on the Accumulated Exceedance AE model, which assesses the effect of acid rain on freshwater due to the release of NO_x, SO_x, and NH₃ into the atmosphere.

In 2022, Ecopetrol became the first company in the hydrocarbon sector to verify its water footprint in the country and in Latin America. This calculation was made in accordance with the NTC-ISO 14046 standard for 100% of the operated assets, and the verification process of the water footprint calculation was conducted in partnership with ICONTEC for the La Cira – Infantas and Castilla Fields and the Cartagena and Barrancabermeja refineries.

(3-3-e)

Goal Setting Process:

Setting goals is a collaborative effort between the operating areas and the HSE Vice Presidency, considering the Company's TESG strategy, Business Development Plans, and best practices in the sector. The goals are built using a bottom up strategy, that is, they are arranged for each asset, and then they are grouped to define the goals by segment and for the entire Company. Subsequently, they are made official by the HSE Vice President, and the follow-up is conducted on a monthly basis

by the same HSE Vice President and the Department of Business Performance.

Ecopetrol sets water-related goals to reduce its footprint and dependence on the availability of fresh water, which allows it to manage the physical, regulatory, and reputational risks in each of the basins where the operation or project is taking place, and also to increase the resilience of operations in the territories that progressively raise their social and environmental expectations.

(3-3-e)

Monitoring the Effectiveness of the Measures Adopted

The effectiveness of the water management measures adopted is measured in terms of:



- Legal compliance with environmental requirements, especially by monitoring the supply conditions and quality of the water bodies in the area of influence.
- Formulation and fulfillment of internal goals that leverage the ambition of being water neutral, including fresh water catchment limits for industrial use, the percentage of water reuse, the production water reuse target, concentration of hydrocarbons in discharges, and the gradual reduction of discharges until complete phase out.
- Water risk management (physical, regulatory, or reputational) through the Comprehensive Risk Management System.
- Analysis of water-related requests, complaints, and claims (PQRs).
- Rating in reports to stakeholders such as DJSI, CDP, Sustainalytics, etc.
- Internal audits on the efficient use of water resources.
- Monitoring by environmental authorities and compliance with the requirements arising from the visits and oral hearings held with environmental authorities.



(3-3-e)

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

Water is a fundamental resource for Ecopetrol's operations and projects, which is why the goal of Water Neutrality by 2045 was included in its 2040 Strategy: "Energy that Transforms," under the "Generating Value with TESG" pillar.

This is a strategic pillar defined in the Environmental Strategy, established within the framework of the HSE Management System certified by ISO 14001 (V2015). In this sense, there is a management program for all environmental strategic pillars containing goals and milestones that are monitored quarterly by the HSE Vice Presidency.

Additionally, Ecopetrol included Risk 14 on "Inadequate climate change and water management" in its Business Risk Map, which continuously identifies water-related risks, and evaluates and anticipates possible scenarios that may affect the continuity of the operations and proposes measures to minimize exposure.

Part of the analysis includes reviewing materialized events or that may have potentially materialized, in which physical, regulatory, and/or reputational conditions could affect the continuity of the operations. The foregoing, with the purpose of including lessons learned in the asset development plan, and extrapolating them to other assets that could be exposed to the same situation. The risk scenarios serve as an input for the Company's materiality analysis, which, together with the perception of Stakeholder Groups, allowed the definition of integrated water management as an exceptional element within the TESG pillar.

The reports to stakeholders such as DJSI, CDP, and Sustainalytics, and the standards of organizations such as GRI and IPIECA, have allowed the Company to compare and evaluate its integrated water management with respect to the best practices and global trends in the Oil & Gas sector, and update its internal policies and procedures accordingly.

The CDP (Disclosure Insight Action) gave Ecopetrol an A- rating for its results and leadership in the development of its 2022 Climate Change program, positioning the Company as an industry benchmark in the subject matter at the regional and internal level. In the 2020 and 2021 reports, Ecopetrol obtained a rating of C and C-, which implied an exhaustive review of the gaps to establish robust actions for improvement and report on the efforts made in climate change. The rating outperforms the industry average with a B, and regional and global performances with a C.

[GRI 3-3-f,
11-6-2]

How are Stakeholders Involved in Taking Action to Manage Water in a Comprehensive Manner?

The communities in the areas of influence are active players in the early planning stages of new projects or the modification of existing operations, since they participate in three instances during the preparation of environmental impact assessments when formulating the request for environmental licensing. There are similarly additional participation mechanisms during the evaluation of the application, such as environmental public hearings, prior consultations with indigenous communities, and third-party declarations.

Once the permits have been granted, the community actively engages in the operating stage, with the possibility of exerting surveillance and control over its evolution, participating in technical follow-up visits by the environmental authority, rights to petition, and environmental complaints. On the other hand, Ecopetrol (through the Citizen Participation Office, OPC) has implemented mechanisms to receive and manage requests, complaints, claims, and suggestions (PQRS) filed by the Stakeholder Groups, as well as participation scenarios to report on the activities undertaken in order to build close relationships with the stakeholders.

(GRI 11-6-2)

The district, regional, and national environmental authorities are in charge of issuing environmental authorizations on behalf of the State, and also monitoring compliance with the commitments included in the Environmental Management Plan, in order to prevent, mitigate, correct, and/or offset the environmental impacts identified. By means of follow-up orders and/or oral proceedings, the authorities can establish additional requirements for the Company.

For Ecopetrol, it is important to support and be associated with the efforts exerted on water security at the international and national levels, which is why it participates in the following initiatives: The CEO Water Mandate and the Water Coalition for Colombia (*Coalición Agua para Colombia*). Currently, the water security plans promoted by Ecopetrol are part of the global collaboration and knowledge exchange platform for water sustainability and climate resilience -Water Action Hub.

At the regional level, together with The Nature Conservancy (TNC), the design stage of the collective action mechanism continued in 2022 for the management of water security in the supply basins of the municipalities of Villavicencio and Acacias, together

with **11 public and private entities** that have formalized their engagement by signing of a memorandum of understanding. Currently, the mechanism has a portfolio of Nature-Based Solution initiatives and an investment return analysis pertaining to water security benefits for these two municipalities.

On the other hand, in partnership with the Institute of Hydrology, Meteorology, and Environmental Studies (IDEAM), the state of the surface water has been updated and monitored since 2021, as well as the generation of hydrometeorological alerts in Valle Medio del Magdalena, contributing to decision-making on water planning and management processes, in order to prevent and mitigate future impacts from hydroclimatic events in **39 municipalities** in the departments of Santander, Norte de Santander, Cesar, and Bolívar, and benefiting around two (2) million inhabitants in this region.

Finally, progress is being made in the conservation of natural capital and biodiversity, through voluntary efforts and compliance with environmental compensation obligations, and a 1% investment to contribute to the conservation, recovery, and monitoring of water resources in the basins that supply the operations.



THE WATER SECURITY PLANS PROMOTED BY ECOPEPETROL ARE PART OF THE GLOBAL COLLABORATION AND KNOWLEDGE EXCHANGE PLATFORM FOR WATER SUSTAINABILITY AND CLIMATE RESILIENCE - WATER ACTION HUB.

[GRI 303-3,
11-6-4)
(WEF 10)
(TCFD M-1.2.2)]

Table 54. | Water Extraction by Area

Water extraction in all areas	Unit of measurement	2019	2020	2021	2022
Total extraction in all areas	m ³	453,769,052	454,657,524	428,242,738	468,640,838
Total surface water	m ³	38,368,623	34,465,016	24,326,162	23,132,391
Surface: Fresh water (total dissolved solids <1,000mg/l)	m ³	38,368,623	34,465,016	24,326,162	23,132,391
Surface: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	0	0
Total underground water	m ³	8,459,395	9,346,929	8,771,134	7,214,821
Underground: Fresh water (total dissolved solids <1,000mg/l)	m ³	8,459,395	9,346,929	8,771,134	7,214,821
Underground: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	0	0
Total sea water	m ³	0	0	9,671	0
Sea Water: Fresh water (total dissolved solids <1,000mg/l)	m ³	NA	NA	NA	NA
Sea water: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	9,671	0
Total aqueducts	m ³	7,800,432	7,301,149	6,983,431	7,742,572
Aqueducts: Fresh water (total dissolved solids <1,000mg/l)	m ³	7,800,432	7,301,149	6,983,431	7,742,572
Aqueducts: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	0	0
Total production water	m ³	399,140,602	403,544,430	388,152,340	430,551,054
Total production water: Fresh water (total dissolved solids <1,000mg/l)	m ³	91,617,606	100,149,960	302,002,858	338,212,508
Total production water: Other Waters (total dissolved solids >1,000mg/l)	m ³	307,522,996	303,394,470	86,149,482	92,338,546

Source: HSE Vice Presidency.

Note 1: In 2022, 38.2 million m³ of fresh water was collected, which represents a 5% reduction compared to 2021. This reduction was mainly thanks to the entry into operation of the Casabe reinjection plant, which reduced 89% of underground water catchment [-4.3 million m³]. On the other hand, the Tibú field also experienced reductions (-0.6 million m³) in the catchment of underground water due to low and order conditions that affected its normal operation. In terms of surface catchments, reductions were recorded in La Cira Infantas [-0.54 million m³], which required less water collected for injection due to an increase in the BSW of its wells; also, in the Barrancabermeja refinery [-0.66 million m³] due to higher water reuse. As for aqueducts, there was an increase in the volume of water purchased by the Cartagena refinery [+10%] due to the entry into operation of the IPCC Crude Plant, which increased the load of refined crude and, consequently, water demand.

It is important to mention that the volumes for 2022 include the Tren Nare, operated by Ecopetrol since November 2021, which represented an additional collection of 3.28 million m³/year above the baseline. Without this effect, the reduction compared to 2021 would have been 12%.

Note 2: An 11% increase in production water was recorded, due to the temporary closure of the discharge from the Castilla field during the first half of 2021, which operated normally throughout 2022; also, the Tren Nare fields contributed 3.2 million m³ to water production.

[GRI 2-4-a)

(GRI 303-3,
11-6-4)
(WEF 10)
(TCFD M-1.2.2)

Table 55. | Amount of Water Extracted in Water Stressed Areas

Water extraction by water stressed areas	Unit of measurement	2019	2020	2021	2022
Total extraction by water stressed areas	m ³	25,201,651	23,455,522	24,647,117	24,500,595
Total surface water	m ³	4,066,730	3,230,981	4,004,994	2,712,030
Surface: Fresh water (total dissolved solids <1,000mg/l)	m ³	4,066,730	3,230,981	4,004,994	2,712,030
Surface: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	0	0
Total underground water	m ³	248,204	69,217	84,091	118,019
Underground: Fresh water (total dissolved solids <1,000mg/l)	m ³	248,204	69,217	84,091	118,019
Underground: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	0	0
Total sea water	m ³	0	0	9,671	0
Sea water: Fresh water (total dissolved solids <1,000mg/l)	m ³	NA	NA	NA	NA
Sea water: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	9,671	0
Total aqueducts	m ³	7,740,246	7,220,210	6,969,932	7,707,270
Aqueducts: Fresh water (total dissolved solids <1,000mg/l)	m ³	7,740,246	7,220,210	6,969,932	7,707,270
Aqueducts: Other waters (total dissolved solids >1,000mg/l)	m ³	0	0	0	0
Total production water	m ³	13,146,471	12,935,114	13,578,429	13,963,276
Total production water: Fresh water (total dissolved solids <1,000mg/l)	m ³	0	0	0	0
Total production water: Other waters (total dissolved solids >1,000mg/l)	m ³	13,146,471	12,935,114	13,578,429	13,963,276

Source: HSE Vice Presidency.

Note: Water stressed areas are identified when the ratio between surface water demand and supply in the basin is greater than 40%. The assets of Llanito, Lisama, Neiva, Tello, Rio Ceibas, and Yaguará are under this condition, as well as the Cartagena refinery and the San Silvestre plant at the Barrancabermeja refinery. Total fresh water collected in these areas recorded a 4% decrease due to lower catchment at the Barrancabermeja refinery.

[WEF10]
[TCFD M-1.2.2]

Table 56. | Amount of Water Reuse

Water reuse	Unit of measurement	2019	2020	2021	2022
Total water reuse	m³	89,395,780	96,524,057	111,261,921	131,542,527
Reuse of collected water	m ³	16,971,337	11,364,661	16,872,526	16,913,485
Reuse of production water	m ³	72,424,443	85,159,396	94,389,395	114,611,042

Source: HSE Vice Presidency.

Note: A total of 131.3 million m³ were reused, which represents an 18% increase vs. 2021, mainly due to an increase in water reinjection for recovery in the Castilla field (+12.8 million m³); the entry into operation of the reinjection plant at the Casabe field (+5.2 million m³); the start of the reinjection pilot to sustain pressure in the Rubiales field (+1.4 million m³); higher water production in the Chichimene and Akacius fields, which reinject 100% of the water for recovery (+0.7 million m³), and higher reuse of industrial water at the Barrancabermeja refinery (+0.6 million m³).

[GRI 303-4,
11-6-5]
[TCFD M - 1.1]

Table 57. | Amounts for Each of Ecopetrol's Effluent Management Alternatives

Effluent management	Effluent management	2019	2020	2021	2022
Reuse	m ³	89,395,780	96,524,057	111,261,921	131,542,527
Reuse	m ³	1,159,113	3,134,494	2,304,548	3,767,340
Disposal	m ³	249,338,950	245,428,556	246,939,985	249,517,246
Discharges	m ³	96,686,359	87,278,245	61,554,806	80,253,356
Total effluents	m³	436,580,202	432,365,352	422,061,260	465,062,469

Source: HSE Vice Presidency.



(GRI 303-4,
11-6-5)
(TCFD M-1.1)**Table 58.** | Water Discharge in All Areas

Water discharge in all areas	Unit of measurement	2019	2020	2021	2022
Surface water	m ³	93,034,569	83,941,847	58,198,876	76,874,598
Sea water	m ³	26,71,317	2,359,516	2,508,397	2,574,040
Soil water	m ³	849,601	848,655	750,635	623,646
Sewage water	m ³	130,872	128,227	96,898	181,071
Total freshwater discharges (total dissolved solids <1,000mg/l)	m ³	65,702,984	56,871,728	45,831,586	69,631,981
Total discharges from other waters (total dissolved solids >1,000mg/l)	m³	30,983,375	30,406,517	15,723,220	10,621,375

Source: HSE Vice Presidency.

Note: Discharges amounting to 80.3 million m³ were recorded, representing a 30% increase compared to 2021 due to the reactivation of the discharge (surface) in Castilla. However, it is important to highlight the reductions resulting from the implementation of the PRTLSV (Reconversion Plan to Clean Technologies in Discharge Management) in Casabe and Llanito (surface, non-fresh water), the closure of the muddy water discharge in La Cira Infantas (-0.39 million m³), and less discharge in the Barrancabermeja refinery (-0.38 million m³).

(GRI 11-6-5)
(TCFD M-1.1)**Table 59.** | Amount of Water Discharged in Water Stressed Areas

Water discharge in water stressed areas	Unit of measurement	2019	2020	2021	2022
Surface water	m ³	531,676	480,099	583,515	56,131
Sea water	m ³	2,669,288	2,338,819	2,508,397	2,574,040
Soil water	m ³	276,370	139,979	106,951	90,844
Sewage water	m ³	61,401	19,120	0	10,133
Total freshwater discharges (total dissolved solids <1,000mg/l)	m ³	464,142	256,758	179,581	152,317
Total discharges from other waters (total dissolved solids >1,000mg/l)	m³	3,074,594	2,721,260	3,019,282	2,578,831

Source: HSE Vice Presidency.

Note: Total discharge in water stressed areas amounted to 2.7 million m³, that is, a 16% reduction compared to 2021; discharges to surface water were reduced by 91% thanks to the closing of the discharge in the Llanito field.

(GRI 11-6-5)
(TCFD M-1.1)

Table 60. | Amount of Water Discharge by Level of Treatment

Discharge by level of treatment	Unit of measurement	2019	2020	2021	2022
No treatment	m ³	0	0	0	0
Pre-treatment	m ³	0	0	0	0
Primary treatment	m ³	9,475,971	3,844,372	4,301,992	4,585,760
Secondary treatment	m ³	87,081,370	83,318,578	57,196,554	75,552,823
Tertiary treatment	m ³	1,693	44	0	0
Other treatments	m ³	127,325	115,251	56,260	114,772

Source: HSE Vice Presidency.

Note: In primary treatments, discharges with exclusively physical treatments are reported; secondary treatments involve biological treatments; tertiary treatments include advanced treatments such as reverse osmosis. The volume reported under "Other treatments" corresponds to wastewater managed with external parties, who cover their own treatment and final disposal.

(SASB EM-EP-140a.1)
(SFC XVI)
(TCFD M - 1.1)

Table 61. | Fresh Water Collected and Consumed

Fresh water collected and consumed	Unit of measurement	2019	2020	2021	2022
Amount of water extracted from freshwater sources	Thousand m ³	23,317	23,467	11,561	9,607
Amount of fresh water consumed in company operations	Thousand m ³	13,568	12,784	10,052	8,695
Amount of water extracted from places under high or extremely high water stress	Thousand m ³	447	138	111	171
Amount of water consumed in places under high or extremely high water stress	Thousand m ³	27	0	0	19
Percentage of water extracted from places under high or extremely high water stress	%	3	1	1	1.78
Percentage of water consumed in places under high or extremely high water stress	%	0	0	0	0.219

Source: HSE Vice Presidency.

Note 1. Point 1: in 2022, the E&P segment collected 9 million m³ of fresh water, which represents a 17% reduction compared to 2021. This reduction mainly due to: the entry into operation of the Casabe Reinjection Plant, which reduced -4.3 million m³; lower underground water catchment in the Tibú field [-0.6 million m³] due to law and order conditions that affected its normal operation; lower surface catchments in La Cira Infantas [-0.54 million m³], which required less water collected for injection due to an increase in the BSW of its wells.

It is important to mention that the volumes for 2022 include Tren Nare, operated by Ecopetrol since November/2021, which meant an additional collection of 3.28 million m³/year above the baseline. Without this effect, the reduction compared to 2021 would have been 45%.

Note 2. Point 2: With regard to consumption, the baseline data was updated in accordance with the provisions set forth in the EM-EP-140a.1 sustainability metric. In other words, consumption is calculated as water collected - discharges associated with water catchment. Fresh water is mainly consumed by the injection of water collected for recovery.

Note 3. Point 3: Water stressed areas are identified when the ratio between surface water demand and supply in the basin is greater than 40%. The assets of Llanito, Lisama, Coordinación Neiva, Tello, Rio Ceibas, and Yaguará are under this condition.

(GRI 2-4-a)

(GRI 2-4-a)

(SASB EM-EP-140a.2)
(SFC XVI)
(TCFD M - 1.1)

Table 62. | Produced Water, Flowback, and Hydrocarbons Contained in the Discharges Generated in the Operation

Produced water, flowback, and hydrocarbons contained in the discharges generated in the operation	Unit of measurement	2019	2020	2021	2022
Amount of produced water generated during operation	Thousand m ³	399,141	403,545	388,370	430,551
Amount of flowback generated during operation	Thousand m ³	NA	NA	NA	NA
Amount of produced water and flowback generated during operation	Thousand m ³	399,141	403,545	388,370	430,551
Amount of produced water and flowback injected	Thousand m ³	321,024	330,274	341,199	249,517
Percentage of water produced and flowback injected	%	62.5	60.5	63.4	57.953
Amount of produced water and flowback recycled	Thousand m ³	73,584	88,294	96,703	118,378
Percentage of water produced and flowback recycled	%	18.4	21.8	24.8	27.495
Amount of produced water and flowback discharged	Thousand m ³	76,241	72,047	45,770	64,336
Percentage of water produced and flowback discharged	%	19.1	17.8	11.8	14.943
Amount of hydrocarbons contained in the water discharged into the environment	Ton	225	386.6	101.8	127

Source: HSE Vice Presidency.

Note 1. Data reported from the exploration and production segment of the hydrocarbons business line.

Note 2. Ecopetrol does not conduct hydraulic fracturing activities, thereby not generating any flowback.

Note 3. The volume of produced water injected includes the water injected for final disposal.

Note 4. The volume of production water recycled includes reinjection for recovery (EOR).

Note 5. The weighted average concentration of HTP in the discharges from Ecopetrol's exploration & production assets is 1.97 mg/L, well below the limit of 10 mg/L established by national regulations.

(SASB EM-EP-140a.4)
(SFC XVI)
(TCFD M-1.1)

Percentage of hydraulically fractured sites where surface and underground water suffer quality deterioration compared to a baseline.

Ecopetrol does not conduct hydraulic fracturing activities, thereby not generating any flowback.



Water Consumption

219

(GRI 303-5,
11-6-6)
(TCFD M-1.1)

Table 63. | Water Consumption in the Organization in Each of the Water Stressed Areas

Water consumption	Unit of measurement	2019	2020	2021	2022
Entry into operation	m ³	25,201,651	23,455,522	24,647,118	24,500,595
Fresh water catchments	m ³	12,055,180	10,520,408	11,068,689	10,537,319
Production water	m ³	13,146,471	12,935,114	13,578,429	13,963,276
Effluents	m ³	16,558,284	15,485,835	16,178,556	16,554,814
Collected water injected for recovery	m ³	233,654	40,927	80	36,925
Drinking water supplied to third parties (communities)	m ³	95,119	4,448	0	0
Production water reinjected for recovery	m ³	12,690,776	12,462,441	12,979,613	13,786,741
Production water reinjected for final disposal	m ³	0	0	0	0
Production water reused in agricultural irrigation	m ³	0	0	0	0
Discharges	m ³	3,538,736	2,978,018	3,198,863	2,731,148
Balance (consumption)	m³	8,643,367	7,969,687	8,468,562	7,945,781

Source: HSE Vice Presidency.

ROADMAP BIODIVERSITY AND ECOSYSTEM SERVICES

Notable material element



(GRI 3-3)

Impacted stakeholder groups	Areas managing the impacts	Ecopetrol business line or segments generating the highest impact
Suppliers	VHSE	Upstream
Associates and Partners		Midstream
Customers		Downstream
Employees		
Investors		
State		
Society and Community		

220

(GRI 3-3-a)

Why is the Element Material?

The main negative impacts on biodiversity from the presence of hydrocarbon operations and projects can be generated in the use of the soil (transformation), forest exploitation, contamination, and the effect on the species in red list categories. In turn, positive impacts are generated on biodiversity and local communities, to the extent that there is better integration between the company's operation and the environment, with soil conservation and restoration efforts, generation of biological corridors, implementation of sustainable systems (agroforestry, silvopastoral, meliponiculture, etc.), participatory monitoring programs, and registration of biological information in the SIB, among others.

These impacts can similarly affect or boost the well-being and sustenance of the surrounding communities, in relation to the rights to a healthy environment and access to water, and others.

Ecopetrol recognizes the need to identify and manage the dependencies and impacts on biodiversity and ecosystem services, as well as the need to apply the mitigation hierarchy and trigger actions that contribute positively to nature, in line with the UN's Sustainable Development Goals.

In this sense, the Company defined Biodiversity and Ecosystem Services as a notable element, considering the risks and opportunities entailed in operating in a megadiverse country, while adequately managing biodiversity, meeting the expectations of the Stakeholder Groups, and maintaining the license to operate.

(GRI 3-3-b)

An inadequate management of biodiversity and ecosystem services can have strong impacts on Ecopetrol's operations due to possible dependencies that may arise throughout execution.

(GRI 3-3-c)

Policies and Commitments



The **environmental strategy** includes the strategic pillar of Biodiversity and Ecosystem Services, in coordination with the “Generating Value with T ESG” driver under the Company’s 2040 Strategy.

The objective of this pillar is to undertake harmonious operations in balance with the environment, while progressively reducing potential risks and impacts on the ecosystems and local communities.

Ecopetrol has not, nor does it plan to conduct exploration, production, or refining activities in areas of great biodiversity value, categories I to IV according to the IUCN, nor in areas declared World Heritage Sites by UNESCO.

Ecopetrol actively supports Target 15, recently included in the Convention on Biological Diversity (CBD), as an active member of the Taskforce on Nature-Related Financial Disclosures (TNFD).

As an active member of the TNFD, it is committed to adopting this

framework for managing and reporting risks and opportunities associated with natural capital, to actively contribute to an ever-growing ambition of a positive nature, in pursuit of halting and reversing the loss of nature from its current state, reducing future negative impacts, and focusing on restoration and renewal efforts. The Company is similarly committed to net zero deforestation in its supply chain.

In 2022, Ecopetrol signed the “COP15 Business Statement for Mandatory Assessment and Disclosure” promoted by Business for Nature, a global coalition that seeks to unite companies and conservation organizations towards a single purpose.

Furthermore, the commitment adopted in 2021 with the 1.t.org initiative of the World Economic Forum to protect **30,000 hectares of strategic ecosystems**, planting 12 million trees, and capture at least two (2) million tonCO₂e by 2030 continues to stand strong, with the first progress report sent in 2022.



IN 2022, ECOPETROL SIGNED THE COP15 BUSINESS STATEMENT FOR MANDATORY ASSESSMENT AND DISCLOSURE PROMOTED BY BUSINESS FOR NATURE, A GLOBAL COALITION THAT SEEKS TO UNITE COMPANIES AND CONSERVATION ORGANIZATIONS TOWARDS A SINGLE PURPOSE.

(GRI 3-3-d)

How is the Material Element Managed?

In the environmental strategy, this pillar is structured based on **four (4) lines of action:**



It is governed, among others, by the guiding principles of prevention, precaution, and no net loss.

In terms of the mitigation hierarchy, its purpose is to prevent, avoid, mitigate, and offset potential residual impacts.

Nature-based solutions such as eco-reserves, natural climate solutions projects, and restoration and conservation actions, seek to generate positive impacts together with local communities and respond to the social and environmental challenges of climate change, water security, disaster risks, and loss of biodiversity.

(GRI 3-3-e)

How is the Material Element Evaluated?

The roadmap established for this material element defines short, medium, and long term goals, indicators, and milestones. Depending on their relevance, some milestones are included in the TBG.

With regard to mandatory investments, specific indicators are defined as part of the 1% compensation and investment plans approved by the environmental authority to measure the impact on connectivity and on the species in the work areas. In the case of voluntary initiatives (TNC, WGS,

Fondo Acción, Fundación Natura, and Catarruben), the carbon sequestration and social co-benefits of the projects are similarly measured.

As for impacts, indicators such as intervened hectares, volume of forest use, impact on species in the IUCN's red list, and spills mainly affecting flora and fauna are also monitored.

In 2022, **1,309 biodiversity monitoring** activities were conducted and the SIB-GIF registered a total of 199,987,209,642 biological records.

(GRI 3-3-e)

Short, Medium, and Long-term Goals and Projects














Milestone	Goals		
	Goal by 2023	Goal by 2025	Goal by 2030
Accumulated trees supported, planted, and/or delivered	6 million	8 million	12 million
Accumulated Ecoreserves	20 eco-reserves	25 eco-reserves	50 eco-reserves
Hectares preserved and/or in restoration process	20,000 ha	25,000 ha	30,000 ha
Clearance of accumulated MtCO ₂ e with Natural Climate Solutions projects	0.019 MtCO ₂ e	-	2-4 MtCO ₂ e

PRESERVE 15 WILD SPECIES IN 3 LANDSCAPES

Source: HSE Vice Presidency.

(GRI 3-3-e)

Main Achievements in Managing the Biodiversity and Ecosystem Services Roadmap

-  Six (6) SNC projects with TNC, WCS, Fondo Acción, F. Natura, Cataruben, and Conexión Jaguar (ISA), with the potential of clearing **0.9 MtCO₂e by 2025**.
-  Distinction by Pacto Global Red Colombiana as one of the companies making the greatest contribution to the SDGs.
-  **6,509,818 trees** planted/delivered between 2018 and 2022.
-  **239 families** benefited from volunteer projects.
-  Second company with the largest number of biological records published in the SIB.
-  **194** regionalized biomodels.
-  **500** registrations for the diploma course in bioeconomy.
-  **10 prioritized SBNs** and 50 success stories on the SBN platform.
-  A guide to Sustainable Use endorsed by MADS.
-  Catalog of microorganisms (genomics) with the potential of being used in the bioremediation of hydrocarbons.
-  A digital application for the community monitoring of mangroves.
-  A high-tech mobile laboratory to study ecosystems at the country level.
-  One of the most advanced networks in Eddie-Covariance and ambient technologies.



Ecoreserves

The Ecopetrol Group created the Network of Ecoreserves, which are *“geographically delimited areas, owned by Ecopetrol Group companies, which are voluntarily allocated in part or completely to the conservation of biodiversity and the offer of ecosystem services, without limiting their productive and exploratory vocation.”* The Network currently consists of **15 Ecoreserves**, with an approximate area of **15,085 hectares**.

Of the first 15 Ecoreserves allocated until 2021, six (6) of them, amounting to **11,935 hectares**, have Biodiversity and Reinforcement Plans, prepared together with the Humboldt Institute by means of the FIBRAS Agreement, and the implementation of the proposed activities are set to be launched by prioritizing the protection of identified Values Subject to Conservation (VOC).

Ecoreserves are voluntary private initiatives, which are expected to encourage other sectors of the economy to participate in this type of area-based conservation mechanisms as part of the environmental strategy to improve connectivity, biodiversity, and ecosystem services in general.

Socioecological Resilience

An innovative tool (conceptual model and web application) was developed together with the Humboldt Institute (FIBRAS Agreement) to better understand socio-ecological resilience in Ecopetrol's areas of operation, by using a dynamic model that simulates the operation of the system against different impacts generated by productive activities in the territory, based on which a trend can be established over time. The tool will produce indicators to understand the limits of intervention in the territories without altering their balance.

It integrates eight (8) modules that gather the socioenvironmental components present in the environment: coverage, water, abiotic variables, habitat availability, diversity and redundancy, socioenvironmental conflicts, diversity of productive activities, and health. The modules are conceptualizations represented in differential equations (mathematical model) to simulate the operation of the system and model the trend of the properties that generate resilience against the potential impacts that may occur over time.

The input information for the model is taken from environmental impact assessments (EIA), environmental compliance reports (ICA), monitoring reports, and others.

The tool consists of two components:

- 1) A set of web services that receives the input data and emits the output data.
- 2) A simulator that contains a mathematical model organized into modules that generates time series for the variables associated with resilience based on some input data.

The implementation of a case study is currently underway using the LEAP methodology (Locate, Evaluate, Advise, Prepare), articulated with the TNFD pilot and its process for evaluating nature-related risks and opportunities.

For more information on the measures adopted in 2022 associated with genomics, biomonitors, and biomodels, visit the Environmental/Biodiversity section on the Ecopetrol website.





THE SUSTAINABLE USE GUIDE FOR BIOTIC COMPENSATION AND THE 1% INVESTMENT WAS PUBLISHED TOGETHER WITH TNC, WITH THE ENDORSEMENT OF THE MINISTRY OF ENVIRONMENT AND SUSTAINABLE DEVELOPMENT.



Training, Capacity building, and Knowledge Workshops

The "Conservation, Biodiversity Management, and Sustainable Bioeconomy" diploma course began with **500 participants**, thanks to the joint efforts between Ecopetrol, Pontificia Universidad Javeriana, and the Humboldt Institute. The objective of the course is to provide conceptual and practical tools to strengthen process optimization skills in organizations and boost the country's transition towards sustainability, as well as position biodiversity and its ecosystem services as an economic alternative.

Training opportunities: diploma course titled Nature-Based Solutions as a tool for the comprehensive management of the territory and a series of webinars titled Coffee for the Territories on the topic labeled as *"Let's talk about conservation and the tools for territorial management."*

The Sustainable Orinoquía Pact, that Ecopetrol is part of, consolidates a joint vision and effort between the environmental sector and the main productive sectors in the region, in relation to common interests that favor the balance between productive use and the conservation of ecosystem services.

The Sustainable Use Guide for biotic compensation and the 1% investment was published together with TNC, with the endorsement of the Ministry of Environment and Sustainable Development. The Nature-Based Solutions Platform was also designed and published, with step-by-step indications on the management of 10 prioritized SBNs.

[GRI 304-2, 11-4-3] (WEF9)

Nature of Significant Direct and Indirect Impacts on Biodiversity

Hydrocarbon activity in Colombia takes place based on an environmental zoning process under the mitigation hierarchy, in order to avoid, minimize, and correct impacts on biodiversity, and offset residuals, in accordance with the current regulatory framework.

The main impacts are:

-  The construction or use of manufacturing plants, mines, and transportation infrastructure.
-  Contamination generated by operating incidents greater than one barrel, affecting fauna and flora species, and therefore activating appropriate response, treatment, and cleaning protocols.
-  **479.16 m²** of forests used for timber extraction, with exploitation permits from the environmental authority.
-  The extent of the impacted areas is **7.55 ha.**

226

[GRI 304-2, 11-4-3] (WEF9)

Significant Direct and Indirect Positive and Negative Impacts on Biodiversity

Positive:



In complying with the obligations of environmental compensation and investments of no less than **1%** for the use of water from natural sources, the purpose is to preserve biodiversity and its ecosystem services in biodiversity hubs, with the signing of voluntary conservation agreements and the acquisition of land for conservation and ecosystem restoration objectives.



A total of **7.55 ha** were intervened, as well as the forestry use of **479.16 m²** for timber extraction (equivalent to **14.19%** of the volume of an Olympic swimming pool), mostly from isolated trees.

469 voluntary conservation agreements were managed to comply with environmental obligations in **5,094.7 ha**. The sustainability of these actions will generate positive impacts on local and regional biodiversity and improve the productive practices of the communities involved.



198 feasibility diagnoses were conducted in the planning of projects and operations; **21** environmental assessments for exploration and production projects, including the biotic characterization of the areas of influence; **109** environmental management records associated with the preservation of the vegetation cover and the protection of biodiversity; and **71** plots of flowering trees monitored.



129 records of epiphytic flora samples taken, as well as **239** fauna samples and **577** hydrobiological sampling points.

Negative



The recovery plan for the Lisama 158 incident in 2018 records a progress of **93.7%**, with the rehabilitation of 103 ha of vegetation cover still pending. The maintenance, follow-up, and monitoring of the rehabilitation is set to be completed by December 2025, for ANLA to close and verify the work done.



Land use change is one of the impacts caused by the Company's projects and operations.



There were **three (3) operating incidents** greater than one barrel, with a total **64** barrels spilled, affecting bodies of water and/or vegetation. In all cases, the emergencies were addressed in accordance with the provisions set forth in the Emergency and Contingency Plans, with the proper cleaning of the bodies of water and the remediation of flora and fauna. The affected fish species were: two (2) Vulnerable (VU) species and **23** Minor Concern (LC) species, according to the current classification of the IUCN Red List.

(SASB EM-EP-160a.3)
(SFC XVI)

Table 64. | Proven and Probable Reserves Associated with Protected Areas for the Preservation of Biodiversity

Proven and probable reserves associated with protected areas for the preservation of biodiversity	Unit of measurement	2022
Number of proven reserves in protected areas for conservation or in habitats for endangered species	#	4,857
Total proven reserves	#	1,680,555
Percentage of net proven reserves in protected areas for conservation or in habitats for endangered species	%	0.289
Number of probable reserves in protected areas for conservation or in habitats for endangered species	#	3,132
Total probable reserves	#	425,682
Percentage of net proven reserves in protected areas for conservation or in habitats for endangered species	%	0.736



(GRI 3-3-d)

Measures Adopted to Manage Impacts

In the planning of projects and operations in the territory, Ecopetrol implements the mitigation hierarchy to avoid, minimize, recover, restore, or offset residual impacts on biodiversity, in accordance with Colombian legislation. The environmental license for hydrocarbon activities identifies areas of biological importance and conducts an environmental zoning process to exclude the ones with important environmental attributes from the operation.

To avoid impacts on biodiversity, most of Ecopetrol's actions are executed in transformed areas. The impacts are minimized and

recovered via the actions defined in the management instructions. Finally, the residual impacts are offset with the implementation of the current biotic compensation manual. All of the above, accompanied by monitoring programs proposed and validated by the competent environmental authorities.

The main lines of action for mandatory environmental compensation include: signing conservation agreements, purchasing land in strategic areas for conservation, protective reforestation and restoration according to the National Restoration Plan.

Mitigation Hierarchy

The measures adopted through the flora and fauna management instructions under the environmental instruments include, among others, the management of soils and vegetation cover, flora and stripping, the protection and conservation of habitats, strategic ecosystems, and protected areas, revegetation and/or reforestation, the management of water and hydrobiological resources, and flora conservation and compensation.

The environmental viability diagnosis guideline was updated in 2022 to incorporate the evaluation of impacts associated with strategic pillars in the early stage of the projects based on the mitigation hierarchy, incorporating early prevention and minimization measures against potential environmental impacts and risks.



Nature-Based Solutions (SbN, as per its Spanish acronym)

Ongoing projects and initiatives:

- **Wildlife Project (PVS) – Magdalena Medio, Orinoquía, and Putumayo:** initiative with Wildlife Conservation Society - WCS and the Environment and Children's Action Fund. PVS seeks to face the challenge of conservation of **15 threatened wild species**, with the goal of preserving diversity and generating benefits for human communities.
- **Magdalena Medio Wetlands CO₂ Project:** initiative with Fundación Natura to conserve and restore tropical forest ecosystems and freshwater wetlands, formulating and implementing actions to mitigate GHG generated by the degradation of these ecosystems.
- **Conservation and Connectivity of the Forests and Wetlands of DRMI Ciénagas de Barbaocoas:** this is an ISA initiative under its Conexión Jaguar Program that strives for the conservation and connectivity of the Forests and Wetlands in this area.
- **Carbon monitoring protocol – The Nature Conservancy (TNC):** planting of **250,000 native trees** in the departments of Meta and Caquetá. Strategy to monitor the plant material seeded to estimate the carbon absorption associated with the restoration process.
- **Orinoco - Carbono del Orinoco CO₂ Agreement:** initiative with Cataruben to prevent the transformation, deforestation, and degradation of ecosystems and the generation of GHG emissions in the Orinoquía highlands.
- **Ecopetrol Framework Agreement - Action Fund:** seeks to strengthen the project management process in SNCs in the national territory, with a focus on green and blue carbon.
- **FIBRAS Essence and Territory Agreement with the Alexander Von Humboldt Institute (IAvH):** strives for the planning and management of biodiversity under sustainable development criteria, as well as its contributions to well-being. Components: Ecoreserves, Resilience, Monitoring, use of Biodiversity, and generation of Knowledge.
- **Ecoreserves Agreement:** with IAvH, CENIT, Oleoducto Bicentenario, and Ecopetrol to structure the management instruments for four (4) ecoreserves and analyze new opportunities.
- **Study of carbon sinks with the Colombian Petroleum Institute (ICP):** development of products and technology solutions to enhance carbon capture and ecosystem services attributable to Natural Climate Solutions.

(GRI 3-3-e)

Monitoring the Effectiveness of the Measures Adopted

To monitor the effectiveness of the measures adopted in the different approaches to biodiversity management, periodic evaluations are conducted on the progress of each of the ongoing initiatives. The Company has internal management boards for the monthly report of the main milestones and success factors associated with each of the strategic areas in the biodiversity pillar.

To assess the effectiveness of the environmental compensation plans and compliance with other environmental obligations, follow-up indicators are implemented and reported on the Environmental Compliance Reports (ICAs) and evaluated by the environmental authorities.

Strategic partnerships are examined on a monthly basis, in order to identify technical and financial advances, in addition to detecting possible risks in execution. Furthermore, a report on the main achievements of each project will be prepared at the end of the year and published on the Ecopetrol website.

230

(GRI 3-3-e)

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

Ecopetrol has identified an operating risk concerning inadequate climate change and water management. Accordingly, the implementation of Nature-Based solutions (NbS) and projects was determined as a mitigation measure to ensure availability of resources and compliance with the goal of reducing GHG emissions in the medium and long term.

In 2022, the Company strived to incorporate the standardization of the resumes of the indicators into the operating policies and procedures, both for voluntary and mandatory actions.

On the other hand, two (2) work days were allocated to partners to share the lessons learned from the activities conducted in each project. Similarly, the Company participated in the construction of the methodological framework for the identification of risks and opportunities by the TNFD. In this sense, the construction of a resilience tool was furthered and a consultancy process for the management of natural capital was initiated. The Company also worked with Tt.org to define the first progress report.

Finally, progress was made in the management of knowledge and the reinforcement of a culture of biodiversity through the different strategic partnerships. Nine (9) biodiversity monitoring booklets were produced, including genomics expeditions and others, with more than **209,642** records in the GBIF and SIB, which have been used in **168** scientific articles. **500** people are taking a free virtual diploma course on bioeconomy and two (2) new books on biodiversity have been published.





(GRI 3-3-f)

How are Stakeholders Involved in Taking Action to Manage Biodiversity?

Since 2019, a programmatic agreement has been promoted with MADS, in order to strengthen the country's sustainable development on issues such as climate change, water resources, circular economy, and biodiversity. This agreement is in the process of being endorsed. Also, collaboration agreements have been established with national environmental institutes and systems to leverage their management around this material element.

Members of the surrounding communities are usually involved in the projects undertaken on the matter of biodiversity, thereby generating social and economic benefits without them being directly related to the traditional activities of the oil industry.

With the Employees Stakeholder Group, we have sought to strengthen the culture of biodiversity using effective training tools to raise awareness in them and generate greater knowledge about the relevance of the issue in the Company's activities.

In terms of the supply chain, a first proposal for a green clause on the use of legal timber was produced in 2022, in alignment with the "Intersectoral Agreement for Legal Timber in Colombia," which is under evaluation for its effective incorporation into the contracts.

To learn more about the material element of Biodiversity and Ecosystem Services, visit the Ecopetrol website by clicking **here**.



[GRI 304-1,
11-4-2]
(WEF 9)

Operation Centers Located Within or Next to Protected Areas, or Areas of High Biodiversity Value Outside of Protected Areas

For 2022, Ecopetrol does not report any operations in protected areas categories I to IV according to the IUCN.

[GRI 304-3,
11-4-4)

Table 65. | Habitats protected or restored

Indicate the following information regarding protected or restored areas in the habitats (Voluntary)					
Criterion	Unit of measurement	2019	2020	2021	2022
Trees planted or contributed to communities, environmental authorities, or local governments	#	138,620	462,449	367,276	367,215
Nurseries established	#	8	22	22	29
Seedlings produced in nurseries	#	9,000	90,724	92,868	116,039
Areas planted or undergoing restoration	ha	3,976	3,201	2,772	35
Number of protected water sources	#	NA	NA	NA	26
Conservation agreements signed	#	60	23	21	156
Hectares managed in conservation agreements	ha	14,127	14,048	314	17,879
Area in silvopastoral systems	ha	NA	NA	NA	NA
Area in agroforestry systems	ha	NA	NA	NA	NA
Eco-efficient kitchens established	#	NA	NA	NA	NA
Protected areas declared under any conservation classification	#	15	15	15	16
Protected hectares declared under any conservation classification	ha	17,675	17,675	17,675	17,720
Green homes	#	NA	NA	NA	NA
Photovoltaic systems	#	NA	NA	NA	5
Apiaries - Meliponaries	#	NA	NA	NA	NA
Hydrographic subzones intervened	#	NA	NA	NA	16
Km of bodies of water protected	km	NA	NA	NA	65
New or reinforced hydrometeorological stations	#	NA	NA	NA	NA
Threatened wild species under conservation	#	15	15	15	15
Number of Ecoreserves	#	2	6	15	15
Hectares of the Ecoreserves Network	ha	414	11,906	15,085	15,085

Indicate the following information regarding protected or restored areas in the habitats (mandatory)

Criterion	Unit of measurement	2019	2020	2021	2022
Trees planted or contributed to communities, environmental authorities, or local governments	#	442,350	220,605	67,470	248,377
Nurseries established	#	NA	NA	2	3
Seedlings produced in nurseries	#	NA	NA	21,122	39,442
Areas planted or undergoing restoration	ha	NA	5,438	5,549	230,2
Number of protected water sources	#	2	92	NA	89
Conservation agreements signed	#	NA	29	161	469
Hectares managed in conservation agreements	ha	NA	2,045	2,297	5,094.7
Area in silvopastoral systems	ha	100	NA	34	37.8
Area in agroforestry systems	ha	181	204	22	71.73
Eco-efficient kitchens established	#	72	NA	5	55
Protected areas declared under any conservation classification	#	NA	NA	NA	NA
Protected hectares declared under any conservation classification	ha	NA	NA	NA	NA
Green homes	#	NA	NA	NA	NA
Photovoltaic systems	#	20	NA	NA	5
Apiaries - Meliponaries	#	NA	NA	NA	NA
Hydrographic subzones intervened	#	5	2	7	16
Km of bodies of water protected	km	10	22	31	26
New or reinforced hydrometeorological stations	#	NA	NA	NA	0
Threatened wild species under conservation	#	NA	NA	NA	NA
Number of Ecoreserves	#	NA	NA	NA	NA
Hectares of the Ecoreserves Network	ha	NA	NA	NA	NA

Indicate the following information regarding protected or restored areas in the habitats (consolidated)

Criterion	Unit of measurement	2019	2020	2021	2022
Trees planted or contributed to communities, environmental authorities, or local governments	#	580,970	682,054	434,746	615,592
Nurseries established	#	8	22	24	32
Seedlings produced in nurseries	#	9,000	90,724	113,990	155,481
Areas planted or undergoing restoration	ha	3,976	8,640	8,321	265.2
Number of protected water sources	#	2	92	0	115
Conservation agreements signed	#	60	52	182	625
Hectares managed in conservation agreements	ha	14,128	16,093	2,611	22,973.7
Area in silvopastoral systems	ha	100	NA	34	37.8
Area in agroforestry systems	ha	181	204	22	71.73
Eco-efficient kitchens established	#	72	NA	5	55
Protected areas declared under any conservation classification	#	15	15	15	16
Protected hectares declared under any conservation classification	ha	17,675	17,675	17,675	17,720
Green homes	#	NA	NA	0	0
Photovoltaic systems	#	20	NA	0	10
Apiaries - Meliponaries	#	NA	NA	0	0
Hydrographic subzones intervened	#	5	2	7	32
Kilometers of bodies of water protected	km	10	22	31	91
New or reinforced hydrometeorological stations	#	NA	NA	0	1
Threatened wild species under conservation	#	15	15	15	15
Number of Ecoreserves	#	2	6	15	15
Hectares of the Ecoreserves Network	ha	414	11,906	15,085	15,085

Source: HSE Vice Presidency.

Note: The data reported in table 65 correspond to execution figures closed for the year; the areas with conservation, restoration, and protection actions are still in process. For the GRI 304-3 indicator, only criteria whose unit of measurement is in areas (ha) are taken into consideration.

Tree planting by the Ecopetrol Group is framed within the designation of the decade of restoration (2021-2030) declared by the United Nations, which is carried out through: Planting of native species in compliance with environmental obligations and with voluntary resources from the businesses, generation of alliances with Corporations, Mayors' Offices, Governors' Offices, and communities, for the planting of native trees in strategic areas and/or delivering trees that come from nurseries that Ecopetrol GE has directly or in alliances with NGOs, Corporations, Mayors' Offices, Governors' Offices, and communities.

The methodologies implemented for conservation and restoration actions depend on the type of action and are based on official documents such as the National Restoration Plan, technical guides from the Ministry of Environment, TNC, WCS, Alexander von Humboldt Institute, IUCN, technical specifications from ANLA and regional and local environmental authorities, among others.

The areas protected or restored by Ecopetrol are located in the national territory in the areas of operational and project influence.



IN COMPLIANCE WITH ENVIRONMENTAL COMPENSATION AND THE 1% INVESTMENT OBLIGATIONS, 687 HA WERE CONSERVED IN 2022, RESTORATION MODELS WERE IMPLEMENTED IN 317 HA, AND REFORESTATION MODELS IN 185 HA.

(GRI 304-4, 11-4-5)

Table 66. | Total Number of Species on the IUCN Red List and on National Conservation Lists whose Habitats are in Areas Affected by the Organization's Operations

Species	Unit of measurement	2021	2022
Critical danger	#	1	0
Danger	#	1	0
Vulnerable	#	2	2
Near threatened	#	2	0
Minor concern	#	1	23

235

Source: HSE Vice Presidency.

25 species were reported in total, of which:



Two (2) are vulnerable species (VU), five (5) fauna individuals of the palm bear (*Myrmecophaga tridactyla*) and zocay monkey (*Plecturocebus ornatus*) species.



23 are of minor concern (LC).
60 fauna individuals.
32 flora individuals.

ROADMAP CIRCULAR ECONOMY

Notable material element



(GRI 3-3)

Impacted Stakeholder Groups	Areas managing the impacts	Ecopetrol business line or segments generating the highest impact
Suppliers	The entire Company	Upstream
Associates and Partners		Midstream
Customers		Downstream
Employees		Commercial
Investors		
State		
Society and Community		

236

(GRI 3-3-a)

Why is the Element Material?

GHG emissions, including methane, and their effect on the rise of global temperature, are considered a negative impact due to the changes produced in long-term weather conditions, reflected in the occurrence of extreme weather events (floods and droughts) that mainly affect the most vulnerable populations. On the other hand, the impacts on the use and exploitation of water resources may be related to the effect on the water supply of the basin and the discharges could change the quality of surface and underground water bodies. All this can affect fundamental rights such as a healthy environment, access to water, and personal safety and development.

transport, refining, and trading of hydrocarbons and their derivatives have an impact on climate change or on the consumption and quality of water.

The circular economy is a cross-cutting enabler that contributes to the goals of energy transition, net zero carbon emissions, reducing the water footprint, closing the materials and waste cycle, and managing natural capital. This element generates opportunities for growth, innovation, job creation, and the conservation of biodiversity and ecosystem services.

Considering the above and its importance for the Stakeholder Groups, the circular economy is therefore a notable element for the Ecopetrol Group.

(GRI 3-3-b)

The operations undertaken by the Company in the production,



The implementation of the circular economy model allows the Company to:

- 1 **Promote** efficiency in the use of materials, water, energy, and the recovery capacity of ecosystems.
- 2 **Enhance** the identification of initiatives for the development of new business models with economic, environmental, and social benefits.
- 3 **Boost** innovation, technology, and research in new products and services.

(GRI 3-3-a)

The circular economy, as a cross-cutting enabler, can have real and potential impacts, as well as negative and positive effects:

Real positive impacts:

- Generation of knowledge for the creation of new business models in the products offered; for example, the application of asphalt mix with recycled plastic for the paving of roads.
- Advances in research: for example, using oily sludge residues as asphalt binders for low-traffic roads.
- Less use of natural fresh water, thanks to water reuse initiatives.
- Compliance with annual emission reduction goals.
- Generation of skills in the professionals of the Ecopetrol Group for the implementation of circular initiatives, through Universidad Corporativa's skills program.
- Strengthening of productive systems (cocoa, coffee, dairy, poultry, etc.) by implementing circular strategies using by-products.

Potential positive impacts:

- Creation of new business models that contribute to the energy transition and industrial symbiosis, in order to calculate the triple impact benefits (social, environmental, and economic) of the initiatives implemented.
- To reach the water neutrality goal by 2045, Ecopetrol will reduce **66%** of fresh water catchments for industrial use (compared to 2019), with zero industrial wastewater discharges into bodies of fresh water, and a **34%** compensation of the remaining water consumed.
- Zero net emissions by 2050 and a **25%** reduction by 2030 (Scopes 1 and 2).
- Higher levels of transparency, certified in best practices in circular economy.

Potential negative impacts:

- Materials listed internationally with future unavailability, affecting the TSEG and operability goals defined by the Company.
- Disrupted logistics (delays in the transit of materials due to the closing of roads, ports, and airports, as well as freight increases, higher port congestion, fuel prices, customs procedures).

(GRI 3-3-c)

Policies and Commitments

Circular economy has been considered in the 2040 Strategy, under the Generating Value with TESG pillar, and also as a strategic pillar in the environmental strategy, which seeks to promote the best industry practices on this matter to ensure competitiveness and become a cross-cutting enabler for the goals set.



(GRI 3-3-d)

How is the Material Element Managed?

The roadmap defined for this element contemplates five (5) lines of action:

238

01 Strengthening skills and generating knowledge: seeks to create the necessary skills and strengthen the culture to promote circular economy models for the Ecopetrol Group.

02 Circular initiatives bank: entails the identification and monitoring of the Ecopetrol Group's circular initiatives.

03 Incorporation of circularity criteria in operating, financial, commercial, and supply procedures.

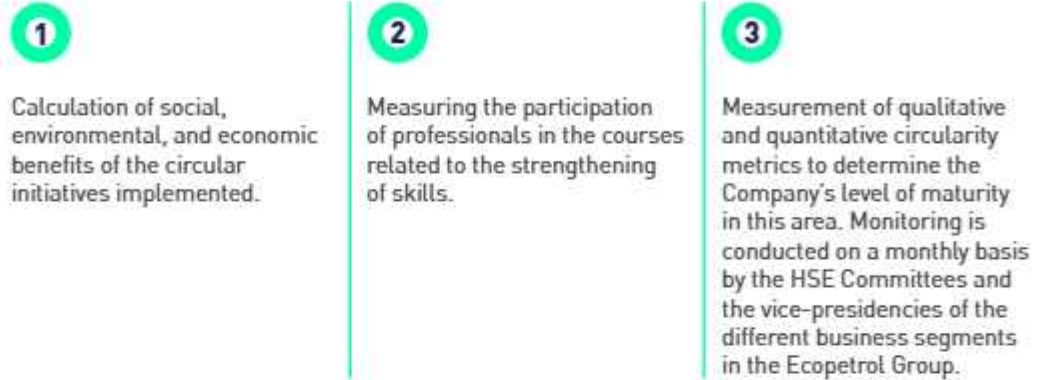
04 Circularity in the supply chain: the purpose is to promote circular initiatives in the procurement of goods and services and in the engagement with suppliers.

05 Circularity metrics: quantitative and qualitative parameters are developed in this field to measure the progress made with respect to the Ecopetrol Group's circularity.



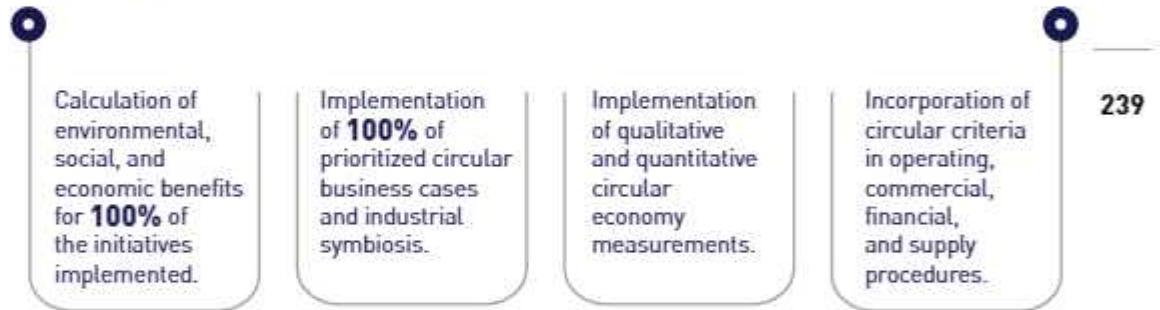
How is the Material Element Evaluated?

Short, medium, and long term goals, management indicators, and milestones are established as part of the roadmap. Depending on their relevance, some are included in the different instances defined by the HSE management system, such as: follow-up on the updating of the circular initiatives bank to monitor their progress and implementation in the different areas of the Company.

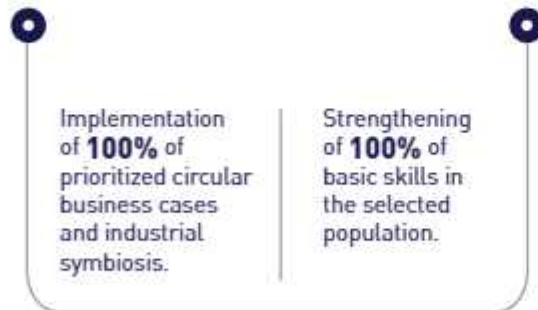


Short, Medium, and Long Term Goals and Projects

Short Term:



Medium Term:



Long Term:



(GRI 3-3-e)
(WEF 12E,13E)

Main Achievements in Managing the Circular Economy Roadmap

- 4,194** Ecopetrol officials completed the basic circular economy course, **153** took the intermediate level, and **33** finished the advanced level.
- There are **342** circular initiatives to date, **45%** of them related to decarbonization, **32%** to waste, **15%** to water, **6%** to materials, and **2%** to biodiversity and energy efficiency. Progress has been made in their implementation, with 24% in execution, 18% in planning, 7% in research, 21% implemented, and 23% that continue in ideation.
- Three (3) industrial symbiosis business opportunities were identified with the construction sector together with the ACP for the use of waste.
- Seven (7) life cycle analyses between waste and products that will allow the identification of their impacts and the establishment of long-term environmental declarations on the product.
- The Center of Excellence for Engagement between subsidiaries, business segments, and partners was inaugurated.



THERE ARE 342 CIRCULAR INITIATIVES TO DATE, 45% OF THEM RELATED TO DECARBONIZATION, 32% TO WASTE, 15% TO WATER, 6% TO MATERIALS, AND 2% TO BIODIVERSITY AND ENERGY EFFICIENCY.

In 2022, we actively worked on the implementation of the Circular Economy model among the different segments of the hydrocarbon business and subsidiaries.



For more information and metrics, visit the [Circular Economy](#) section on the website.

Vice Presidency of Development and Projects (EDP)

Achievements

- **75%** of the projects in maturation define Increased Value Practices (PIV, as per its Spanish acronym) focused on the selection of technology and circular economy **a.** Management of water resources; **b.** Alternatives for the replacement, reduction, and optimization of materials, tools, and equipment in the projects, **c.** Alternatives for the recirculation, reuse, and final disposal of solid waste).
- The "Sustainable Construction" Guide was applied for the environmental feasibility of using sustainable materials or waste management practices in ongoing projects.
- The circularity indicators or benefits related to the recirculation of water and reuse of rainwater were calculated, as well as the use of construction and demolition waste (RCD, as per its Spanish acronym), the use of water-based cuts, oil recycling or reuse, and the optimization of H-frame pipelines, among others.
- The circularity indicator "% of critical material" was calculated with baryte for 2022, which is a raw material used in the drilling of three (3) wells in the area of Piedemonte; the result **(60.3%)** indicates that it is a material used in significant quantities as a heavy material in heavy fluids. The strategy was defined within the projects for the mapping of possible risks in order to mitigate them, considering that baryte is listed internationally as a critical material.

241

Vice Presidency of Supply (VAB)

Achievements

- **34,176,254 kg** of waste were appraised in the area, representing **47.6 BCOP** in income, with 94% accounting for ferrous waste, which in turn was used in full, growing by 9% compared to 2021. **173,462 kg** of ferrous waste were transformed into 348 racks and 8 cantilevers, with a 100% circularity indicator and generating avoided costs in the amount of **401 MCOP**. 3.5 BCOP in avoided costs for standing waste sales. Through the process of repurchasing turbo machinery equipment with manufacturers, one (1) unit was sold for remanufacturing, generating income in the amount of 3 BCOP and extending the operating life thereof.
- **72%** in the circularity indicator of food service materials, growing by 3% vs. 2021, with increased purchases of inputs carrying a green seal and composting with the waste generated in the food service.
- **76,829 tCO₂e** were reduced in the supply and services chain, with **56%** corresponding to mitigation levers managed with partners such as energy efficiency, incorporation of low-emission vehicles in the operation, and circular initiatives. The remaining **44%** corresponded to the compensation of emissions through the acquisition of carbon credits by the partners, mainly in projects associated with Natural Climate Solutions that provide social benefits for the country.

Vice Presidency of Production - VDP

Achievements

- **13** circular initiatives were prioritized, associated with the use of materials, emission reduction, energy generation, and water reuse.
- Entry into operation of the drinking water treatment plant in the La Colorada river in Magdalena Medio, where the sludge generated in said plant can be used in the construction or road sector, and the positive pronouncement by ANLA on the use of vegetable oil in nine (9) sections of roads in the fields of the Piedemonte Vice Presidency.

Vice Presidency of Refining – VRP (includes REFCAR)

Achievements

- Approval by the MADS to conduct the following technological tests:
 - Use the oily sludge from the Barrancabermeja refinery as a by-product in the bottoms unit at the Cartagena refinery (to promote the development of industrial symbiosis projects between the two refineries in which the RESPELs (Waste and Hazardous Waste Generator Register) resulting from a production process can be considered by-products and used to replace a raw material in another production process if certain conditions and environmental criteria are met).
 - Recovery of metals from spent catalysts that are of interest to other production chains.
 - Regeneration of spent catalysts to recover their catalytic capacity and be used again in the original process.

Source: HSE Vice Presidency.



Circular Economy outlook and main results for the Ecopetrol Group (Cenit/ISA/Esenttia/Hocol)

SUBSIDIARY	Outlook	Materials and Waste	Water	Energy/ Decarbonization
CENIT	Design and development of the TESG Stations Program.	<ul style="list-style-type: none"> Use of 6.6 tons of usable waste (cardboard, plastic, glass) by means of two (2) agreements signed with ANDI and Esenttia. 13 composting projects. 	<ul style="list-style-type: none"> Eight (8) water harvests for an estimated reduction of 10,352 m³ of water collected in 2023. 	<ul style="list-style-type: none"> Carbon Neutral Certification maintained.
ISA	Encourage the implementation of systems that contribute to continuous improvement, promote eco-efficiency and the sustainable use of ecosystem services and natural resources; enhance the positive effects and ensure compliance with environmental performance objectives and goals.	<ul style="list-style-type: none"> Five (5) waste reuse initiatives implemented. Prioritization of 11 industrial symbiosis initiatives with action plans for 2023 and beyond. 	<ul style="list-style-type: none"> Six (6) initiatives (three (3) in execution, three (3) implemented) for water supply purposes or to avoid discharges in substations and stations. 	<ul style="list-style-type: none"> Technological pilot to limit SF6 escapes and reuse it. Three (3) LED and solar panel initiatives implemented to reduce energy consumption. Sustainable Mobility Program in operation.
ESENTTIA	Role models and mobilizers in the formulation and implementation of a Circular Economy model in the Plastic industry in Latin America.	<ul style="list-style-type: none"> Polihabitat Caribe: construction of 16 houses in San Andrés with ~60 tons of recovered plastic. Center for the use of post-consumer plastics – Bogotá: equipment delivered for a treatment capacity of 60 tons/month of post-consumer plastic. PlastiTON with 40 new partners and +116 tons managed. 		<ul style="list-style-type: none"> Evaluation of the potential of the ReCircular plant as a CDM project.
HOCOL	Circular Economy as an enabler to leverage the ambition of net zero carbon emissions; the energy transition; efficient and sustainable management of materials, water, and energy; responsible return and synergies that contribute to closing the materials and waste cycle.	<ul style="list-style-type: none"> Regulation applicable to acts and transactions for the sale and appraisal of surplus or low turnover materials. Reduction of materials stored in the company's warehouses (Mini-Max Program per warehouse). Inclusion of project surplus stock in warehouses. Publication of available stock by warehouse in the SAP Master. Synergy with an auction company for the appraisal and sale of surplus and low turnover materials per warehouse. Appraisal of reconditioning material to be placed in stock or for auction. 	<ul style="list-style-type: none"> 29.7% reduction in the volume of discharges to surface sources compared to 2021. 	<ul style="list-style-type: none"> The energy demand to produce a BOE associated with liquid fuels (Diesel and Gasoline) was reduced by 50% compared to 2021. 89.43% of the energy in the process comes from self-generation with gas or alternative sources. Only 4.57% of the net energy of a BOE is required for the entire extractive process.

Asphalt modified with recycled plastic

In 2022, the Ecopetrol Group was the pioneer in Colombia in the application of this type of asphalt, which is more environmentally-friendly and meets the INVIAS regulation.



Objective:

- **Commoditize** its use in the roads around the country.
- More **sustainable** products.
- **Incorporation** of circular economy processes that ensure an efficient and responsible use of our resources.

Benefits:

- **Less plastic** being discharged into water sources and landfills.
- **Strengthening** of the collection chain and the work of **recyclers** by promoting plastic waste as a product that generates value.
- **Replaces** part of the imported polymers used for the modification of asphalt.

First Application in El Dorado - Bogota

A section of **0.5km** was paved with type III modified asphalt near el Dorado, which required the use of **125.000 plastic bags**.

Leader of the Initiative	Ecopetrol - VCM - GPP
Concessionaire	OPAIN
Builder	Dromos
Asphalt supplier	Ecopetrol
Modified asphalt producer	MPI - Manufacturas y procesos industriales
Recycled plastic supplier	Reciclene - Plastilene
Length	Total 500mt, divided into five 100-meter sections each
Period of execution	Oct 9-12/22
Status of execution and asphalt quality	Successful
Follow-up	Monthly - Opain
Length - width - thickness	500 mt - 3,5 mt - 0,06 mt
Asphalt volume	17 tons
Recycled plastic volume	0.17 tons



First Application in Medellín

A section of **0.5km** was paved with type III modified asphalt near el Dorado, which required the use of **125.000 plastic bags**.

Leader of the Initiative	Ecopetrol - VCM - GPP
Contracting party	Medellín City Hall
Builder	Pavimentar
Asphalt supplier	Ecopetrol
Modified asphalt producer	HQ – Humberto Quintero y Cía.
Recycled plastic supplier	Esenttia
Length	220 mt wide, 8mt wide, 0,6 mt thick
Period of execution	Nov 19, 20, 21/22
Status of execution and asphalt quality	Successful
Follow-up	Monthly - Pavimentar
Asphalt volume	34 tons
Recycled plastic volume	0.5 tons

(GRI 3-3-e)

Monitoring the Effectiveness of the Measures Adopted

Considering that the Circular Economy is an enabler for the fulfillment of the goals set for the energy transition, net zero carbon emissions, the reduction of the water footprint, the closing of the materials and waste cycle, and the management of natural capital, the effectiveness of the measures adopted is therefore reviewed in accordance with the material elements of climate change, integrated water management, and biodiversity, mainly, bearing in mind the short, medium, and long term objectives defined for this material element.

(GRI 3-3-e)

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

The national and international standards and norms issued by organizations such as the WBCDS, the Ellen MacArthur Foundation, GRI, Icontec, Sustainalytics, as well as the circularity best practices and trends in the sector, have allowed the organization to establish internal guidelines and procedures to advance in its level of circularity maturity, including the following:

-  Definition of 26 circular quantitative indicators, with results in water, materials, and criteria materials in the projects and supply areas.
-  Incorporation and application of circular criteria in operating procedures such as:
 -  Guidelines on sustainable ecodesign in engineering projects.
 -  Inclusion of circularity in environmental feasibility diagnoses, comprehensive development plans, and social investment procedures.
-  Implementation of viewers to monitor ongoing circular initiatives.
-  Development of a basic, intermediate, and advanced training program.
-  Creation of the center of excellence in this subject matter for joint work with subsidiaries, business segments, and partners.

246

(GRI 3-3-f)

How are Stakeholders Involved in Taking Action to Manage the Circular Economy?

Ecopetrol actively participates with different organizations at the national and international level for the Company to learn and adopt the best practices available for the implementation of circular businesses and strategies. In 2022, the Company actively worked with ACP, IPIECA, Icontec, Invias, and universities including Industrial de Santander and Los Andes, in the execution of agreements, projects, or regulatory processes.

In addition to the above, Ecopetrol workers and affiliates are provided with training tools through the Ecopetrol University to strengthen skills in this area and facilitate the implementation of circular economy principles.

With regard to local communities, Ecopetrol participated in the Protegiendo mi Planeta program, training girls and boys in responsible consumption practices on the Providencia Island, and in the "She is a virtual astronaut" program deployed by Fundación She Is. In this sense, the work carried out with players in sustainable agribusiness projects is also worth highlighting, which seeks to define strategies and intervention components to implement circularity-related solutions that reduce the impact on the ecosystems.

As for national entities, the MADS has been established since 2019 and there is also a sectoral agreement that prioritizes this issue, which in the process of endorsement to be aligned with the National Development Plan (2022-2026).

Last but not least, supply chain guidelines and best practices are defined with suppliers, recognized in innovative products or services and outstanding sustainable practices.

Level of Circularity Maturity

By means of the Circularity Metrics line of action in the Roadmap, Ecopetrol seeks to periodically assess the level of progress using qualitative and quantitative metrics, as described below, together with the standards defined by the Company to begin measuring gradually and progressively as of 2021.

The second measurement was taken in 2022, following the methodology proposed since its first year of implementation, with the participation of **170 people** in level 1st and **43 people** in level 2nd, showing a **37%** and **43%** increase, respectively, compared to 2021.

The defined measurement approaches are as follows:

- **Qualitative:** to internally establish the circularity maturity level in an organization, by examining how the principles of circular economy (systemic thinking, innovation, responsible management, collaboration, value optimization, and transparency) are being implemented with current decisions and activities. This measurement is taken using the **GTC 314:2020** standard launched by ICONTEC in November 2020.
- **Semi-qualitative-quantitative:** external measurement that reports information in a standardized manner and with a score that shows the progress made, to understand where the Company is in the transition towards a circular economy compared with other companies. The tool selected for this purpose is Circulitys developed by the Ellen MacArthur Foundation, a pioneer in Circular Economy.
- **Quantitative:** framework of indicators based on an evaluation of material flows, with other indicators on the efficiency and effectiveness of the resources, the economic investment, and the technological incorporation in circular initiatives. Mix of indicators according to different standards (e.g., WBCSD, Ellen MacArthur Foundation, **ISO 59020** or others).

The GTC is a renowned guide nationwide, structured in November 2020 as a self-assessment tool for organizations to determine their internal level of circularity maturity by reviewing how the principles (systemic thinking, innovation, responsible management, collaboration, value optimization, and transparency) are implemented through current decisions and activities. This level of maturity is described in five (5) levels, from zero to four: immature, basic, in the process of improvement, committed, and optimal.

27 Tier 1: officials who completed the online basic virtual economy course.

28 Tier 2: Circular Economy front or delegates to be interviewed from each Vice Presidency.



(ECP 001)

Table 69. | Level of Circularity Maturity Obtained by the Company According to the Framework for the Implementation of Circular Economy Principles in Organizations GTC 314:2020

Year	2019	2020	2021	2022
Level of maturity	-	-	3	3

Source: HSE Vice Presidency

During the second qualitative measurement, Ecopetrol maintained its rating at level 3, showing that it is a Company committed to circularity. This means that it is advancing towards a more circular and sustainable mode of operation by implementing the principles of the circular economy with the following results:

01

The notion of Systemic thinking has been grasped and actions that drive innovation and technology have been maintained.

02

Evidence shows awareness of responsible management beyond legal compliance and collaborative work.

03

Value optimization and perception of transparency were reinforced throughout the year.

04

Targeted actions deployed to promote innovation and technology.

05

Awareness of responsible management beyond legal compliance.



Based on this measurement, a work plan is then structured to close gaps with the operating and support areas.

In 2022, Ecopetrol defined the focus of the questions regarding its level of circularity maturity, according to Circulytics, and its ability to address the corresponding requirements to take the first measurement in 2024.

Roadmap Use of energy and alternative sources

Notable material element



(GRI 3-3)

Impacted stakeholder groups:	Areas that manage the impacts:	Ecopetrol business line or segments generating the highest impact:
Investors	VSE	Upstream
Associates and Partners	VLJ	Midstream
State	VDS	Downstream
Society and Community	VNE	Low emission solutions
Suppliers	VTI	
	VHSE	
	VPU	
	VCF	
	VRP	
	VAB	

249

(GRI 3-3-a,
3-3-b)

Why is the Element Material?

Ecopetrol's operations have the potential of generating GHG emissions, criteria pollutants, and volatile organic compounds, especially in the upstream and downstream, which can affect air quality. They can similarly affect the availability and quality of water, due to catchments and discharges into water sources.

The identification of low emission solutions and the consolidation of mitigation programs in the Company's direct operation helps mitigate the effects of climate change, generates positive economic impacts (employment generation, construction of energy communities) and process efficiencies, and reduces GHG emissions.

Managing these impacts can affect or enhance the right to a healthy environment, development, access to water and personal safety, among others.

The efficient use of energy and the incorporation of alternative sources is part of the strategy adopted by Ecopetrol and its Group in the context of Energy Transition, which includes short, medium, and long-term goals towards energy efficiency and the incorporation of non-conventional renewable energy sources (FNCER) and hydrogen, in pursuit of reaching the carbon neutrality goal by 2050.

(GRI 3-3-c)

Policies and Commitments

In terms of self-generation of non-conventional renewable energy, the aspiration is that between **30%** and **40%** of own energy consumption comes from green sources. By 2022, Ecopetrol attained a capacity of **208 MW** between solar and wind energy, which paves the road for the goal of **900 MW** by 2025 (solar, wind, biomass, and geothermal), all for self-consumption purposes.

Moreover, the roadmap for the production of at least **1 million** tons of low-carbon hydrogen (H2) by 2040 was launched in 2022. The first goal by 2030 is to produce white H2 for own consumption and for export.

(GRI 3-3-d)

How is the Material Element Managed?

The Energy Efficiency Program has optimized the energy performance of the assets, with a methodology supported by the ISO 50001 standard, focusing on the following actions:

- i) Operational control.
- ii) Technological improvement.
- iii) Integration into Ecopetrol's processes.

250



In terms of non-conventional renewable energy, Ecopetrol has set a **goal of incorporating 400 MW of renewable energy into its supply matrix by 2023**, using solar, wind, and geothermal technologies, and a maturing portfolio of other technologies such as biomass and small hydroelectric plants. By doing so, attention will be placed on the demand for electrical energy from its operations and the requirements for the incorporation of the low-emissions H₂ Strategic Plan. This, in pursuit of sustainable growth and the decarbonization of part of the traditional business, as well as the development of new business lines and new low-carbon markets.

(GRI 3-3-e)

How is the Material Element Evaluated?

There are five (5) key indicators:

1

Optimization of energy demand:

The optimized electrical energy is calculated with the energy demand baseline of the initiatives that report benefits year by year, and it is compared with the annual energy demand to obtain the percentage of optimization achieved.

2

CO₂ emissions reduction:

Tons of CO₂ not emitted thanks to demand optimization.

3

Cost optimization:

Quantification of costs associated with the optimization of energy demand, according to the rate of the energy products consumed.

4

Incorporation of renewable energies:

The MW of installed capacity in operation and under construction are quantified at the end of each year to ensure compliance with the goal.

5

Integration of technology capacity in electrolyzers:

The MW of installed capacity in electrolyzers for the dissociation of the water molecule are quantified, and with them, the production of green hydrogen through FNCERs (Non-conventional renewable energy sources).

251

(GRI 3-3-e)

Short, Medium, and Long Term Goals and Projects

01

The energy efficiency goals are proposed as follows:

- **3%** in the period of 2018 - 2022
- **6%** in the period of 2023 - 2028
- **10%** in the period of 2026-2040

02

Incorporate **400 MW** of energy from Non-Conventional Renewable Energy Sources by 2023 and **900 MW** by 2025.

03

Produce **1 Mton** of H₂/year by 2040, of which **40%** will be Green H₂, **30%** White H₂, and **30%** Blue H₂.



(GRI 3-3-e)

Main Achievements in Managing the Roadmap on the Use of Alternative Energies and Source



To see the results of this roadmap, refer to the **Business line/Low emission solutions/Performance section** of this Report.

(GRI 3-3-e)

Monitoring the Effectiveness of the Measures Adopted

The energy efficiency program defines goals associated with the initiatives under development in each of the upstream, midstream, and downstream segments, in terms of energy demand optimization and emissions reduction, which are monitored on a monthly basis, and the percentage of optimized demand is calculated at the end of each year with respect to the average total energy demand for the year.

In terms of renewable energy, systematic monitoring is conducted on all initiatives included in the portfolio, and they are evaluated using an indicator tied to the incorporation of renewable energies, in order to generate early warnings and structure action plans for the execution of each of the projects.

(GRI 3-3-e)

Lessons learned and incorporation into the Company's operating policies and procedures.

Given the growing relevance of this element in the advancement of the 2040 Strategy, a more robust investment portfolio was structured in 2022, with monthly monitoring of capex execution.

(GRI 3-3-f)

Additionally, the element of energy management was incorporated into Ecopetrol's comprehensive policy, and the elements required for its evolution are being included in alignment with existing processes at Ecopetrol.

How are Stakeholders Involved in Taking Action to manage the use of alternative energy and sources?

To develop renewable energy initiatives, Ecopetrol interacts with its different stakeholder groups through its project development, supply, and new business processes to maximize the value of their relationship.

Similarly, to comply with the energy efficiency plan, the main stakeholder group is made up of the teams working in the operating areas, as internal customers, by implementing operating control on the processes and developing investment initiatives (technological improvement).

These actions also contribute greatly to the benefit of other Stakeholder Groups, such as society and the community, which are positively impacted by the use of other energies, whose effects are different from those originating from conventional sources.

(GRI 302-1,
11-1-2)
(TCFD M - 1.1)

Consumption and Energy Intensity

Table 70. | Consumption of Fuels from Renewable or Non-renewable Sources within the Organization

Consumption of fuels from renewable or non-renewable sources within the organization	Unit of measurement	2019	2020	2021	2022
Total consumption of fuels from renewable sources in GWh	GWh	88.2	65.4	54.6	168.7
Total consumption of fuels from non-renewable sources in GWh	GWh	3,297	3,030	2,813	2,752.08
Total	GWh	3,385.2	3,095.4	2,867.6	2,920.78

Source: Vice Presidency of Low Emission Solutions

(GRI 302-1,
11-1-2)
(TCFD M - 1.1)

Table 71. | Energy Consumption of the Different Types of Energy Purchased

Energy consumption of the different types of energy purchased, excluding steam	Unit of measurement	2021	2022
Electricity consumption	GWh	2,309.84	2,881.13
Heating consumption	GWh	-	-
Cooling consumption	GWh	-	-
Total	GWh	2,309.84	2,881.13

Source: Vice Presidency of Low Emission Solutions



(GRI 302-1,
11-1-2)
(TCFD M - 1.1)

Table 72. | Energy Consumption of the Different Types of Self-generated Energy

Energy consumption of the different types of self-generated energy, excluding steam	Unit of measurement	2021	2022
Self-generated electricity	GWh	1,515	1,517.5
Self-generated heating	GWh	-	-
Self-generated cooling	GWh	-	-
Total	GWh	1,515	1,517.5

Source: Vice Presidency of Low Emission Solutions

(GRI 302-1,
11-1-2)
(TCFD M - 1.1)

Table 73. | Energy Consumption of the Different Types of Energy Sold

Energy consumption of the different types of energy sold, excluding steam	Unit of measurement	2021	2022
Electricity sold	GWh	81.58	-
Heating sold	GWh	-	-
Cooling sold	GWh	-	-
Total	GWh	81.58	0

Source: Vice Presidency of Low Emission Solutions

(GRI 302-1,
11-1-2)
(TCFD M-1.1)
(TCFD M-1.2.2)

Table 74. | Amount of steam self-generated and sold.

Steam self-generated and sold	Unit of measurement	2019	2020	2021	2022
Self-generated steam	klb	27,026,294	23,962,888	22,276,124	25,618,267
Steam sold	klb	17,520	17,520	17,520	17,520

Source: Vice Presidency of Low Emission Solutions

(GRI 302-1,
11-1-2)
(TCFD M - 1.1)
(TCFD M-1.2.2)

Table 75. | Total Energy Consumption Within the Organization

Total energy consumption within the organization	Unit of measurement	2021	2022
Total energy consumption within the organization	GWh	6,610.86	7,319.58
Total steam energy consumption in klb	klb	22,258,604	25,600,747

Source: Commercial and Marketing Vice Presidency

[GRI 302-2,
11-1-3]

Table 76. | Energy Consumption Outside the Organization.

Total energy consumption outside the organization	Unit of measurement	2021	2022
Energy consumption used outside the company	GWh	NA	NA
Energy consumption used outside the company in Klb	klb	NA	NA

Source: Vice Presidency of Low Emission Solutions

Note: By regulatory provision, Ecopetrol does not sell energy to third parties. All energy consumption is used up within the Company.

[GRI 302-3,
11-1-4]
[TCFD M-1.1]

Table 77. | Energy Intensity

Energy intensity ratio	Unit of measurement	2021	2022
Energy consumption	KWh	4,498,319,441	4,936,462,840
Barrels produced	Bbbls	4,230,037,541	4,488,565,767
Energy intensity ratio	kWh/bbl	1.063	1.100

Source: Vice Presidency of Low Emission Solutions

The type of energy included in the intensity ratio is electricity.

The total non-renewable energy consumption goal for 2022 was **7,590,605 MWh**. Ecopetrol's effective management allowed its operations to meet the goal, in accordance with the defined range and also below it.

[GRI 302-3,
11-1-4]
[TCFD M-1.1]

[GRI 302-4,
11-1-2, 302-1,
302-3, 302-4]
[TCFD M 1.1]

Reduced Energy Consumption as a Direct Result of Conservation and Efficiency Initiatives

The type of energy included in the conservation and efficiency initiatives is electricity. The methods used for the calculation are indicated below:

1

Savings from operational control: savings are calculated according to the ISO50001 standard, establishing energy management indicators with respect to energy consumption baselines.

2

Savings from technological improvements:

- Establishing theoretical savings: assumes a fixed percentage value in savings from a base consumption, experimental results, and simulations.
- Calculation of periodic savings: a base consumption is defined (through measurements or simulations) and the actual energy consumed is measured at periodic intervals; this difference is established as the savings that will be updated at the established frequency.
- Savings according to ISO5001: energy management savings and indicators are calculated with respect to energy consumption baselines.

3

IIE management savings: savings are established according to the optimization of the energy intensity index obtained using the Solomon methodology.

Roadmap Fuel quality

Notable material element



(GRI 3-3)

Impacted Stakeholder Groups	Areas that manage the impacts:	Ecopetrol business line or segments generating the highest impact
Society and Community	VCM	Midstream
State	VDS	Downstream
Customers	VHSE	Commercial
Investors	VRP	
	VTI	

(GRI 3-3-a, 3-3-b)

Why is the Element Material?

Ecopetrol's operations, especially those handling hydrocarbon combustion and storage processes, hydrocarbon separation from water during treatment, and eventually any system with potential fugitive emissions, have the potential of generating criteria pollutant emissions (particulate matter, carbon monoxide, sulfur and nitrogen oxides) and volatile organic compounds -VOCs, which can affect air quality and consequently, people's right to health, to a healthy environment, and to water, among other rights.

Guaranteeing the quality of fuels within regulated specifications ensures a continuous improvement of air quality and the control of CO₂ emissions and other contaminants, so as to not impact the health and the continuous, sustainable, profitable, and clean operation of the refineries; as well as ensure the achievement of the refining margins expected by the Shareholders and the provision of resources for growth investments and technological updates.

Also, guaranteeing the country's energy security and sovereignty with the fuel supply from the refineries ensures the stability of the Colombian market and expands the energy supply for mobility, making room for modern technologies that increase efficiency, reduce emissions, and diversify the Colombian automotive park.

The energy transition and the movements associated with climate change represented at **COP 26** and **COP 27** have deepened the trend towards a greater use of renewable energy sources and alternative fuels. This phenomenon is generating changes in the context of the Company, including new fuel quality requirements and broader mandates pertaining to the reduction of emissions and environmental regulations.

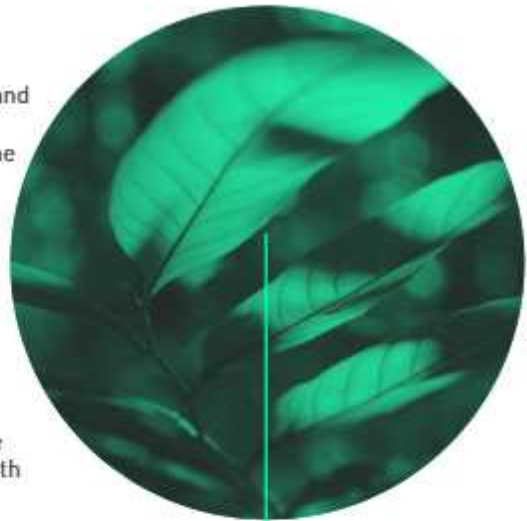
Ecopetrol's commitment to deliver cleaner fuels every day precedes this growing interest from its different Stakeholder Groups and is part of its strategic vision. For this reason, the management of fuel quality improvement and assurance was identified as a notable element in the 2020 materiality exercise.

(GRI 3-3-c)

Policies and Commitments

Ecopetrol is aligned with the country's position and its adherence to the air quality commitments at COP 26 and COP27; also, at the regional level, the Company has adhered to the commitments set in the air quality pacts with the environmental secretariats of the main cities in the country.

Ecopetrol has defined a fuel quality path as a strategy to go beyond compliance with regulations and promote Ecopetrol's commitment to the environment. This initiative is reinforced with the decarbonization of downstream operations, which is in line with the strategy to reduce GHG emissions associated with the Climate Change element.

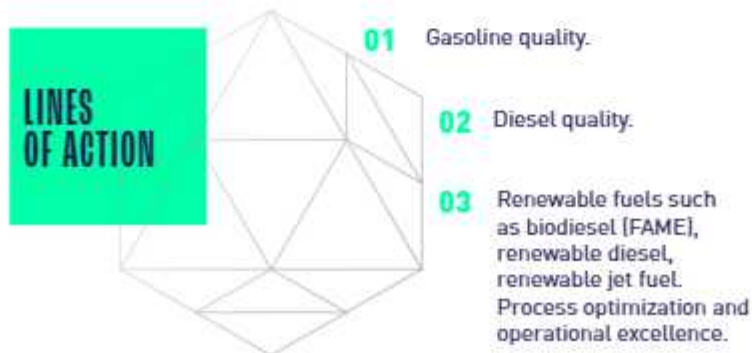


(GRI 3-3-d)

How is the Material Element Managed?

Ecopetrol has adopted a quality improvement program for the fuels produced and a quality assurance plan for fuel production in its refineries. Both are aligned with current regulations and standards in Colombia, which is where these operations are located, and also with best international quality standards in North American countries and in the European Union.

The roadmap for this material element has determined that the Company's long-term ambition is to become an international benchmark for the production of diesel, gasoline, and renewable fuels. To this end, Ecopetrol works in an agile and efficient manner in the following lines of action:



Some of the measures adopted to manage the material element and its impacts are:

- The management control structure in each refinery, including follow-up and control through quality committees, production committees, and management committees for accountability, performance monitoring, and results assurance and improvement.
- Assuring the asset management process, including the sub-processes of incorporation, structured operation, maintenance, and asset optimization, with the application of its systematic practices (operating analysis, elimination of defects, improvement of plans, change control, maturation of initiatives).
- Designing and implementing the fuel quality path and its updated route.
- Executing quality plans by process and by product line.
- Flexibility in the configuration of the refineries and the synergies between them so as to ensure compliance with supply and quality commitments with sufficient time in advance based on operational planning.
- Investments and improvements in the procurement configuration of raw materials and fuel blending optimization.
- Monitoring air quality by developing and systematically following-up on air quality measurement results using low-cost measuring equipment in Bogotá and Barrancabermeja.
- The availability of robust contingency plans, designed and established to anticipate, prevent, and react with the necessary resources to address quality and supply risks.
- Practicing dynamic and comprehensive risk management to secure processes and business continuity.
- Training and developing the people involved in the processes to prepare them for proper decision making.



(GRI 3-3-d,
3-3-e)

How is the Material Element Evaluated?

Short, Medium, and Long Term Goals and Projects

Gasoline and diesel (sulfur content):

Short term



2022

Gasoline with less than **50 ppm** sulfur content is being delivered as of July 1, 2022.



2023

The refineries are ready to produce diesel with less than **15 ppm** sulfur content and deliver it on the date required by Resolution **40103**.

Medium term:



2025

Produce diesel with less than **10 ppm** sulfur content.

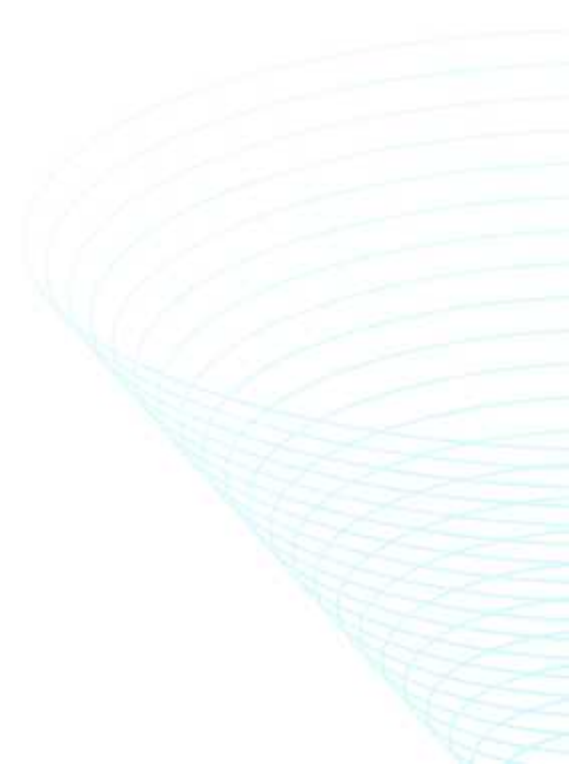


Long term:



2030

Produce gasoline with less than **10 ppm** sulfur content and an octane number greater than **88**.



Biofuels:

Short term

2022

The industrial pilot for the production of renewable diesel by co-processing palm oil was deployed with the participation of Ecodiesel and the Cartagena refinery.

A study was conducted to use a section of the paraffin plant in the production of renewable jet fuel.

Medium term

2023-2025

Maturation of diesel and renewable jet fuel projects.

Long Term

2025

Continuous production of biofuels via co-processing or with dedicated plants.

2026

Expansion of Ecodiesel's biodiesel production capacity.

[GRI 3-3-e]

Main Achievements in Managing the Fuel Quality Roadmap

In 2022, Ecopetrol invested around **10 MUSD** in different projects and initiatives to improve fuel quality at the Barrancabermeja refinery: **(1)** conceptual engineering of the project to guarantee compliance with Resolution **40103** in gasoline; **(2)** procurement and engineering of the HCM project to improve the cetane number in diesel.

Operational, maintenance, and logistics measures were adopted at Ecopetrol and by the agents in the chain for the production and delivery of regular gasoline with < of **50 ppm** sulfur content. The annual average sulfur content in regular motor gasoline was **50.1 ppm** (first semester specification < **100 ppm**).

At the Cartagena refinery: development of the conceptual engineering for the **U-107** Naphtha quality improvement project (investment close to **2 MUSD**), which will adapt the infrastructure to produce gasoline with less than **10 ppm** sulphur content.

[GRI 3-3-e]

Monitoring the Effectiveness of the Measures Adopted

The measures adopted have ensured high effectiveness by:

- Controlling and monitoring the quality results of the fuels delivered to the refineries.
- Verifying the execution of the necessary improvements plans applicable to structures, assets, standards, and technologies to ensure that the processes are up to date and meet the quality objectives.
- Verifying scenarios for the incorporation of lessons learned, which are rigorously developed to ensure that fuel quality is framed within the quality path defined by Ecopetrol.
- Monitoring and exerting quality control over the production, preparation, and release of the product, and also over measurement, transportation, storage, delivery, and distribution throughout the execution of the process.
- Verifying the specific value and average quality of the fuels produced and managed by the Ecopetrol Group, in compliance with specifications throughout the year.



261

[GRI 3-3-e]

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

Ecopetrol abides by certifications ISO 9000 and OSHA18000 ISO 14000; as such, it exerts control over the lessons learned throughout the PVHA cycle in the management of competencies, risks, processes, and continuous improvement to incorporate it into its management structure. This same management system is applied for the follow-up, control, monitoring, and implementation of the lessons learned from the material element.

Ecopetrol applies, leads, and participates in first, second, and third party audits at its refineries to secure its processes and practices.

Moreover, the Company monitors the quality of the fuels produced and delivered to customers from the refineries and the different stations and points of delivery to the wholesaler, guaranteeing compliance with the quality required under Colombian regulations.

Quality inspection laboratories are set up at Ecopetrol refineries, in the ICP, and at Cenit (in charge of transporting these fuels to Ecopetrol's wholesale customers). These laboratories are accredited under the ISO 17025 standard and follow the standards and procedures defined in Resolution 40103 of April 2021 for diesel and gasoline fuels, and also provide support for jet fuels.

(GRI 3-3-f)

How are Stakeholders Involved in Taking Action to Manage Fuel Quality?

At the local level, air quality agreements were reached with the State (Bogotá and Medellín). What is more, there is permanent interaction with the regulatory entity to monitor the quality of the operation and confirm the status of the production and supply chain.

With regard to customers, there is permanent communication with wholesalers, vehicle importers, and partner unions, under the guidelines of Resolution **40103**, to address technical queries, needs, and/or improvements.

Employees actively participate in improvement initiatives, and also in the operation, maintenance, and optimization of the systems through the management structure, performance, and the improvement of skills.

The investors approve the necessary improvement actions and investments to adhere to the fuel path and related plans and programs.

With suppliers and contractors, improvements have been defined in the catalysts, chemicals, and other raw materials used in the refining process to optimize the production and quality of the fuels and reduce the emissions generated. They also participate in the execution of projects to deliver better fuel quality.

Last but not least, the community participates through research and development and through air quality improvement programs in the universities. It is also a key player in verifying air quality improvements through the reports and accountability and public interactions with the Company.

(ECP021)

Table 78. | Fuels Produced in the Reporting Period

Fuel quality metrics	Unit of measurement	2022
Lead content	g/L	0
Premium benzene-gasoline content	%vol/Vol	0.3
Benzene content-regular gasoline	%vol/Vol	0.62
Sulfur content	ppm weight	50.6*

Source: Vice Presidency of Refining and Petrochemicals

*Average values for the year before and after the new 50 ppm regulation came into force in July.

Note: The values listed in the table above correspond to the quality data for regular motor gasoline (weighted average between the 2 main Ecopetrol refineries - Barrancabermeja and Cartagena) as of December 31. It should be noted that as of July 1, 2022, both refineries will consistently deliver Regular Gasoline with a sulfur content quality of less than 50 ppm (in the first half of 2022, the sulfur content specification for regular gasoline was < 100ppm).

Volume of Biofuels Produced and Purchased

Below are the biofuel production and purchase volumes (B100 biodiesel and B2 diesel) in 2022:

(ECP029)

Table 79. | Biofuels Produced and Purchased

Biofuels	Unit of measurement	2019	2020	2021	2022
Volume of B2 sold	mbbls	33,123	28,827	32,987	39,722
Volume of biofuel purchased	mbbls	762	563	639	835.1

Source: Vice Presidency of Refining and Petrochemicals

Note: The volume of B2 sold in 2022 is reported as of December 31 and corresponds to the sum of the volumes sold at the Barrancabermeja refinery and the Cartagena refinery. The volume of biofuel purchased (biodiesel) in 2022 is reported as of December 31 and corresponds to the sum of the volumes purchased at the Barrancabermeja refinery and the Cartagena refinery.



Biodiesel plant with a **120 Kton-year** capacity, located within the facilities of Ecopetrol's Barrancabermeja refinery.



Roadmap Air quality

Notable material element



(GRI 3-3)

Impacted Stakeholder Groups	Areas that manage the impacts:	Ecopetrol business line or segments generating the highest impact
Society and Community	VTI	Midstream
State	VDS	Downstream
Customers	VHSE	Commercial
Investors	VRP	
	VPU	

264

(GRI 3-3-a, 3-3-b)
(WEF 7, 7E, 11E, 13E)

Why is the Element Material?

Ecopetrol's operations, especially those handling hydrocarbon combustion and storage processes, hydrocarbon separation from water during treatment, and eventually any system with fugitive emissions, have the potential of generating criteria pollutant emissions (particulate matter, carbon monoxide, sulfur, and nitrogen oxides) and volatile organic compounds -VOCs, which can affect air quality and consequently, people's right to health, to a healthy environment, and to water, among other rights.

Ecopetrol, as a relevant player in the oil, gas, and energy industry, is committed to preserving the air quality around its operations for the well-being of citizens and the protection of the environment.

In 2021, air quality was identified as a notable element in the materiality analysis, for which a roadmap called "Clean Air for the Environment" was structured.

The Company's operations must monitor and control the emission of criteria pollutants (particulate matter, carbon monoxide, sulfur, and nitrogen oxides) and VOCs, within limits that do not impact the air quality around its operations.

At present, no air quality deterioration associated with the emission of criteria pollutants and VOCs originating from Ecopetrol's operations have been identified around its areas of operation.

(GRI 3-3-c)

Policies and Commitments



Ecopetrol's environmental strategy concerning the notable element of **Air Quality** has encompassed the following objectives:



Reducing the emission of criteria pollutants to world-class standards and contributing to the improvement of air quality to protect the health of our environment.



Structuring a verified Inventory of Atmospheric Emissions in the assets operated by Ecopetrol.

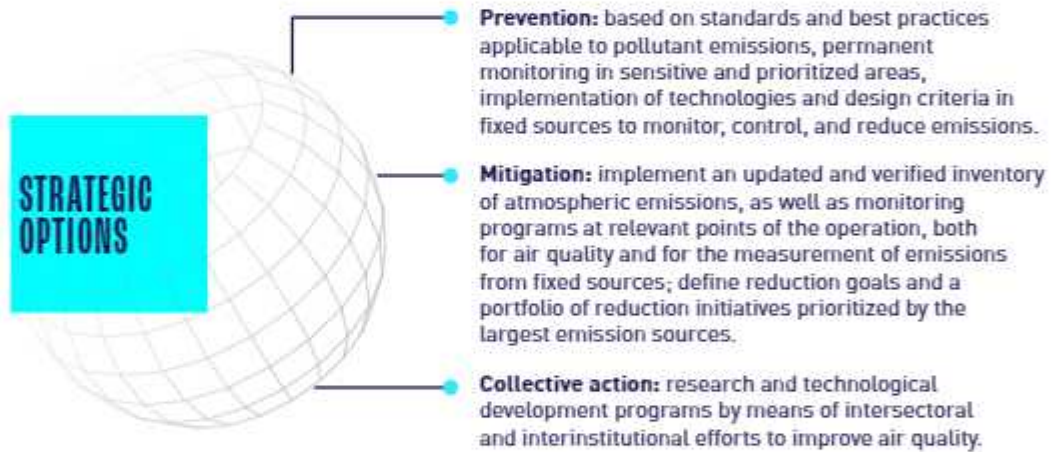


Contributing to a sustained level of air quality aligned with WHO standards in the areas of influence of the operations.

(GRI 3-3-d)
(WEF 7, 7E,
11E, 13E)

How is the Material Element Managed?

The Air Quality roadmap bases its aspiration on clean air for the environment, including the following strategic options:



[GRI 3-3-d]
[WEF 7, 7E,
11E, 13E]

How is the Material Element Evaluated?

Air Quality is assessed as follows:



Follow-up by measuring emissions and monitoring and modeling air quality in the area of the operation to determine the contribution of own emissions.



Defined criteria pollutant emission reduction objectives, focusing on key areas.



Follow-up on the implementation of emission reduction initiatives, leveraging on best operating practices, control technology, monitoring and surveillance of emissions, and the technological reconversion of processes.

This portfolio includes:



Annual projections for the reduction of criteria pollutants based on GHG emission reduction initiatives within the framework of the decarbonization strategy.



Identification and prioritization of other specific initiatives to reduce criteria pollutants based on technological adjustments or reconversions of key processes in the operation.

[GRI 3-3-e]

Short, Medium, and Long Term Goals and Projects

Short Term

The below emission reduction targets were established in 2022 for the main criteria pollutants for the period of 2023-2025



2023

reduction target of **3,100 tons** of VOCs, **305 tons** of NOx, and **60 tons** of SOx.



2024-2025

reduction projections of **4,293 tons** of VOCs, **711 tons** of NOx, and **2,044 tons** of SOx

Medium Term

Implementation of greenhouse gas reduction initiatives planned for **2023-2025**.

Execution of the SOx emissions control project at the Barrancabermeja refinery, which is expected to come into operation in **2025**.

Evaluation of alternative mitigation measures for other sources of SOx and Volatile Organic Compound emissions.

Systematic update of the initiatives' portfolio and of reduction targets.

Long Term

Evaluate and prioritize the implementation of technological alternatives for the continuous monitoring of air quality in key areas.



(GRI 3-3-e)
(WEF 7, 7E,
11E, 13E)

Main Achievements in Managing the Air Quality Roadmap

Progress was made in 2022 on the following elements of the air quality roadmap:

- Updating of the procedure for the consolidation, loading, and management of Ecopetrol atmospheric emissions.
- Methodological and regulatory assurance of air quality monitoring and measurement of emissions from fixed sources, in order to ensure the reliability thereof.
- Development of a methodology for updating criteria pollutant emission factors to improve the accuracy of the emissions inventory in the SAP-EC tool.
- Definition and prioritization of criteria pollutant and VOC emission sources, based on their relevance, to further the analysis of mitigation alternatives.
- Establishment of criteria pollutant emission reduction goals based on the portfolio of projects to reduce SOx emissions at the Barrancabermeja refinery and the portfolio of decarbonization initiatives.

(GRI 3-3-e)

Monitoring the Effectiveness of the Measures Adopted

Two [2] types of monitoring are deployed in the areas of operation to establish the effectiveness of the air quality measures adopted:

- Measurements are taken to determine the concentration of criteria pollutant emissions in the main sources, to ensure that there are no significant increases that compromise the air quality.
- Air quality monitoring to determine the concentration of criteria pollutants present in the air around the operation.

The air quality reports produced by accredited entities show no deterioration in the air quality of the areas. In some key areas, continuous monitoring persists in order to manage interventions in an agile and timely manner.

Ecopetrol monitors emissions from more than 200 fixed sources and air quality in more than 250 stations in the areas of operation.



268

(GRI 3-3-e)

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

No air quality deterioration events have materialized to date that require root cause analyzes leading to lessons learned. However, the reports to stakeholders such as DJSI, CDP, Sustainalytics, and others, and the standards of organizations such as GRI and IPIECA, have allowed the Company to compare and evaluate its comprehensive air quality management with respect to best practices and global trends in the oil & gas sector, and consequently update its internal policies and procedures.

(GRI 3-3-f)

How are Stakeholders Involved in Taking Action to Manage Air Quality?

The results of the air quality measurements and the emissions from the equipment with the greatest potential for generating criteria pollutant emissions are sent to the environmental authorities within established timeframes. This information is publicly available to any stakeholder group.

Table 80. | Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions

Emissions	Unit of measurement	2019	2020	2021	2022
NOx	Kt	27.95	28.55	28.43	28.74
SOx	Kt	16.65	13.26	14.45	15
Persistent Organic Pollutants (POPs)	Kt	NA	NA	NA	NA
Volatile Organic Compounds (VOCs)	Kt	127.85	125.97	116.94	123.2
Hazardous Air Pollutants (HAPs)	Kt	NA	NA	NA	NA
Particles (PM)	Kt	1.61	1.42	1.39	1.54
Other air emission categories identified in relevant regulations	Kt	11.3	11.67	11.58	11.43

Source: HSE Vice Presidency

Note 1. Atmospheric pollutant emissions are calculated using mass balances for sulfur oxide (SOx) emissions in combustion systems; as well as emission factors for the remaining pollutants: particulate matter (PM), nitrogen oxides (NOx), Volatile Organic Compounds (VOC), and carbon monoxide (CO).

Note 2. The emission factors used to calculate criteria pollutants (NOx, SOx, particulate matter, and carbon monoxide) and volatile organic compounds (VOCs) are mostly taken from Document AP-42 of the United States Environmental Protection Agency (EPA).

Note 3. In some particular cases, the emission factors from the following references are used:

- *Compendium of greenhouse gases emissions methodologies for the oil and gas industry* from the 2009 API.
- *Methodologies for Atmospheric Emission Inventories in the Oil Industry, 1999.* - Regional Association of Oil and Natural Gas Companies in Latin America and the Caribe (ARPEL).
- [EEA]EMEP/EEA *Air pollutant emissions Inventory Guidebook 2019: Technical guidance to prepare national emission inventories* - European Environmental Agency.
- EIIP Vol II Ch 14 *Uncontrolled emission factor listing for criteria air pollutants - Emission Inventory Improvement Program July 2,001.*

Note 4: Carbon monoxide (CO) emissions are reported within the category of other relevant air emissions.

Note 5. Persistent organic compounds (POPs) are not part of the Company's raw materials, supplies, or product portfolio; it is therefore not necessary to record potential emissions from this category of compounds and there is no report or estimate of their emissions.

Note 6. Hazardous air pollutants (HAP) are managed, from an occupational standpoint, through an epidemiological surveillance system implemented in specific areas, in such a way that it allows the identification and assessment of risk areas and exposure groups, the evaluation of the impact on the health of workers, and the proposition of prevention, management, and control alternatives. The most relevant substances are aromatic hydrocarbons and solvents, whose emissions are reported in the volatile organic compound (VOC) and sulfur oxide (SOx) emissions inventory.

[SASB EM-EP-120a.1]
[SFCXVI]
[TCFD M-1.2.2]

Table 81. | Air pollutant emissions released into the atmosphere, in metric tons per pollutant

Atmospheric emissions	Unit of measurement	2019	2020	2021	2022
NOx emissions	TonNOx	22,227	23,597	23,226	23,297
SOx emissions	TonSOx	3,809	3,906	3,871	3,733
VOC emissions	TonVOCs	101,792	105,246	90,188	97,584
PM10 emissions	TonPM10	895	812	783	847

Source: HSE Vice Presidency

Note 1. Data reported from the exploration and production segment of the hydrocarbons business line.

Note 2. Atmospheric pollutant emissions are calculated using mass balances for sulfur oxide (SOx) emissions in combustion systems; as well as emission factors for the remaining pollutants: particulate matter (PM), nitrogen oxides (NOx), and Volatile Organic Compounds (VOC).

Note 3. The emission factors used to calculate criteria pollutants (NOx and PM, nitrogen oxides and particulate matter) and volatile organic compounds (VOCs) are mostly taken from Document AP-42 of the United States Environmental Protection Agency (EPA).

Note 4. In some particular cases, the emission factors from the following references are used:

- *Compendium of greenhouse gases emissions methodologies for the oil and gas industry from the 2009 API.*
- *Methodologies for Atmospheric Emission Inventories in the Oil Industry. 1999. - Regional Association of Oil and Natural Gas Companies in Latin America and the Caribe (ARPEL):*
- *[EEA]EMEP/EEA Air pollutant emissions Inventory Guidebook 2019: Technical guidance to prepare national emission inventories - European Environmental Agency.*
- *EIIP Vol II Ch 14 Uncontrolled emission factor listing for criteria air pollutants - Emission Inventory Improvement Program July 2,001.*

Note 5. In the case of particulate material emissions, the emission factors used for calculation correspond to total Particulate Material regardless of size.



(GRI 305-6)
(TCFD M-1.2.2)

Table 82. | Production, Imports, and Exports of Ozone Depleting Substances (ODS)

Emissions	Unit of measurement	2019	2020	2021	2022
Emission of Ozone Depleting Substances (ODS)	Ton	1.32	1.32	0.19	0.35

Source: HSE Vice Presidency

Note: Ecopetrol does not produce, export, or sell these substances (neither in bulk nor in products that contain them); it has only purchased the equipment that contains them from various suppliers, such as stationary air conditioners and refrigerators and fire-fighting systems, among others. The Company is therefore not an importer or exporter of this type of substance.

(GRI 305-6)
(TCFD M-1.2.2)

Table 83. | ODS Loads in the Equipment Category

Equipment category	Unit of measurement	2019	2020	2021	2022
Small-sized domestic/commercial applications (loads between 0 and 5 lbs or 0 and 2.3 Kg)	#	678	678	94	1,288
Medium and large commercial applications (loads between 5 and 15 lb or 2.3 and 6.8 Kg)	#	86	86	220	461
Industrial applications (loads greater than 15 lbs or 6.8 Kg)	#	619	619	223	127
Total	#	1,383	1,383	537	1,876

Source: HSE Vice Presidency

Note 1. ODS emissions are reported using the advanced level 2a method of the Intergovernmental Panel of Experts on Climate Change (IPCC) and the Ozone Layer Depletion Potentials reported in the Montreal Protocol manual.

Note 2. The substances used for calculation are the following ODS: CFC-12. HCFC-22.

Note 3. ODS substitute substances used in refrigeration and fire systems are not included in the calculation as they have zero ozone depletion potential.

Note 4. Advanced Tier 2a Method (bottom up) of the IPCC. The bottom-up approach considers the time interval between consumption and emission, explicitly through emission factors; it is based on the number of products and end uses where the chemicals are consumed and released. With this approach, real annual emissions are estimated based on the units of equipment that use these chemicals, the average load of the substance, the average service life, emission rates, recycling, and disposal, among others. This method was selected because, although Ecopetrol S.A. is a consumer of ODS substances or their substitutes, the Company does not produce, export, or sell these substances (neither in bulk nor in products that contain them); it has only purchased equipment containing them from several suppliers, e.g., stationary air conditioners and refrigerators, and fire-fighting systems.

Note 5. ODS emissions, in the case of mixtures and other ODS substances, are calculated using the emission factors recommended by the Intergovernmental Panel of Experts on Climate Change - IPCC (EF 1% for units with loads of less than 5 Lb, FE 17% for units with loads greater than 5 Lb).

Comprehensive waste management

(GRI 11-5-2, 306-1)

Ecopetrol participates in all the links of the hydrocarbon chain: exploration, production, and refining, which mainly generate water-based drilling cuts, oily sludge, construction and demolition waste, and metal scrap, among others.

Ecopetrol has drawn up a roadmap for its transition towards the Circular Economy, declaring itself as an enabler to close the materials and waste cycle. This contains goals for the reduction and use of waste and the certification of the zero waste management system, which will contribute to leveraging circularity metrics.

The adoption of the zero waste management system implies executing actions based on operating excellence for the comprehensive management of the waste generated, focusing on the adoption, use, and treatment thereof to prevent it from ending up in final disposal (landfill sites or secure landfills). The foregoing, to comply with the purpose of “progressive reduction of waste going to final disposal by 2040” and to advance towards the business ambition of circularity.


Policies and Commitments


Comprehensive waste management is one of the pillars in Ecopetrol’s environmental strategy. This pillar leverages and includes the adoption of operating and organizational measures to reduce the waste generated to economically and technically feasible levels, in terms of quantity and level of hazard, based on three (3) fundamental aspects:




How is it Managed?

47% of hazardous waste is oily sludge generated especially by production and refining activities. Within the framework of the strategic pillar of Comprehensive Waste Management, and based on the provisions established in the Comprehensive Waste Management Guide, the following actions are implemented upstream:

-  Identification of initiatives to reduce the generation of oily sludge.

-  Environmental criteria for the selection of suppliers.

-  Inclusion of contractual green clauses to avoid waste generation or allow the reduction or use thereof.

-  Life cycle analysis.

Similarly, the following actions are executed downstream:

- a. Centrifugation for the recovery of oils from the sludge, and reduction of the volume and hazard thereof.
- b. Co-processing heat treatment for the sludge to be included as part of the fuel material in cement kilns, in order to destroy substances that cannot be treated or confined.
- c. Sludge treatment using the bioremediation technique, which accelerates the total or partial degradation of the pollutant by reducing its concentration to a harmless state.
- d. An alternative would be disposing of it in security cells in case the waste cannot be treated and requires special confinement.
- e. Life cycle analysis.

The treatment and disposal activities above are conducted by third parties holding an environmental license and that are subject to monitoring and control.



Short, Medium, and Long Term Goals and Projects

The following goals have been defined for the period of 2022-2024 as part of the purpose of progressively reducing the waste going to final disposal and the strategic lines of the comprehensive waste management pillar, in order to achieve the ambitions set:

Vice Presidency of Development and Production



These reduction and use targets were estimated based on the number of tons generated in 2020.

Vice Presidency of Refining and Industrial Processes



Of the objectives above, the Company used 38% of the total waste generated in 2022 compared to the country goal of 30% by 2030. In addition, the following activities were undertaken:

- a. Laboratory tests for the reuse of used mineral lubricating oils to obtain the lubricant base in specifications.
- b. Pilot project for the reuse of construction and demolition waste for the paving of internal roads at the Cartagena refinery.
- c. Feasibility studies and characterization of clarified sludge to be used in amendments or construction products.
- d. The evaluation of two pyrolysis oil technologies, at the pilot plant level, to obtain the monomer and ensure the delivery of refinery grade propylene (pgr) to Esentia within the *plastic waste to monomer* project.

Progress will also be made towards circularity, leveraging on the results obtained in 2022:

- a. Organic waste composting - circularity index **72%**.
- b. Sale of metal scrap waste to steel companies - utilization rate **99%**.

99% of the planned milestones were met in 2022, which leverage the achievement of the goals established for 2024.

[GRI 11-5-3, 306-2]

To prevent waste generation from the organization's own activities and from upstream and downstream activities in the value chain, Ecopetrol deploys the following actions:

Waste prevention and reduction measures are adopted upstream:

- Environmental criteria for the selection of suppliers.
- Inclusion of contractual green clauses to avoid waste generation or allow the reduction or use thereof.

The following actions are implemented downstream:

- a. Use of: wood from pallets and crates in warehouse operations; debris from road maintenance and gully filling; non-hazardous catalysts from cracking units.
- b. Management plan for single-use containers and packaging for packaged products placed on the market.
- c. Use of: construction and demolition waste in industrial aggregates, clarification sludge (PTAP), and water-based cuts in construction.
- d. Chemical leasing available for the chemical treatment service to return surplus products and packaging to suppliers.
- e. Post-consumer agreements: handing over electrical and electronic equipment, lighting fixtures, and lead acid batteries to waste suppliers.
- f. Composting of organic waste from catering and food services - circularity index **72%**.
- g. Sale of metal scrap waste to steel companies so that it can be reincorporated into their production processes - Use of ferrous waste: **99%**.

With respect to oily sludge, the following actions are available for both streams:



Production:

Technologies to minimize the amount of fluid in the sludge, such as dehydration and centrifugation processes for oil recovery.

Refining:

Sending oily sludge to a third party that uses it by co-processing in cement kilns (Clinker production).

Refining and Production:

Research is being conducted on the use of efficient emulsion breakers in production wastewater treatments that prevent the generation of oily sludge and use the sludge as asphalt binders.

(GRI 11-5-3, 306-2)

In accordance with the Comprehensive Waste Management Guide and the document on Good Practices for Sustainable Supply, compliance with third-party contractual and legislative obligations is ensured based on the following considerations:

- Technical specifications, including regulatory environmental obligations, description of the required service, and contractual obligations.
- Environmental criteria for the selection of suppliers.
- Implementation of the processes specified in the contracting manual for the selection of the third party service provider.
- Market intelligence, showroom, definition of the criteria and requirements of the service, and the technical and commercial evaluation of the bidders.
- Green clause.
- Verification of environmental licenses authorizing the treatments and/or utilization processes and final disposal, issued by the competent environmental authority.
- Verification of the third-party environmental permits or authorizations required for the development of the activity (discharge and water concession permit), if necessary for the treatment process offered.
- Visits to third party facilities to verify and ensure that the waste treatment processes and infrastructure offered are aligned with the provisions set forth in their environmental license and confirm that they fulfill the requirements for treatment.
- Follow-up using the External Waste Inspection Form indicated in Ecopetrol's Comprehensive Waste Management Guide.
- Monitoring the effectiveness of the action and improvement plans against the findings resulting from evaluations, audits, inspections, behavior assurance processes, incident investigations, among others.
- Implementation of the performance procedure for contractors GAB-P-013. Verification of criteria associated with operational incidents involving environmental impacts, compliance with HSE obligations, best HSE practices, and high-potential events.

(GRI 11-5-3,
306-2)

The information on the waste generated in the different operating and administrative areas of Ecopetrol, from the generation site to its disposal, is collected by using the SIGAR-Residuos computer tool, which allows the comprehensive management of Ecopetrol's waste to track the amounts generated by each waste stream. This information is obtained via reports from contractor companies that conduct activities in the industrial facilities and by the supply area responsible for the operation of non-industrial facilities. The report includes a consolidated file with transport certificates and information on the final disposal of the waste.

The SIGAR-Residuos tool facilitates the evaluation of hazardous and non-hazardous waste management for the timely identification of opportunities for improvement, the submission of reports, and to manage the documentation supporting the legal efforts exerted.

The information contributes to the adoption of decisions for continuous performance improvement and provides data for the preparation of sustainability reports.

Ecopetrol is currently working to continuously improve the reliability of the information; this can increase the amounts reported due to the inclusion of new waste categories and the correction of the data. In the same way, the incorporation of new operating fields and projects in each term increases the amount of waste generated. In 2022, 21 new generators were entered into the database.

According to SIGAR user guides, the operating component of the information upload process assigns roles to consolidate and validate the information submitted by the parties executing waste management activities before uploading it into the tool.



(GRI 306-2,
11-5-3)

**FOR 2022, THE TARGET FOR
NON-HAZARDOUS WASTE
GENERATION WAS 262,834 METRIC
TONS AND 184,554 METRIC TONS
FOR HAZARDOUS WASTE.**

[GRI 306-3,
11-5-4]
[WEF17E]
[TCFD
M - 1.2.2]

Table 84 | Waste Generated According to its Composition.

Waste generated	Unit of measurement	2019	2020	2021	2022
Hazardous waste	TonM	203,833.42	140,434.13	137,375.67	188,711
Non-hazardous waste	TonM	211,506.16	157,700.91	199,716.89	270,378
Total waste generated	TonM	415,339.58	298,135.04	337,092.56	459,089

Source: HSE Vice Presidency

Note 1. In 2022, the waste generated amounted to 459,089 tons, of which 188,711 tons correspond to hazardous waste and 270,378 tons to non-hazardous waste; this represents a 27% increase in generation compared to 2021, mainly due to greater generation of the following residues: water-based drill cuttings, oily sludge, debris, hydrocarbon contaminated soils, metal scrap, and oily drill cuttings. This increase is directly related to increased well drilling (183 wells in 2021 and 262 wells in 2022), in addition to scheduled maintenance activities in the pools and tanks at the Barrancabermeja refinery; an increase in oily sludge, due to greater removal of total suspended solids in production waters reused in reinjection activities for recovery; larger amounts of hydrocarbon-contaminated soils deriving from the recovery of contingencies in the last quarter of 2021 and 2022, and an increase in metal scrap from dismantling activities.

Note 2. Hazardous waste generation recorded a 27% increase in 2022, as well as non-hazardous waste with a 26% increase compared to 2021, due to the considerations described in the paragraph above. The hazardous waste generated, from largest to least quantities, are: Oily sludge, hydrocarbon-contaminated soils, and oily drill cuttings.

Note 3. In terms of the total amount of non-hazardous waste generated, the most representative ones are: water-based drill cuttings, debris, and metal scrap.

Note 4. The Company's waste management information is available in the SIGAR-Residuos tool, used to monitor the amounts generated by each waste stream.

277

Table 85 | Waste not intended for disposal according to its composition

Waste not intended for disposal	Unit of measurement	2019	2020	2021	2022
Hazardous waste	TonM	92.29	3,883.72	6,105.84	19,845
Non-hazardous waste	TonM	201,320.21	31,863.13	47,565.51	52,496
Total waste not intended for disposal	TonM	201,412.5	35,746.85	53,671.35	72,341

Source: HSE Vice Presidency

[GRI 306-4,
11-5-5]
[WEF17E]
[TCFD
M-1.2.2]

(GRI 306-4,
11-5-5)
(WEF 17E)
(TCFD
M-1.2.2)

(GRI 306-4,
11-5-5)
(WEF 17E)
(TCFD
M-1.2.2)

Waste Not Intended for Disposal Based on Recovery Operations at the Organization's Facilities. There are no landfill sites or waste disposal incinerators within Ecopetrol facilities.

Table 86 | Waste Not Intended for Disposal Based on Recovery Operations Outside the Organization's Facilities

Waste not intended for disposal	Unit of measurement	2019	2020	2021	2022
Hazardous waste to be prepared for reuse	TonM	9.63	3,103.01	6,074.62	17,922
Recycled hazardous waste	TonM	82.67	780.71	31.22	1,923
Hazardous waste going to other recovery operations	TonM	0	0	0	0
Total hazardous waste not intended for disposal	TonM	92.29	3,883.72	6,105.84	19,845
Non-hazardous waste to be prepared for reuse	TonM	52.13	12.95	0.094	9,486
Recycled non-hazardous waste	TonM	29,125.14	17,861.58	27,922.31	41,556
Non-hazardous waste going to other recovery operations*	TonM	8,281.94	10,830.53	6,223.11	1,454
Total non-hazardous waste not intended for disposal	TonM	37,459.21	28,705.06	34,145.514	52,496

Source: HSE Vice Presidency



Table 87 | Total Waste Not Intended for Disposal Based on Recovery Operations in the Organization

Consolidated waste not intended for disposal	Unit of measurement	2019	2020	2021	2022
Hazardous waste to be prepared for reuse	TonM	9.63	3,103.01	6,074.62	17,922
Recycled hazardous waste	TonM	82.67	780.71	31.22	1,923
Hazardous waste going to other recovery operations	TonM	0	0	0	0
Total hazardous waste not intended for disposal	TonM	92.29	3,884.72	6,105.84	19,845
Non-hazardous waste to be prepared for reuse	TonM	163,913.13	3,171.02	13,420.094	9,486
Recycled non-hazardous waste	TonM	29,125.14	17,861.58	27,922.31	41,556
Non-hazardous waste going to other recovery operations	TonM	8,281.94	10,830.53	6,223.11	1,454
Total non-hazardous waste not intended for disposal	TonM	201,320.21	31,863.13	47,565.514	52,496
Total waste not intended for disposal	TonM	201,412.5	35,746.85	53,671.354	72,341

Source: HSE Vice Presidency

Note 1. In terms of hazardous waste to be prepared for reuse, the increase is related to a larger volume of oily sludge generated at the Barrancabermeja refinery, which is sent to co-processing to be used as fuel in cement kilns.

Note 2. In terms of recycled hazardous waste, a peak was recorded in 2020 associated with the replacement of lighting fixtures, battery replacement campaigns, mainly in the Rubiales field, and the dismantling of electrical and electronic equipment. 2022 presents an increase in the utilization of used lubricating oils.

Note 3. In terms of non-hazardous waste to be prepared for reuse, the variations in this item are directly related to the generation and use of water-based cuts; a peak was recorded in 2019 in civil, geotechnical, and gully filling works. Drilling campaigns are reduced in 2020, thus reducing the generation of waste. In 2021, the normalization of activities increased waste generation; however, cutting dehydration technology will be implemented as of this year and throughout 2022, which will substantially minimize the amount of waste. This initiative was deployed in the Central Region, Piedemonte, and in the Rubiales and Caño Sur fields.

Note 4. In terms of non-hazardous waste going to other recovery operations, the variations in the amounts of non-hazardous waste in 2022 compared to previous years, are due to increased efforts to separate waste at the source, such as wood, paper, and cardboard, to be subsequently delivered for use to the recycling chain.

Note 5. In 2022, the recovery rate for hazardous waste not intended for disposal stood at 11%, due to a 69% increase in the amount of hazardous waste not intended for disposal, especially associated with the reuse of 66% of oily sludge generated at the Barrancabermeja refinery as fuel in cement kilns.

The recovery rate for non-hazardous was 19% due to the recycling of metal scrap in the steel industry, recording a recovery rate of 99%.

Moreover, in 2022, 1,454 tons of non-hazardous waste were used in new internal activities, such as the composting of organic waste from food preparation and vegetable waste from pruning and brushing, to produce fertilizers and other by-products for internal use and to be given to stakeholder groups. Compost bins were installed within the facilities - 72% circularity index in food services.

With regard to plastic, glass, paper, and cardboard waste, it is worth noting that 96% is used thanks to its adequate separation at the source, so that it can be later delivered for use by recyclers and foundations. This information is obtained from contractor reports that conduct activities within industrial facilities and from the supply area responsible for the operation of non-industrial facilities. The report includes a consolidated file with transport certificates and final waste disposal information, and documents on reverse logistics, Chemical Leasing, composting, and post-consumer agreements.

[GRI 11-5-6, 306-5](WEF 17E)(TCFD M-1.2.2)

Waste Intended for Disposal

Table 88 | Total waste Intended for Disposal According to its Composition.

Waste intended for disposal	Unit of measurement	2019	2020	2021	2022
Hazardous waste	TonM	203,741.13	136,550.41	131,269.83	168,866
Non-hazardous waste	TonM	10,185.95	125,837.78	152,153.12	217,882
Total waste intended for disposal	TonM	213,927.08	262,388.2	283,422.95	386,748

Source: HSE Vice Presidency

[GRI 306-5, 11-5-6] (WEF 17E)

Waste Intended for Disposal Based on Disposal Operations at the Organization's Facilities. There are no landfill sites or waste disposal incinerators within the Company's facilities.



(GRI 306-5,
11-5-6)
(WEF 17E)

Table 89 | Waste Intended for Disposal Based on Disposal Operations Outside the Organization's Facilities

Waste intended for disposal	Unit of measurement	2019	2020	2021	2022
Hazardous waste to be incinerated (with energy recovery)	TonM	NA	NA	0	0
Hazardous waste to be incinerated (without energy recovery)	TonM	5,754.86	2,599.72	461.45	773
Hazardous waste transferred to a landfill	TonM	6,012.07	30,209.79	6,034.52	7,096
Hazardous waste going to other disposal operations	TonM	191,974.2	103,740.91	124,773.86	160,997
Total hazardous waste intended for disposal	TonM	203,741.13	136,550.41	131,269.83	168,866
Non-hazardous waste to be incinerated (with energy recovery)	TonM	NA	NA	0	0
Non-hazardous waste to be incinerated (without energy recovery)	TonM	92.47	45.56	2.37	55
Non-hazardous waste transferred to a landfill	TonM	10,093.49	125,792.22	94,729.72	108,682
Non-hazardous waste going to other disposal operations	TonM	NA	NA	57,421.03	109,145
Total non-hazardous waste intended for disposal	TonM	10,185.95	125,837.78	152,153.12	217,882

Source: HSE Vice Presidency

(GRI 306-5,
11-5-6)
(WEF 17E)**Table 90** | Total Waste Intended for Disposal Based on Disposal Operations in the Organization

Waste intended for disposal	Unit of measurement	2019	2020	2021	2022
Hazardous waste to be incinerated (with energy recovery)	TonM	NA	NA	0	0
Hazardous waste to be incinerated (without energy recovery)	TonM	5,754.86	2,599.72	461.45	773
Hazardous waste transferred to a landfill	TonM	6,012.07	30,209.79	6,034.52	7,096
Hazardous waste going to other disposal operations	TonM	191,974.2	103,740.91	124,773.86	160,997
Total hazardous waste intended for disposal	TonM	203,741.13	136,550.41	131,269.83	168,866
Non-hazardous waste to be incinerated (with energy recovery)	TonM	NA	NA	0	0
Non-hazardous waste to be incinerated (without energy recovery)	TonM	92.47	45.56	2.37	55
Non-hazardous waste transferred to a landfill	TonM	10,093.49	125,792.22	94,729.72	108,682
Non-hazardous waste going to other disposal operations	TonM	NA	NA	57,421.03	109,145
Total non-hazardous waste intended for disposal	TonM	10,185.95	125,837.78	152,153.12	217,882
Total waste intended for disposal	TonM	213,927.08	262,388.2	283,422.95	386,748

Source: HSE Vice Presidency

(GRI 11-5-6,
306-5)
(WEF 17E)

In accordance with the provisions laid out in the Comprehensive Waste Management Guide, the management steps include an initial verification of whether the waste can be used. If it cannot be used due to its physicochemical composition or if there are no treatments available for it on the market, the waste is then sent for elimination or final disposal.

The main types of waste sent for disposal in 2022 were:

- 01 Water based cuts
- 02 Oily sludge
- 03 Hydrocarbon-contaminated soils.
- 04 Oily drill cuttings



The data also include waste taken to co-processing and treated via bioremediation, such as oily sludge and hydrocarbon-contaminated soil, which account for almost 72% of the Company's hazardous waste in 2022.

It is important to highlight that the bioremediation process is currently conducted at third-party facilities with an environmental license authorizing the execution of this type of activity.

The hazardous waste intended for disposal that is transferred to a landfill, such as elements impregnated with hydrocarbons and sludge with acid characteristics, is disposed of in a security cell or landfill.

The information on the waste intended for disposal such as oily sludge, hydrocarbon-contaminated soil, elements impregnated with hydrocarbons, catalysts, and others, is collected through the reports prepared by contractor companies that perform activities within the industrial facilities. The report includes a consolidated file with transport certificates and information on the final disposal of the waste.

In accordance with the performance indicated above, the below aspects can be highlighted:

1 According to the generation of waste not intended for disposal, there is an increase of **18,670 tons** in the amount of waste used in 2022 vs. 2021, maintaining the percentage use over the total generated in the period (2022).

2 In 2022, the utilization rate for hazardous waste not intended for disposal stands at 11%, mainly due to increased shipments of oily sludge from the Barrancabermeja refinery as fuel for cement plants, and in terms of non-hazardous, the rate was 19% due to the recycling of metal scrap in the steel industry, which records a utilization rate of **99%**.

3 Although the generation of solid waste has increase by **121,996 tons** in 2022, as a result of a representative increase in activities (drilling and maintenance, among others), there is no percentage increase with respect to the waste intended for disposal, as shown in the following trend: 2020 (88%); 2021 (84%), and 2022 (84%).

4 In terms of waste reduction, it is worth highlighting the initiative deployed by the Central region, the Piedemonte region, and the Rubiales and Caño Sur fields to dehydrate water-based drill cuttings, which achieved a **67%** reduction in the volume of waste generated.

Improved prevention and remediation of impacts on the environment caused by operational and process safety incidents

The strategic pillar of the environmental strategy, prevention and remediation of environmental impacts caused by operating and process safety incidents, incorporates a management program under the provisions of the ISO 14001 (V2015) standard, containing milestones and goals that are reviewed quarterly by the HSE Vice Presidency. This pillar focuses on the prevention of operating incidents affecting the environment, by incorporating proactive risk management and analyzing the potential materialization of environmental risks typical of the Company's different businesses.

To monitor performance, Ecopetrol S.A. annually sets a limit for the indicator showing barrels spilled due to operating incidents affecting the environment. The limit established for 2021 was 128 barrels, and 117 barrels for 2022.

At the end of 2022, 63.7 Bbls of hydrocarbons spilled were recorded caused by operating incidents greater than 1 Bbl. **This volume is 45.6% less than the limit established for this term, and 60% less than the barrels spilled in 2021, which is the best performance in the last five (5) years.**

This is the result of the systematic execution of the integrity and reliability plans. In 2022, the Upstream Vice Presidency allocated roughly 27.7 million USD to replace 88.7 km of pipelines as part of the implementation of the integrity plans.

The following graphs present the 2011-2022 evolution of the information described above:

Figure 39 | Operating Incidents Affecting the Environment Greater than one Barrel of Net Hydrocarbon (Number of incidents >1Bbl per year)



Source: HSE Vice Presidency

Figure 40 | Net barrels of Hydrocarbons Spilled due to Operating Incidents Affecting the Environment Greater than One Barrel (Barrels of hydrocarbons spilled per year – Incidents >1Bbl).



Source: HSE Vice Presidency

[SASB EM-EP-160a.2]
[SFC XVI]
[ECP005]

Table 91 | Oil Spills, Environmentally Sensitive Coastlines, and Spills Removed from the Environment.

Spills	Unit of measurement	2019	2020	2021	2022
Total number of oil spills	#	6	4	5	3
Total volume of hydrocarbons spilled	bbl	141.9	124.86	157.76	63.7
Volume of spills impacting environmentally sensitive coastlines	bbl	0	0	0	0
Volume of spilled hydrocarbons removed from the environment	bbl	0	0	0	0

Source: HSE Vice Presidency

Note 1. Data reported from the exploration and production segment of the hydrocarbons business line.

Note 2. The information reported in the table corresponds to operating incidents with volumes of hydrocarbon spilled greater than 1 Bbl. It is also important to mention that 12 incidents caused by third parties were reported in 2022, which affected the environment in volumes of hydrocarbon spilled greater than 1 barrel. The total volume spilled was 77.91 Bbls.

Note 3. 100% data coverage.

Note 4. 63.7 barrels of hydrocarbons were spilled in 2022 due to operating causes (in incidents greater than 1 barrel), which is a 60% decrease compared to 2021. This value is below the internal limit of 117 bbls for 2022, the best performance in the last 5 years, thanks to the systematic execution of the integrity and reliability plans. Moreover, the environmental sensitivity component was improved as an input for the analysis of operating risk, in order to prioritize infrastructure interventions, and the methodology for calculating spilled barrels was standardized. For the period of 2019-2022, the average number of hydrocarbon spills greater than 1 barrel with an environmental impact due to operating reasons amounted to 122.25 barrels, which represents a 57% reduction compared to the average for the 2018-2021 period [283.68 Bbls].

IV.3. Social

Human rights

[GRI 2-23-a, 2-23-b, 2-23-c]

Commitment to Human Rights.

At Ecopetrol, there is a culture of **respect and promotion of human rights**. The Company's public commitment, contained in the **Human Rights and Business Guide**, is cross-cutting to all work teams at the strategic, tactical, and operating levels, and extends to all rights internationally recognized in the United Nations International Bill of Human Rights and the principles set forth in the International Labor Organization's (ILO) Declaration on Fundamental Principles and Rights at Work. This commitment responds to the highest international standards, including the United Nations Guiding Principles on Business and Human Rights (UNGPI), the Ten Principles of the Global Compact, and the OECD Guidelines for Multinational Companies.



[GRI 2-23-d, 2-23-e]

The Human Rights and Business Guide was discussed by the Board of Directors and approved by the president of Ecopetrol. The guide establishes that the Ecopetrol Group is committed to respecting Human Rights, and requires that its workers and suppliers abide by this commitment for the performance of their activities. It also promotes adoption among its partners, associates, and other players with whom the Group engages in contractual or commercial relationships, especially within the framework of the activities undertaken jointly with the Company.



(GRI 2-23-c, 2-23-d, 2-23-e)



The commitment to respect and promote Human Rights can be also found in the **Code of Ethics and Conduct**, which contains mandatory compliance guidelines in this regard, and was approved by the President of the Company and the Board of Directors. The Board of Directors and workers of Ecopetrol and its Group are recipients of the Code of Ethics. All natural or legal persons are related to it, including beneficiaries, shareholders, contractors, suppliers, agents, partners, customers, associates (including joint venture), and bidders, in addition to the personnel and firms engaged by contractors for the execution of the agreed activities. Therefore, this Code is of mandatory knowledge and application by its recipients.

The Labor Guide for activities contracted by Ecopetrol also contains human rights guidelines.

Within the framework of its operation and its contractual and commercial relations, Ecopetrol has declared that it acts proactively and in a differentiated manner to respect and promote the following rights and freedoms: the right to life, personal integrity, personal freedom, freedom of union association and collective negotiation, the right to decent, favorable, and adequate conditions, the prevention of forced and child labor, the right to health and safety at work, children's rights, the right to equality and non-discrimination, freedom of expression, the right to

information, the right to privacy and the protection of personal data, the right to the participation of ethnic groups through prior consultation, and collective and environmental rights.

In line with its commitment, and in accordance with the **Guide on the Human Rights Risk Management Cycle**, Ecopetrol ensures its due diligence by identifying, preventing, mitigating, and, if applicable, remediating Human Rights risks or situations affecting one or several Human Rights (of all human beings) as a direct or indirect consequence of its business activities. The Stakeholder Groups considered when performing this due diligence are workers, pensioners, beneficiaries, the community, contractors, and other players related to Ecopetrol.

In line with the principle of differential approach, Ecopetrol respects the rights of people belonging to groups that may be particularly vulnerable to adverse impacts on their human rights. Accordingly, in developing its business activity, the Company applies the differential gender approach and the ethnic approach. Populations with disability; boys, girls, and youth; and the migrant population are also considered as subjects of differential approach. It is worth noting that, considering the important role of human rights defenders for democracy and for society, Ecopetrol has also declared its **Commitment to Human Rights Defenders**.



(GRI2-24)

Roles and responsibilities

Human Rights are a matter of corporate responsibility relevant to all Ecopetrol Stakeholder Groups, and cross-cutting to the 2040 Strategy and various material elements of the TESH pillar. For the proper management thereof, the Company has implemented an internal distribution of strategic, tactical, and operating responsibilities.

The Board of Directors has a Corporate Governance and Sustainability Committee, which is a support body responsible for the good governance and sustainability of the Company. This Committee has reviewed the strategy, trends, and progress made in the area of Human Rights, as well as the critical issues arising from the due diligence exercises carried out periodically. The Steering Committee, made up of the President and Vice Presidents of Ecopetrol, are also permanently informed of the Human Rights efforts in the Company.

For its part, the Vice Presidency of Corporate Affairs and Secretary General (VAC) oversees Ecopetrol's

consolidation as an exemplary corporate citizen, guiding the Group's behavior towards best corporate responsibility, TESH, and Human Rights practices and standards. To guarantee the foregoing, this Vice Presidency is in charge of governing and guiding Human Rights issues at Ecopetrol.

Finally, both the corporate and business areas have related responsibilities in their operation and management, such as the identification and management of operating Human Rights risks; Human Rights assurance in the supply chain, in the engagement with partners, communities, and the territory, and in union management and labor conditions, among others.

Ecopetrol's human rights management is framed within six (6) principles under the Human Rights Guide:



Every year, Ecopetrol produces its Human Rights Action Plan, a tool that ensures the proper adoption of due diligence and Human Rights guidelines. Based on the PDCA cycle, the actions to be deployed are established to ensure management in accordance with relevant standards.

Table 92 | Compliance with the Human Rights Action Plan

2020:	90% goal	98% compliance
2021:	90% goal	100% compliance
2022:	90% goal	100% compliance

Source: Vice Presidency of Corporate Affairs

[GRI 2-24]
[WEF 22E]
[SASB EM-EP-210a.3]
[SFC XVII]



Due Diligence

Within the framework of its management efforts, Ecopetrol refrains from infringing the human rights of third parties and pushes back any negative consequences on the human rights in which they are involved (Guiding Principle 11). In this sense, the commitment to respect these rights materializes by guaranteeing due diligence in this regard.

To this end, **the Guide on the Human Rights Risk Management Cycle** develops guidelines for the performance of adequate Human Rights due diligence by all areas. This Guide defines the criteria and processes to identify, evaluate, address, and monitor Human Rights risks, to detect situations of potential impact on Human Rights. This cycle therefore guarantees responsible business conduct in the Company's own activities or those of the supply chain, in accordance with the SRL.



Due diligence at Ecopetrol meets the highest standards, with special consideration of the provisions set forth in the UNGPs, the OECD Guidelines, and the ILO Conventions. This process includes consultation with the different Stakeholder Groups, considering the variables of severity and probability.

There are guidelines for pre-contractual enlistment in the supply chain to ensure the suitability of the suppliers prior to being hired, and there are also contractual clauses on Human Rights and contractor performance evaluation mechanisms that include criteria associated with Human Rights.

Furthermore, Ecopetrol applies the international standard of **Voluntary Principles on Security and Human Rights** through three (3) lines of action

- **01**
Analysis of security and Human Rights risks in all areas of operation,
- **02**
Transparent engagement with public forces by means of collaboration agreements and
- **03**
Contracts with private surveillance companies that incorporate due diligence practices in security and human rights as contractual obligations.

(GRI 411-1, 412-1, 2-24, 11-17-2) (WEF 22E)

Human Rights Assessment

As part of its due diligence efforts, Ecopetrol identified and evaluated possible impacts and risks associated with respect for Human Rights in its own activities, and also in the supply chain and other commercial relationships.

Table 93 | Human rights assessments

Human Rights Assessment in 2022	Percentage of total operating sites where human rights risks have been assessed	Percentage of total operating sites where human rights risks have been identified	Percentage of operating sites presenting human rights risks, in which management measures have been adopted
Own operations	100%*	100%	100%
Contractors and Tier 1 Suppliers	100%**	1.4%***	100%
Joint Venture	100%*	100%	100%

Source: Vice Presidency of Supply and Services, Vice Presidency of Subsidiaries and Assets with Partners, and Vice Presidency of Corporate Affairs and Secretary General

*Ecopetrol's goal in 2022 was to assess, identify, and mitigate risks in its own operations and joint ventures in the Orinoquia region. The geographical area for this analysis included the following municipalities in the department of Meta: Villavicencio, Acacías, Guamal, Castilla La Nueva, Cubarral, San Martín de los Llanos, Puerto Lleras, San Carlos de Guaroa, and Puerto López.

**Ecopetrol selected its strategic and core suppliers for 2022, which account for 80% of the Company's expenses.

***In 2022, human rights risks have been identified in three (3) of the 215 strategic and core suppliers assessed, that is, 1.4% of all suppliers, who have adopted an improvement plan based on the gaps identified, covering 100% of the suppliers that require it.

(GRI 408-1, 409-1, 11-12-2)(WEF 14, 22E)

This evaluation allowed Ecopetrol to identify risks and create action plans for prevention and treatment, while also covering the analysis of the rights expressly recognized by the Company in its Human Rights Guide, including the right to life and personal integrity, the right to a dignified life, the right to a healthy environment and to health, access to information and participation, among others. Similarly, special consideration was given to women, children, and youth, Indigenous peoples, migrant workers, contractors, local communities, and victims of armed conflict in the Company's due diligence practices and for the analysis of Human Rights risks.

After conducting human rights risk analyzes at the regional level and continuous monitoring of the operation, no cases have been identified associated with forced or compulsory labor in Ecopetrol's own operations or in its supply chain. Similarly, no risks pertaining to child labor incidents were identified in its own operations or throughout its supply chain.



(GRI 2-25, 411-1, 412-1, 11-17-2)(WEF 22E)

Mitigation and Remediation Measures

The Human Rights and Business Guide, in addition to establishing the public commitment to respect and promote Human Rights, defines **available remedial mechanisms** for eventual impacts that the activity may directly or indirectly generate on rightsholders. The foregoing, following up on the provisions set forth in the UNGPs.



The Company provides **internal and external channels** accessible to all Stakeholder Groups to address all kinds of claims, including those related to Human Rights. Accordingly, rightsholders who feel affected by Ecopetrol's business activity can use the **following channels** to submit their claims: citizen participation offices, Ethics Line, Labor Coexistence Committee, Human Rights Commission of the Current Collective Labor Agreement, and environment committees. In this sense, Ecopetrol is able to manage, analyze, and provide a quality and timely response to the requests received.

In the case of disputes arising from the operation, without prejudice to the right of the community or any other Stakeholder Group to opt for the administration of justice, **Ecopetrol promotes the use of Alternative Dispute Resolution Mechanisms** (MASC, as per its Spanish acronym). The Company acknowledges that the National Point of Contact, provided for in OECD Guidelines, regulated by Decree 1400 of 2012 and currently headed by the Ministry of Commerce, Industry and Tourism of Colombia, is a mediation mechanism in situations of dispute concerning the implementation of the aforementioned guidelines.



In the cases that Ecopetrol identifies that it has caused or has contributed to causing adverse impacts on human rights, the situation shall be addressed in a particular way in each case, providing the relevant compensation or remediation.

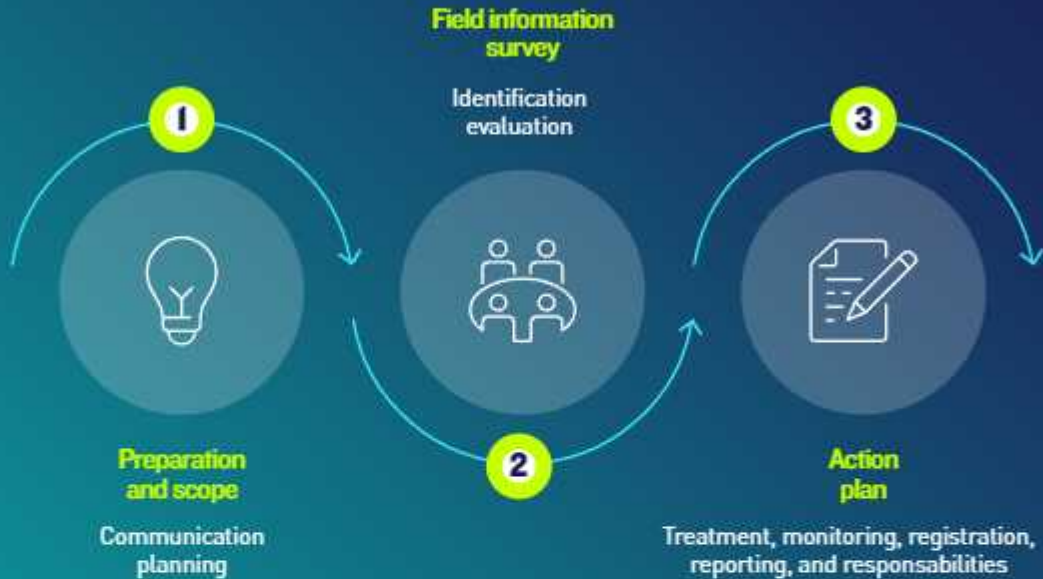
To identify possible impacts on Human Rights, Ecopetrol has adopted the **Guide on the Human Rights Risk Management Cycle Guide**. It is part of the SRI and the single risk management cycle, which allows the Company to ensure Human Rights due diligence in a permanent and timely manner.



This cycle is based on the following stages:

Table 94 | Methodological Process for Surveying Operating Risks on Human Rights at Ecopetrol

Survey on human rights operating risks



Source: Vice Presidency of Corporate Affairs and Secretary General

Phases	Stage	Actions / activities
Preparation phase	Communication Planning	Education sessions and socialization of the Guide, and iterations with prioritized areas on the planning of the Human Rights risk assessment process since these areas of special attention due to their activities or operations.
Information gathering phase	ID Assessment	Compilation of information through field work and focus groups for the characterization of Human Rights risks and their subsequent evaluation, considering the criteria of severity and probability and following the methodology proposed by the Guide, in accordance with the UNGP.
Action plan phase	Treatment Monitoring Registration, reporting, and responsibilities	The purpose of this phase is to define and implement the appropriate actions according to the identified risk. It provides guidelines on the periodic monitoring of the treatment measures established and the responsible persons are assigned for the management of human rights risks according to the level of risk.

Source: Vice Presidency of Corporate Affairs

Human Rights risk mitigation plans

Prevention and mitigation actions are taken in Ecopetrol's operations in order to prevent or mitigate negative impacts on rightsholders. Below are the prevention or mitigation measures adopted for the following Human Rights that receive special consideration:

Human Rights	Mitigation measures adopted
Block of rights: Life and Personal Safety	
<ul style="list-style-type: none"> • Right to life • Right to personal integrity • Right to free movement • Right to personal liberty 	<p>At the beginning of each operation, Ecopetrol conducts human rights risk analyses and deploys environmental plans, as well as a monitoring plan in coordination with the institutional framework for the safety of workers and the community, and engagement plans with stakeholders of special interest (communities, human rights defenders), incorporating strategic pillars in social investment, physical security, and human rights management.</p> <p>Ecopetrol acknowledges that the private sector plays a fundamental role in promoting and respecting internationally recognized human rights. In compliance with this commitment to respect human rights and the corresponding corporate due diligence, Ecopetrol has established corporate guidelines to appropriately address complaints about events that threaten or affect the life and integrity of human rights defenders, social leaders, workers, the community, contractors, and all rightsholders in general.</p> <p>This corporate route indicates that, upon awareness or receipt of a complaint for alleged threats or impacts on life and personal integrity, the situation must be immediately reported to the area in charge (Corporate Responsibility Management), for it to define whether previous actions have been executed or if there is useful context information for said analysis, especially with the teams responsible for engaging with communities and contractors, citizen participation, and security.</p> <p>Ecopetrol subsequently forwards the complaint to the competent authorities, at the regional and/or national level, for their involvement in the matter, since they are the ones responsible for offering protection to the victims by establishing and adopting adequate protection measures, regulatory activities, and bringing the relevant parties to justice.</p>
Block of rights: Dignified life and adequate standard of living	
<ul style="list-style-type: none"> • Right to decent conditions and the non-sexual exploitation of minors 	<p>From its corporate Human Rights policy, the Company rejects any type of act that violates the rights of children and adolescents; and from its operations, the Company designs and implements permanent social engagement strategies in the regions with contractors. Similarly, it implements contractual assurance procedures based on commitment to prevent this type of events from players in its supply chain, and offers a training and education plan on the subject of Human Rights for its Stakeholder Groups, in partnership with local authorities. The Company also reports these situations to the competent authorities, requesting adequate investigations of the facts and the protection of the rights at risk.</p>
<ul style="list-style-type: none"> • Right to decent work and rejection of forced, compulsory, and child labor 	<p>Within the framework of its operation and contractual and commercial relationships, Ecopetrol acts proactively and places special attention on the children's group. For this reason, by means of its labor guidelines, the Company requires its supply chain to reject and abolish any form of child labor. It also strengthens the business fabric by generating capabilities for entrepreneurship and innovation, thus favoring the generation of income and employment in the communities.</p>

<ul style="list-style-type: none"> • Right to gender equality, diversity, and inclusion 	<p>Ecopetrol has the Diversity and Inclusion Program in which it promotes the labor inclusion of populations of difficult placement into the labor market (women, people over 45 years of age, youth between 18 and 28 years of age, Afro-descendants and indigenous people, victims of armed conflict, people with disabilities, and people without work experience).</p> <p>The Company develops inclusive employment projects in all its activities and operations, such as "Retos innovate de mujeres emprendedoras" and courses for female entrepreneurial leaders and work sessions with local suppliers and partner companies, training plans for workers and contractors on gender-based violence, sexual harassment, and reporting hotlines, and reviews goods and services contracts involving these rights.</p>
<p>Block of rights: Decent working conditions</p>	
<ul style="list-style-type: none"> • Right to decent working conditions in the supply chain 	<p>Ecopetrol establishes spaces for dialogue with contractors, communities, and institutions to encourage transparency in working conditions.</p> <p>By evaluating the performance of contractors on labor-related issues, HSE, and environmental management, it defines and structures their improvement plans to eliminate negative causes and impacts.</p> <p>Contractual assurance by means of the contractual annex on Human Rights and its "Guide to labor aspects and conditions in activities contracted by Ecopetrol," which requires the commitment to respect and promote labor rights.</p>
<ul style="list-style-type: none"> • Right to decent working conditions for direct workers • Right to education 	<p>The benefits portfolio is intended to promote the well-being of employees and their families, and ensure employment in decent and adequate conditions, focusing on five (5) major aspects: health and safety, education, loans, savings and investment, non-monetary benefits.</p> <p>In compliance with the Current Collective Labor Agreement (CCTV) 2018-2022*, the workers covered by it have access to the Educational Plan that contributes to the professionalization of workers.</p> <p>*CCTV is valid until December 31, 2022. A new collective agreement will be negotiated at the beginning of 2023, if the legal requirements for this purpose are met.</p>
<ul style="list-style-type: none"> • Right to work and equal opportunities • Hiring local labor and procuring local goods and services 	<p>Ecopetrol prioritizes the hiring of local labor, for which it has set a comprehensive strategy for local labor, goods, and services, materialized in its supply process and its indicator on "Sustainable and Inclusive Economic Growth" (Goods and Services + Inclusive Employment).</p> <p>The Company discloses information on the jobs that can be performed by local labor, as well as prevention and institutional assurance days via inspection, surveillance, and control activities with the Ministry of Labor and the Public Employment Service, and labor audits conducted on contractors by the labor assurance group. It also organizes sessions for updating CVs and establishes permanent dialogue with local authorities to ensure transparency.</p>
<ul style="list-style-type: none"> • Right to freedom of association and collective bargaining 	<p>Ecopetrol maintains a work scheme with the union organizations in the Company, through harmonious and constructive labor relations based on direct communication structures, and fulfills the commitments agreed with union organizations, as established in the Collective Bargaining Agreement and other agreements.</p>
<ul style="list-style-type: none"> • Right to freedom of opinion, information, and expression 	<p>The Company has several internal communication channels for workers to communicate with senior management to file complaints or report any other issue that affects their decent working conditions. These include the systematic meetings held in each of the Vice Presidencies and areas that make up the organization, the ethics hotline, the OPC, and the Labor Coexistence Committee.</p>
<ul style="list-style-type: none"> • Right to freedom of opinion, information, and expression in the supply chain 	<p>The Company contractually requires its contractors to guarantee the mechanisms for receiving and managing petitions, complaints, claims, and suggestions (PQRS, as per its Spanish acronym) from its workers and other Stakeholder Groups.</p>
<ul style="list-style-type: none"> • Right to health and safety at work 	<p>Ecopetrol has implemented the HSE Management System, which seeks to establish the necessary requirements for the Company to adequately manage its risks, in order to enhance the protection of life and the environment. The System entails the development of a logical and phased process based on continuous improvement, including culture, leadership, policy, organization, planning, implementation, evaluation, auditing, and improvement actions, in pursuit of anticipating, recognizing, evaluating, and controlling the risks that may affect safety and health at work and the environment.</p>

Block of rights: society and local communities

• Right to a healthy environment	Ecopetrol uses Minimum Impact Technologies (TMI, as per its Spanish acronym) in its operations to protect biodiversity and the ecosystems, conducts robust Environmental Impact Assessments (EIA) in agreement with institutions (Universities and Research Centers), and establishes baselines for the area of influence. It similarly conducts environmental cleanup of unresolved cumulative impacts, in compliance with the Environmental Management Plan (PMA).
• Right to information and citizen participation	<p>In executing its operations, the Company has adopted an engagement model with surrounding communities, which ensures the identification and assessment of social impacts and the definition of prevention, mitigation, control, and compensation measures. For the identification of impacts, ample and sufficient citizen participation spaces are organized in pursuit of a respectful and representative relationship, favoring active listening and allowing access to information in a transparent, complete, and timely manner, and adapted to the language and cultural approach of each case.</p> <p>On the other hand, the Citizen Participation Office provides timely and relevant information on the projects and operations deployed in the territories, in order to ensure clarity and transparency and solve the PQRS submitted by the local communities and the society.</p>
• Right to property. Resettlement	Ecopetrol has designed procedures and guidelines for the proper management of the risks and impacts generated by the involuntary displacement of the population, caused by the Company's operations and projects under the highest international standards. (International Policies on the Resettlement of Populations: World Bank OP 4-12. BID OP-710. The International Finance Corporation's (IFC) Manual for the Preparation of the Resettlement Plan.
• Right to prior consultation	Ecopetrol relies on guidelines for Prior Consultation processes, according to legal criteria and in coordination with state authorities, to prevent and mitigate any risk on the ancestral rights of ethnic communities and their ways of life, as well as to guarantee their active and effective participation in the decisions to be adopted by the competent authority to promote the recognition and protection of the diversity and integrity of cultures.

Source: Vice Presidency of Corporate Affairs



(GRI 2-23-e) Communication and Training

Ecopetrol conducts annual training on Human Rights for its Stakeholder Groups, including government bodies, personnel, suppliers, and partners. They address internal policies and the commitment to respect human rights at Ecopetrol, as well as issues related to the UNGPs, the ILO Tripartite Declaration, and other labor issues, including decent work and the prevention of forced labor.

Training is ensured through the following means: virtual human rights course, virtual and in-person training with internal or external experts, human rights talks via streaming, sending information with key messages on the subject, and conducting focus groups to assess human rights risks, among others.

The following achievements can be highlighted:

- More than **8,600 workers** trained through Ecopetrol's virtual course on Human Rights and Business.
- A total of **1,127 people connected** to the human rights streaming sessions.
- **Two (2) focus groups** involving 14 Ecopetrol Vice Presidencies to reinforce the review of the Human Rights strategy and understand the opportunities for improvement in different areas of the Company.
- Of the 9,217 participants in the 2022 Commitment to Transparency survey, **99.8%** are aware of Ecopetrol's public commitment to respect Human Rights, and **100%** are committed to respecting the Human Rights of the different Stakeholder Groups.
- Training was provided in the risk of landmines in the areas of operation to approximately **250 workers**, including physical security, HSE, hydro-carbon seizing, and Cenit teams.
- The **human rights self-diagnosis** was applied to the supply chain of Guías Colombia.
- Human Rights training was provided to approximately **1,200** workers, more than **900** suppliers, around **2,500** physical security contractors, and **10** partners, emphasizing Human Rights due diligence, respect for social leaders, and the commitment to respect Human Rights in the Company.
- Communication pieces about human rights were sent to **100% of the partners**.
- Human rights issues were included on the agenda of Regional Supplier Summits (Cartagena and Orinoquia), with the participation of **more than 350 companies**.

(ECP011)

(ECPOII) Compliance with Conventional Human Rights Commitments

The 2018-2022 Collective Bargaining Agreement incorporates Chapter XVII on "Human Rights and Peace," by virtue of which Ecopetrol and the Oil Industry Workers' Union - USO join efforts to foster respect, compliance, and disclosure of Human Rights in the Company and in the regions where it operates.

The National Human Rights and PEACE ECP-USO Commission is made up of two (2) representatives from Ecopetrol and four (4) representatives from the USO Union Organization, in addition to six (6) Human Rights and Peace subcommittees, made up of Ecopetrol and Union representatives, who work jointly on the advancement of said chapter.

Main Activities of the National Human Rights Commission ECP-USO 2022

<ul style="list-style-type: none"> ● Eight (8) due diligence meetings on security and human rights. ● Twelve (12) ordinary sessions and three (3) extraordinary sessions on Human Rights. ● Two (2) semi-annual meetings on Human Rights, with the attendance of the National Human Rights and Peace Commission and the ECOPETROL-USO Human Rights Regional Subcommittees. 	<ul style="list-style-type: none"> ● In agreement with Universidad Nacional de Colombia, the National Diploma Course on Human Rights and Peace was offered, with the participation of 37 workers and members of the USO and other union organizations. ● Follow-up on agendas and construction of solutions for the effective protection of Human Rights as part of due diligence. 	<ul style="list-style-type: none"> ● 12 Human Rights workshops were held, two (2) Regional Assemblies and one (1) National Assembly of Workers for Peace. ● Within the framework of the Collective Labor Agreement and under the principle of due diligence, sessions were held with the Ministry of Foreign Affairs and the National Protection Unit to examine the security situation of union leaders at the country level.
---	--	--

Just Energy Transition

Throughout 2022, Ecopetrol conducted a review of the Human Rights strategy, through the Vice Presidency of Corporate Affairs and Secretary General, in order to be aligned with the highest national and international standards in the matter. This this end, the Company held sessions with different Vice Presidencies and conducted interviews, focus groups, workshops, and documentary reviews, with the support of external Human Rights and Business experts.

This review confirmed the importance of continuing to integrate

respect for human rights in the 2040 Strategy: Energy that Transforms, as an enabling factor to meet the goals set, especially those associated with the energy transition.

To this effect, it is necessary to manage the energy transition fairly. In other words, an energy transition capable of guaranteeing access to energy, as well as achieving net zero emissions by 2050 and allowing a responsible management of the real and potential impacts of the transition on rightsholders and the environment.



Diversity, Equity, and Inclusion

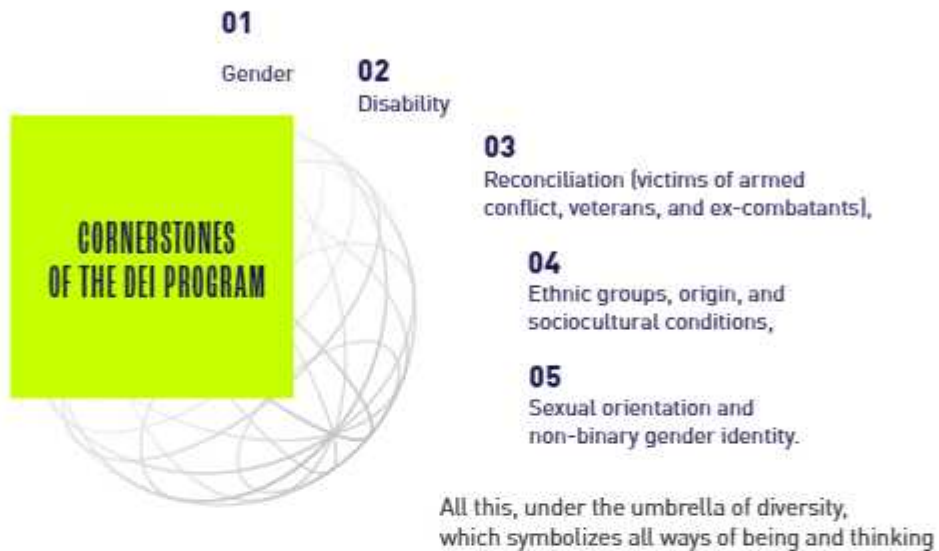
The Ecopetrol Group is committed to promoting diversity, equity, and inclusion for the benefit of all its Stakeholder Groups. It adopts a zero-tolerance approach to discrimination and harassment, for which it has policies and programs that specify its commitment to non-discrimination and the prohibition of harassment in all its forms, among others. The Company has similarly implemented measures to prevent these situations and has set the corresponding training guidelines, especially on issues such as the complaint process, behaviors constituting discrimination or violence, escalation of incidents, and corrective and disciplinary measures associated with confirmed behaviors of harassment or discrimination.



In accordance with the provisions of the **Human Rights Guide** and the **Code of Ethics and Conduct**, Ecopetrol defined clear guidelines that establish the duty of the work team to ensure, respect, and promote human rights, as well as diversity and inclusion. These are complemented by the provisions in the **Diversity and Inclusion Guide** and in the **guidelines for the prevention of discrimination** and sexual and workplace harassment (**Booklet on the prevention of bullying at the workplace**).



The Diversity, Equity, and Inclusion (DEI) Program, launched since the beginning of 2019, develops a holistic approach to integrate DEI into the TESG pillar and the processes. It is targeted at all Stakeholder Groups, with a focus on employees, the community, and suppliers. The program is made up of five (5) cornerstones, as follows:



Some of the notable initiatives and progress in this area are:

1

Support for entrepreneurship through diversity and inclusion lenses: the responsible procurement directorate currently has

more than 2,200 productive ventures

led or integrated mostly by people facing difficult job placement, with more than **44 commercial events held in 2022 (72 since the beginning)**.

Businesses have been established with 974

Diverse Entrepreneurial MSMEs, amounting to more than 57 BCOP, and **more than 6,000 jobs generated via entrepreneurship ventures**. They have also been accompanied by the Diversity and Inclusion Training Center and its *Emprende con Energía school*, where knowledge is shared to strengthen their ventures.

2

Promotion of inclusive employment in the chain: dissemination of the diversity policy and the benefits of inclusive employment to **more than 6,000 company participants**.

Development of the inclusive employment guide in contracted activities, which leads contractor companies in the adoption of sustainable commitments.

SO FAR IN

2022

19,857 people facing job

placement barriers have joined, including **16,237 women**, **143 people with disabilities**, **1,678 youth** in their first jobs, **1,322 people** from ethnic groups, and **477 victims** of armed conflict.

3

Iconic Supplier Award with inclusive and TSEG energy: to recognize outstanding supplier practices in diversity and other sustainability categories.

21 organizations

of the **Ecopetrol Group's** supply chain were awarded in the categories of **Large Companies and MSMEs**.

4

Educational communication: Inclusion skills were furthered and the offer of the Diversity, Equity and Inclusion (DEI) **training center**

was expanded, with **Diversity Schools** for supplier companies, their workers, businesses, and the community. Below are some of the activities conducted in 2022:

- a. Development of multicultural thinking and skills.
- b. Microaggressions
- c. Emotional technology in diversity and inclusion
- d. GestionArte Hombre (Inclusion skills from and for men)
- e. Women in our community: several social programs were deployed for the growth and empowerment of women and girls. For example, the "Ella es Astronauta" program, created in partnership with NASA and the She Is Foundation, which selects girls from vulnerable backgrounds for an immersion that fosters their interest in STEM subjects.
- f. Inclusion roadmap for people with disabilities
- g. Inclusive care for customers and diverse users (LGBTI+)
- h. "Mujer, Energía que Transforma" program (community)



MORE THAN 6,000 JOBS HAVE BEEN SUPPORTED BY THE DIVERSITY AND INCLUSION TRAINING CENTER AND ITS *EMPRENDE CON ENERGÍA* SCHOOL, WHICH SHARES KNOWLEDGE TO STRENGTHEN ENTREPRENEURSHIP.

5

The DEI Ecosystem advances in partnership with the Diversity Chamber of Commerce: meetings with partner companies and sectors that promote DEI in all dimensions, sectors, and Stakeholder Groups.

6

Diverse volunteering: New volunteer initiatives were launched in partnership with the Ecopetrol Group Foundation, and the with participation of the *champions*.

7

Women in our community: several social programs were deployed for the growth and empowerment of women and girls.

For example, the
“Ella es Astronauta”
program, in partnership with
NASA and the She Is Foundation,
which selects girls from vulnerable backgrounds for an immersion that fosters their interest in **STEM careers** [Science, Technology, Engineering, and Mathematics].

8

Inclusive rural development and support for the incubation of companies: the development of local skills and productive chains in *rural areas* were promoted, with **women** from different areas of **Colombia** as the beneficiaries.



Ecopetrol made progress in the objectives of providing a more inclusive experience for all Stakeholder Groups and achieving high standards in diversity and inclusion:

<p>Inclusive environment: people assess their diversity and inclusion experience with a 93% favorability in the Ecopetrol Group, with women rating it at 94% compared to men at 92%.</p>	<p>Adherence to UN principles and standards applicable to the conduct of companies that address and prevent discrimination against the SOGI population (<i>Sexual Orientation and Gender Identity</i>) or LGBTQ+.</p>	<p>Adherence to WEPs (<i>Women Empowerment Principles, March 2022</i>). 91 points and leading rank in the measurement.</p>	<p>First time implementation of the UN LGB-TIQ+ tool, a <i>Standards Gap Analysis Tool</i>, with a rating of 85% in the leading level.</p>
--	--	--	--

In 2022, Ecopetrol advanced in its DEI standards, as follows:



1

Inclusive Company Seal: Ecopetrol was awarded the highest recognition in inclusion by ANDI, USAID Colombia's Program of Alliances for Reconciliation, ACDI/VOCA Colombia and Deloitte.



2

Equipares Silver Seal: Ecopetrol is bestowed the Equipares Silver Seal (System for Gender Equality) with a rating of 98.47%. Ten (10) Group companies have already adopted favorable processes for gender equality.



3

Global Diversity, Equity, and Inclusion Benchmark (GDEIB): in the maturity verification of the GDEIB standard, Ecopetrol was rated 4.0/5.0 (progressive level) by expert panelists authorized by the Center for Global Inclusion.

To learn about more recognitions, kindly refer to **Annex 6**.



*USAID: United States Agency International Development.

**ACD/VOCA: North American NGO that fosters sustainable economic growth, promotes initiatives that generate opportunities and improve the quality of life in communities. Based in Washington, DC.

Internal and External Communication:

1 Ecopetrol promoted its DEI communications strategy to shed light on its commitment to this purpose and to communicate the relevant issues to its Stakeholder Groups in an educational manner:

266 publications on the Company's social media (18% more compared to 2021), with 6,620,868 views and a favorable performance with a 2% engagement rate.

38 DEI communication and educational products were disseminated, amounting to 71,694 internal views, as well as six (6) talks via streaming, with a total of 6,404 connections.

2 The following internal publications are worth highlighting: The month of *GÉNEROsidad* (Gender equality for all genders); *Ella es Astronauta*; Shels Global Forum, LBGTIQ+ Glossary; Stories that inspire employment and inclusive entrepreneurship.

*Diversity and inclusion.

3 Also, the external publication on #DíaDeLaVisibilidadTrans and "La diversidad abre caminos".

(GRI 11-77
-7, 406-1)
(WEF20E)

No cases of discrimination for reasons of race, color, sex, religion, political opinions, nationality, social origin, age, disability, immigration status, HIV, gender, sexual orientation, genetic predisposition, lifestyle, and others, were reported in 2022. **No cases of workplace harassment were corroborated.** In this sense, it was not necessary to undertake repair plans. **One (1) case of sexual harassment was confirmed** in 2022. The reported person is no longer an employee at the Company.

To learn more about the DEI, Compliance, and Human Rights Program and policies, which prevent and mitigate discrimination risks, refer to pages 300, 301, and 302 of this Report.

For more details, including statistics related to harassment and discrimination incidents, go to the Ethics chapter on p. 148 and **click on the following link.**



(GRI 11-17
-1, 413-1,
11-15-2)
(WEF 21E)
(SASB EM-
EP-210a.3)

Indigenous Communities

For engagement with ethnic communities and the development of activities in their territory, Ecopetrol has adopted instruments such as the **Human Rights and Business Guide**, the **Guide for engaging with ethnic communities**, and the Procedure for prior consultations, which guide and organize engagement processes with ethnic communities, based on the determinations made in international and national instruments for the protection of Human Rights.

In 2022, Ecopetrol's activities were in line with the provisions established in ILO Convention 169, ratified by Colombia by means of Law 21 of 1991. As such, the activities conducted by the Company are geared towards respecting the social, economic, cultural, and territorial rights of ethnic communities.



The engagement approach includes the following aspects, among others:



- a. Identifying the affected indigenous communities before acquiring a new block or expanding the areas of operation.
- b. Understanding the local context to engage with indigenous communities.
- c. The principles of good participation of indigenous peoples: for this, there is a guide on relations with ethnic communities, guidelines for dialogue with ethnic communities, and guidelines on coexisting with ethnic communities.
- d. Free, prior, and informed consent.
- e. Commitment to protect and preserve cultural heritage from the adverse impacts of local activities.
- f. Grievance mechanisms.
- g. Relocation/resettlement audit and assessment

To engage with the ethnic groups living in the areas of operation of Ecopetrol, the Company adopts intercultural dialogue as the principle and linchpin for the process. For this reason, in addition to the diagnoses on the territories that can provide relevant information on the characteristics of the ethnic groups, baselines are built using intercultural and participatory methodologies during the prior consultation processes, to collect information from the community to define measures in managing the impacts of the projects.

In 2022, the Camentsá Biya de Orito community submitted its characterization document, which was used as input for finalizing the baseline document. Similarly, the preparation of the baseline was completed with the information collected in the visits with the Pasto Orito, Siberia, and Valle del

Guamez community in 2021 and the characterization document provided by this community.

Both baselines were essential inputs in the workshop to identify impacts and management measures. These characterizations took place within the framework of the prior consultation conducted in 2022 for the modification of the Environmental Management Plan of the Occidente Norte production area in the municipality of Orito (Putumayo). In la Guajira, a socioeconomic and cultural diagnosis was conducted of the communities in the area of future interest for offshore exploration and production. This diagnosis showed the fishing dynamics of the communities, which contributed to the design of a project for the coexistence of gas transportation activities with artisan fishing.



DURING THE PRIOR CONSULTATION PROCESSES BASELINES ARE BUILT USING INTERCULTURAL AND PARTICIPATORY METHODOLOGIES TO COLLECT INFORMATION FROM THE COMMUNITY.

(GRI 11-17-3)

The **Ecopetrol operations map** reveals the presence of Indigenous Reservations and land titled to Community Councils in its infrastructure and exploratory blocks. It is worth noting that there is no database determining the location of communities that do not have legally constituted land, since the definition of territorial limits must be legalized by the Colombian State.



307

(SASB EM-EP-210a.2)

Table 95 | Proven and Probable Reserves On or Near Indigenous Lands

Proven and probable reserves on or near Indigenous lands	Unit of measurement	2022
Number of proven reserves on or near Indigenous lands	#	340,986
Total proven reserves	#	1,680,555
Number of probable reserves on or near Indigenous lands	#	66,055
Total probable reserves	#	425,682
Percentage of net proven reserves on or near areas considered Indigenous lands	%	20.29
Percentage of net probable reserves on or near areas considered Indigenous lands	%	15.52

Source: Vice Presidency of Sustainable Development

Prevention and Management of Intercultural Conflicts

The Guide for engaging with ethnic communities establishes as follows:

All Ecopetrol workers must be aware of the guide and express their willingness to comply with it.

It must be included as an annex to the contracts, whenever field work is being executed in territories with the presence of ethnic communities.

Community leaders must be informed of the mechanisms available for handling suggestions, questions, and concerns about the Company's activities.

Workers and contractors must inform their respective supervisors or leaders of any conflict that may arise between them and the communities.

Ecopetrol is open to applying intercultural dialogue to resolve any differences with the communities.

(GRI 411-1, 11-17-2)
(WEF 22E)

No human rights violations against indigenous communities were recorded in 2022.

(GRI 11-16-2, 11-17)

No resettlement cases of ethnic communities were recorded either.

(SASB EM-EP-210a.3)
(SFC XVII)

Prior Consultation

In 2022, the engagement with ethnic groups in the areas of influence of Ecopetrol's operations was based on intercultural dialogue and regional engagement initiatives to preserve relationships of trust.

(WEF21E)

Two (2) steps are required to identify ethnic groups in the Company's areas of operation. First, once the operating scope and the areas of influence and intervention of a project in Colombia are defined, the formal procedure is requested from the Directorate of the National Prior Consultation Authority - DANCP (Ministry of the Interior) to determine whether or not to conduct the prior consultation. The supporting documents provided by Ecopetrol for the process include a technical summary including:

- i)** a description of the project activities,
- ii)** the definition of the area of influence or area in which the impacts may materialize,
- iii)** an analysis of the possible impacts and management measures to be implemented,
- iv)** the specific intervention areas,
- v)** a description of the biotic, abiotic, and socio-cultural and economic environments of the area where the project will take place,
- vi)** a description of the ethnic communities present in the area of the project (if they have been previously identified in the area)

In the areas that already show information on the presence of ethnic communities, Ecopetrol informs the authority about the possible impacts that the project may cause to the previously identified communities.

Second, once the DANCP analyzes the information, it issues a resolution that determines the applicability or not of the prior consultation for the project. If affirmative, Ecopetrol requests said entity to initiate the coordination of the consultation process prior to the start of the project.

It may happen that, during any of the phases of the project, ethnic communities not reported by the DANCP may be identified in the areas. In such a case, and as part of its Human Rights due diligence, Ecopetrol verifies the situation and reports the presence in the area of said community to the DANCP and requests the due pronouncement from the authority on the applicability of the prior consultation. No evidence of the presence of communities not identified by the DANCP was reported in the project areas in 2022.

(06-9)

Relevant Information on Previous Consultations Conducted and in Follow-up

In 2022, the Company implemented the following procedures to define the applicability of the prior consultation process for the following projects:

- **Request submitted to the DANCP to define the applicability of the prior consultation for 21 projects in the planning phase.** Of these requests, the DANCP has indicated that prior consultation is not applicable in 15 projects, and that it is applicable in one (1) project with two (2) Indigenous communities, and the remaining five (5) are still undergoing review by the entity.
 - **Notarization of prior consultations for one (1) project.**
 - **The PMA Modification of the Churuyaco Polygon** has prior consultations underway that did not advance in 2022, due to the reassessment of some technical aspects related to the project.
 - **Follow-up on prior consultation agreements in three (3) projects.**
 - **Completion of prior consultations for four (4) projects.**
- Within the framework of the engagement strategy with the DANCP, **three (3) technical taskforces were held in 2022 to follow up on queries and two (2) training sessions** for entity officials on industry-related issues. **pacios de capacitación** para funcionarios de la entidad en temas de la industria.

309



ECOPETROL INFORMS THE AUTHORITY ABOUT THE POSSIBLE IMPACTS THAT THE PROJECT MAY CAUSE TO THE PREVIOUSLY IDENTIFIED COMMUNITIES.



Prior, free, and informed consent is necessary in Colombia for the development of projects involving any of the situations determined by the Constitutional Court:

- **01**
Transfer or relocation of the Indigenous or tribal community from their place of settlement.
- **02**
Storage or deposit of hazardous or toxic materials in their territories.
- **03**
Measures that pose significant social, cultural, and environmental risk on their livelihood.

310

(SASB EM-EP-210a.3)
(SFC XVII)

The prior consultations conducted by the Company implied a participatory process on the part of the ethnic communities, under the oversight of the National Government. Formal agreements were reached with the consulted communities during these processes, including grievance and follow-up mechanisms on the evolution of the projects, as well as preventive and compensation measures.

In 2022, Ecopetrol had nine **(9) projects** undergoing prior consultation processes. Four **(4) of these** closed their consultation processes, and one **(1) corresponded to the notarization** of agreements for the modification of the environmental instrument (Development of the Occidente Norte Area).

Prior consultations for the remaining projects are open: **One (1) undergoing consultation and three (3) in the agreement monitoring stage.**

Below are the communities currently undergoing prior consultations:

Table 96 | Prior Consultation Processes Underway in 2022

Communities consulted / Location	Ecopetrol project	Progress / Phase reached in 2022
Uitoto de Coropoya Reserve, Coreguaje de Jericó, Consaya, and La Teófila / Solano Reserves (Caquetá)	Samichay 2D seismic	Consultation probated in 2013. The project will not be deployed, so the authority was requested to close the prior consultation.
Sikuani Reserve, Vencedor Piriní, Guamito Matanegra / Puerto Gaitán (Meta)	Mago Norte Exploratory Drilling Area	Consultation probated in 2013. The consultation closes in 2022.
Embera Chami de Dachidrua Town Hall / Puerto Parra (Santander)	Naphtha Exploratory Drilling Area	Consultation probated in 2014 and currently in the follow-up phase. Exploratory project executed. Consultation agreements fulfilled. Awaiting formal closing of the project to close the prior consultation.
Reserves: Colán Ukumari Kanhke y Santa Rosa; Pasto Rumiayaco; Awá Ishu, and Nasa Uh. Consejo Comunitario Liberación y Futuro / Ipiales (Nariño)	PMA Sur Modification- Churuyaco Polygon	Seven (7) prior consultation processes underway. Awaiting definition on the continuity of the project.
Sikuani Alto Unuma Meta Reserve / Puerto Gaitán (Meta)	Polygon within the Rubiales Field: Consultation conducted in response to the order issued by the Council of State.	Consultation probated in 2019 and currently in the follow-up phase. Consultation agreements currently in execution. Follow-up meeting held in 2022.
La Palma Black Community and Cocosar / Saravena Black Community (Arauca)	Beryl Exploratory Drilling Area: Consultation conducted in response to the writ of amparo.	Prior consultation probated in 2019 and currently in the follow-up phase. This project will be operated by Empresa Parex, for which a meeting for the assignment of the prior consultation was held.
Cocosar / Saravena Black Community (Arauca)	Llanos 38 Seismic – Bahadía 3D phase	Prior consultation probated in 2020 and currently in the follow-up phase. Exploration project not started.
Camentsá Biya Town Hall and Pasto Orito Siberia Town Hall (Orito, Putumayo)	Development of the Occidente Norte area	Prior consultation with probated agreements in 2022. Environmental authorization is required to start the project.
Altomira Reserve and Surantena Reserve	Chinchiná Pereira relief road	Prior consultation closed in 2022.



Engagement with ethnic communities

Ethnic Consolidation Program: Diversity Training



Ecopetrol, by means of a proof of concept, assesses the advancement of a virtual and in-person training program titled "Diversity Training," which seeks to strengthen dialogue processes with ethnic groups. The program is based on the right to permanent education, by using information and communication technologies - ICT (instant messaging -chatbots-) as an innovative tool to reach different territories (easily, free of charge, and above all, asynchronously).

The proof of concept was deployed with Indigenous communities from the municipalities of:



• **Manaure, La Guajira**
(Wayúu communities).

• **Orito, Putumayo**
(Pastos Siberia communities).

Dialogue with the U'wa People:

The U'wa Reflection Center is an effort between Ecopetrol, Asou'wa, and the Governorship of Boyacá. The purpose is to secure a space where the community can hold activities to strengthen its own governance and cultural practices. The agreement for the construction of the center was signed in 2022 and a protocolary act was held to place the first stone for the start of the construction.

U'wa Reflection Center

The U'wa Reflection Center is an effort between Ecopetrol, Asou'wa, and the Governorship of Boyacá. The purpose is to secure a space where the community can hold activities to strengthen its own governance and cultural practices. The agreement for the construction of the center was signed in 2022 and a protocolary act was held to place the first stone for the start of the construction.

Promoting the Health and Nutritional Security of Indigenous U'wa Children and Youth:

this health project was planned jointly with the authorities of the U'wa People, considering that the specific cultural conditions of the U'wa must be a priority for the effective and successful deployment of the project.

Intercultural Dialogue with the Unuma Meta Indigenous Reserve

The dialogue and consensus with the Alto Unuma Meta Reserve of the Sikuni ethnic group, adjacent to the Rubiales field, allowed its members and Ecopetrol to not just become neighbors but also friends. The foregoing was a process based on trust, respect for cultural differences, and indigenous self-governance. Two (2) large meetings were held in 2022 between Company executives and authorities of the Unuma Reserve, one in their territory and the other in the Bogotá offices.



Provision of Collective Equipment for the Ethnic and Non-ethnic Communities of the Jardines de Sucumbios Townships in Ipiales, Nariño.

The community councils of the Liberación y Futuro and Nuevo Renacer Black communities, as well as the Cofán Santa Rosa, Ishu Awá, and Ukumari Kakhe Indigenous reserves, and the Inga Nukanchipa Yuyai Town Hall, were endowed with field work equipment to strengthen their traditional practices.



Institutional Dialogue with the Municipal Mayor's Office of Ipiales, Together with Ethnic and Non-Ethnic Communities of the Jardines de Sucumbios Township in Nariño.

The ethnic and non-ethnic communities of the Jardines de Sucumbios township where Ecopetrol operates in, are located almost one day away from the municipal capital of Ipiales, Nariño, which makes it necessary to schedule spaces for dialogue with the municipal mayor and the secretaries in office, where the community raises different issues and actions are adopted to reach solutions. Ecopetrol, as a stakeholder in the territory, facilitates and partakes in these sessions.

Agreement to Sponsor Artisans from Ethnic Groups in EXPOARTESANO AND EXPOARTESANIAS



Expoartesano:

Craft fair fostering a cultural gathering of all regions in the country, where the protagonists are the transmitters of their ancestral knowledge, whose trade is the production of Colombian handicrafts. In 2022, Ecopetrol sponsored the participation of eight (8) artisans from the Inga and Camentsá del Putumayo ethnic groups in the fair.

Expoartesaniás:

This is the most attended craft fair in Colombia, with the participation of artisans from all over the country. In 2022, Ecopetrol sponsored the participation of 124 artisans from different ethnic communities from 17 departments around Colombia, in order to keep the traditions and ancestral knowledge of our country alive, as well as to promote the cultural heritage of the nation.

World Indigenous Business Forum:

Ecopetrol supported the World Indigenous Business Forum in Villavicencio (Meta), with the participation of different delegations from 23 countries. The Sikuani Indigenous communities of Puerto Gaitán (Meta) had the opportunity to participate and learn about the entrepreneurial experiences of other ethnic groups.

Archeology

Archaeological intervention activities were held throughout 2022 in thirty eight (38) **preventive archeology programs**, located mainly in the regions of Orinoquia, Andina Oriente, and Central, which concentrate the largest number of interventions at the national level. Some of the most relevant efforts include the start of five (5) new preventive archeology programs in operating and exploration areas (Llanos 141, PYE Recetor Norte, EIA APEM Marina Rubi, Moriche and AMI Jarara fields), under Decree 138 of 2019, and the implementation of three hundred sixty-seven (367) archaeological management plans, mainly with rescue and monitoring initiatives. With regard to the latter, it is worth noting the completion and closure of two (2) archaeological authorizations for the Llanito DLP project, which were executed in the last four (4) years.

As for the management of the Nation's cultural assets within the framework of the interventions, Ecopetrol has approached regional institutions such as the cultural centers in the municipalities of Barrancabermeja, Yondó, Castilla la Nueva, Acacías, and others, in order to ensure the proper conservation and safekeeping of the archaeological items. At the same time, all management plan formulation and implementation projects included public archeology activities such as workshops, talks, and exhibitions focused on sensitizing local populations and project personnel on the importance of protecting the archaeological heritage, as well as the corresponding regulatory measures for the protection thereof. Also noteworthy are the findings in the project areas of the 50k-CPO 9 (Acacías), Yuma (Barrancabermeja), and Campo Casabe (Yondó) fields. All materials and contexts found have served to complement the understanding of pre-Hispanic occupation in the territory.

(GRI 413-2, 11-15-3, 11-16-2, 11-17) (WEF 28E)

Resettlements

Ecopetrol has implemented a procedure for population resettlement, based on the UNGPs and international population resettlement policies: World Bank OP 4-12, IDB standard OP-710, and the International Finance Corporation's (IFC) Manual for the Preparation of the Resettlement Plan. The procedure sets the conceptual and methodological route to prevent, mitigate, correct, and offset the economic and social impacts caused by the involuntary displacement of the population inflicted by the Company's operations and projects. It similarly defines the measures to restore socioeconomic conditions and trigger an opportunity to improve the circumstances of the population to be resettled.





(ECP025)

1,635 resettlements were recorded in 2022, 56% (923) of which are closed and 44% (712) are in the execution and monitoring phase. This represents an 8.4% decrease compared to 2021.

Table 97 | Resettlement by Region

Region	Status or Phase	Temporary	Final	Total
Central	Closed	883	40	923
	Execution and monitoring	652	44	696
	Total	1,535	84	1,619
Catatumbo Arauca	Closed	0	0	0
	Execution and monitoring	15	0	15
	Total	15	0	15
Andina	Closed	0	0	0
	Execution and monitoring	1	0	1
	Total	1	0	1
National Total		1,551	84	1,635

Source: Vice Presidency of Sustainable Development

Table 98 | Activos y proyectos de Ecopetrol que requirieron reasentamientos

Region	Asset and/ or project	Type of Resettlement			Total
		Temporary	Final	Status/Phase	
Andina	ANH Agreement Orito area	1		Execution and Monitoring	1
Catatumbo Arauca	Tibú Field - Well T-21	15		Execution and Monitoring	15
	Casabe Module III Cluster 9 (reported in 2021)	0	1	Execution and Monitoring	1
	La Cira-Infantas field (reported in 2021)	878	39	Closed	917
		0	6	Execution and Monitoring	6
	Naphtha Project (reported in 2021)	6	6	Execution and Monitoring	12
Central	Casabe Field Well 304	2	0	Closed	2
	Casabe Field Well 986	2	0	Execution and Monitoring	2
	Casabe Field Well 653	2	0	Closed	2
	Casabe Field Well 234	1	0	Closed	1
	Casabe Module III Cluster 9	0	1	Closed	1
	La Cira-Infantas field	644	31	Execution and Monitoring	675
	Total	1,551	84		1,635

Source: Vice Presidency of Sustainable Development

(ECP025)

The programs below provide the measures agreed on with the population to be resettled:

—● **01**

Information, communication, and participation: defines a direct and permanent communication channel to facilitate the process with the population to be resettled, thereby avoiding uncertainty among the social units.

—● **02**

Social support: defines strategies and inter-institutional coordination efforts to guarantee access to social services in their new place of settlement, provide comprehensive support, seek strategies for managing the conflicts generated, and identify networks (family and social) that can support the process.

—● **03**

Support for economic restoration: seeks actions to restore the economic conditions of the social units and produce additional alternatives for this population.

—● **04**

Acquisition of infrastructure (including legal and technical issues and the appraisal of compensations).

Security and Human Rights

Ecopetrol has stressed its commitment to the Voluntary Principles on Security and Human Rights (PVSDH) by adopting a management approach including the following aspects:

Risk assessment

Ecopetrol is aware that the management of security can generate impacts on the territories and on rightsholders. To prevent this risk, the Company applies Human Rights standards associated with security issues at three (3) levels: risk analysis identifying the impacts on Human Rights; transparent standards for engaging with public forces and private security companies; and a robust system to address complaints.

Interactions with public security

the Company signs collaboration agreements with public forces, incorporating the Human Rights clause and emphasizing the respect for the legal and conventional terms of human rights. Also, the Company guarantees independence from the decisions adopted by the public forces.



Interactions with private security

Ecopetrol signs contracts with private security companies, which contain a common clause based on the Voluntary Principles on Security and Human Rights (PVSDH) pertaining to private security.

317



Supervision of security providers

to ensure that they comply with their obligation to provide security services in a manner consistent with the rules of conduct set forth by Ecopetrol: the Company exerts risk control to monitor security providers and ensure that they comply with their obligation to provide security services in accordance with the rules of conduct described in Ecopetrol's Code of Ethics. These providers must submit a semi-annual report accounting for their follow-up on Human Rights clauses.

Grievance mechanisms that protect security forces

Ecopetrol has established the OPC to receive Petitions, Complaints, Claims, and Suggestions (PQRS) from all Stakeholder Groups. Also, periodic meetings are held with the security forces to review and update the analysis of security and human rights risks and exchange information on the concerns submitted through the grievance mechanism on human rights impacts in the territories.

Audit and evaluation of security contractors

as part of all contract clauses, Ecopetrol lays down control mechanisms and performance measurements in all contractual activities, including human rights. Every six months, Ecopetrol reviews all non-compliances with Human Rights clauses. Training is also provided to strengthen capabilities and ensure joint processes. The contracts incorporate an ethics, transparency, and compliance clause, empowering Ecopetrol to conduct administrative, financial, operating, and compliance audits to verify compliance with anti-bribery laws and the guidelines contained in the Company's Code of Ethics and Conduct.

(GRI 410-1, 11-18-2)

Ecopetrol sets training requirements applicable to direct workers and organizations that provide security personnel. Below is the information on the Company's security personnel, both directly hired and from third-party organizations, who have received training in specific Human Rights policies or procedures:

Table 99 | Security Personnel Trained in Human Rights

Human Rights Training	Unit of measurement	2022
Number of security workers who have received formal training in specific human rights policies or procedures	#	2,609
Total number of security workers	#	3,314
Percentage of security personnel that has received formal training in specific human rights policies or procedures	%	78.7

Source: Vice Presidency of Sustainable Development

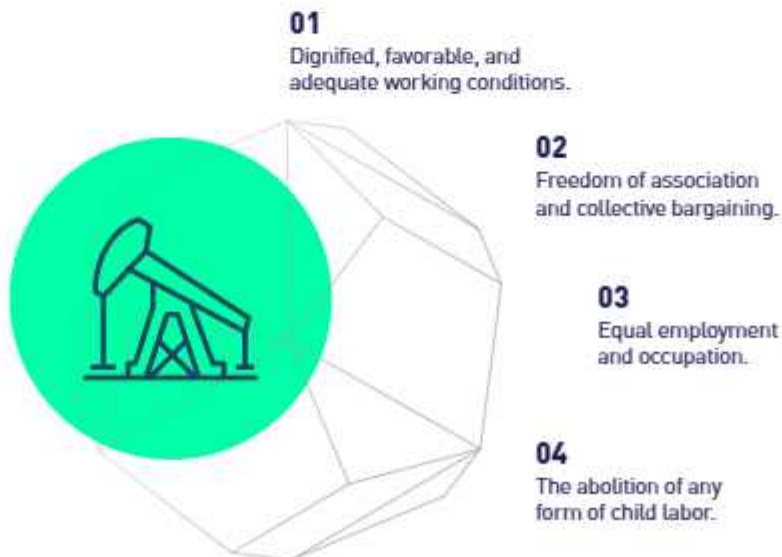
318

(GRI 412-2, 11-10-9) (SABS EM-EP-210a.3)

Promoting Human Rights in the Supply Chain

Ecopetrol is aware that its due diligence to meet its responsibility of respecting and promoting human rights must be ensured, not only within the framework of its operations but also in its value chain.

For this reason, the Company sets the labor standards to be met by all suppliers with their workers when conducting activities for Ecopetrol, by means of its internal labor regulations applicable to the contracted activities. This policy evinces the Company's commitment to respect all human rights, with special emphasis on the supply chain:



In addition, there are contractual Human Rights clauses to ensure respect for and promote Human Rights, as well as to conduct performance evaluations of the contractors, which involve environmental, social, and labor aspects related to Human Rights.

Training in Human Rights was provided to more than 1,100 suppliers, emphasizing on Human Rights due diligence, respect for social leaders, and Ecopetrol's commitment to respect Human Rights.

Human rights communication pieces were sent to all suppliers, also including the relationship between human rights and companies and Human Rights due diligence.

[GRI 412-3]
[WEF 22E]

Table 100 | Significant Investment Agreements and Contracts Containing Human Rights Clauses or Subject to Human Rights Evaluations

Agreements containing human rights clauses	Unit of measurement	2022	
Number of significant investment agreements and contracts containing human rights clauses or subject to human rights evaluations	#	3,244	319
Total number of significant investment agreements and contracts	#	3,246	
Percentage of significant investment agreements and contracts containing human rights clauses or subject to human rights evaluations.	%	99.94%	

Source: Vice Presidency of Supply and Services and Vice Presidency of Sustainable Development

Note: Ecopetrol considers two (2) determinants to define significant investment agreements and contracts containing human rights clauses:

(i) Arising cooperation settlements or agreements managed by the Vice Presidency of Sustainable Development, entered into with the purpose of protecting the critical infrastructure of the Company, which are also representative in eventual positive or negative risks or impacts associated with human rights and security.

(ii) Service contracts (goods and services) signed as of 2016 and valid as of December 31, 2022, managed by the Vice Presidency of Supply, subject to the Human Rights and Corporate Social Responsibility annex.



Roadmap Local development

Exceptional material element



(GRI 3-3)

Impacted stakeholder groups	Areas managing the impacts:	Ecopetrol business line or segments generating the highest impact
Society, Community, and local State	VAB	Upstream
National state	VDS	Midstream
	VPU	Downstream
	VRP	Low emission solutions
		Commercial




(GRI 3-3-a)

Why is the Element Material?

Local Development is incorporated as an exceptional material element in the 2040 Strategy in order to contribute to the alignment between the growth and agility of the Ecopetrol Group's operations and the harmonious growth of the territories in which it operates.

The definition of Local Development as a material element is aligned with the identification of opportunities and goals that enable a fair and equitable energy transition, contributing to improving the quality of life, closing socioeconomic gaps, reducing poverty rates and basic unsatisfied needs, as well as the reduction of social conflict factors.

Ecopetrol acknowledges that it is a promoter of opportunities and well-being for the communities, generating the following positive impacts in each strategic option:

- 
Revitalization of local economies: it impacts the generation of employment and income, the fundamental economic diversification for a just energy transition, and creates incentives for vocations complementary to the hydrocarbon industry.
- 
Education: contribution to national education goals in terms of educational quality and school retention and coverage.
- 
Access to public services: greater access to drinking water and basic sanitation contributes to reducing gaps in two (2) dimensions of multidimensional poverty- "Without access to an improved water source" and "Inadequate disposal of excreta". Access to household gas services, in addition to contributing to closing social gaps to access cost-efficient basic services, leveraging the energy transition towards the use of cleaner fuels, and protecting the health of people and the environment, as households stop preparing food using wood or coal stoves.

By means of a rights promotion approach, materialized in education investment, inclusive rural development, public services, and community strengthening programs and projects, the Company contributes to the respect and promotion of fundamental rights such as life, integrity, equality, food security, education, and others.

Ecopetrol understands that its undertaking of business activities can also trigger risks that can cause potential negative impacts on rightsholders, such as the lack of interest from the communities in the presence of the industry, discontent over the amount of investment resources, or disagreement with the type of social projects executed and the low levels of local hiring and procurement, which can alter the social dynamics of the area and generate risks associated with the right to work, to land (resettlement), access to public services, decent living conditions, among others.

(GRI 3-3-b)

The following measures are implemented to prevent and mitigate the negative impacts of social investments:

- ● **01**
Project coordination processes with communities and territorial entities.
- ● **02**
Risk identification and management in investment projects.
- ● **03**
Regulatory guidelines governing the management of projects, contracts, and agreements and that establish different instances for the approval of projects.
- ● **04**
Participatory partner and contractor selection process open to local suppliers.
- ● **05**
Internal Control System and internal audit program.
- ● **06**
Permanent monitoring of the advancement of social investment projects, with the participation of partners and territorial entities, and communication and promotion of the social investments and their benefits.

— ● **07**
The measures below are adopted based on the monitoring process and analysis of the environment for the prevention and management of conflict:

- a. Search, comparison, and validation of information from various sources.
- b. Follow-up on Company protocols and manuals for the management of information.
- c. Incorporation of the UNGPs in the language analysis and verification process in accordance with the recommendations provided by the Organization of American States (OAS) to Colombia in 2021.
- d. Follow-up on the information classification scale defined by Ecopetrol. The information is only provided to the people who have access to it. The products contain the information classification warning.

(GRI 3-3-c)
(SASB EM-EP-210b.1)
(SFC XVII)

The following measures are adopted from the processes of social dialogue:

- Planning of social dialogue processes with broad and sufficient announcements, agreeing with local players on issues of common interest according to the dynamics of each territory.
- Support for municipal, departmental, and national governments, as appropriate.

Policies and Commitments

Local Development is one of the elements in which Ecopetrol and its Group are committed to being exceptional, standing out in the world for contributing to improving the quality of life of populations in the areas of influence, by closing socioeconomic gaps, reducing the factors of social conflict, and growing the levels of confidence.

Local Development is promoted within the framework of the **Social Settings Management Strategy**, whose objective is to contribute to growing the economic value of the Ecopetrol Group, by creating sustainable development conditions to consolidate the operations and viability of its businesses.

To this end, Ecopetrol has adhered to the **United Nations Global Compact** since 2009, guided under the framework of the SDGs.



322

(ECP023)

The Strategy seeks to build relationships of trust as the foundation to create mutual and lasting benefits between the Company and the Stakeholder Groups, with the following specific objectives:

- 1 Maintain the operation of the businesses and enable sustainable development in the territories by strengthening the ability to adapt to environmental conditions.
- 2 Contribute to the generation of economic and social benefits and ensure that the Stakeholder Groups perceive and recognize those as benefits generated by Ecopetrol and its Group with their presence in the territory.



(GRI 3-3-d)

How is the Material Element Managed?

A roadmap was defined based on diverse and inclusive participation through processes of dialogue and permanent consensus for the construction of long-term relationships that are respectful of human rights and that build trust in the communities and territorial entities.

The generation of value is evinced through the Company's contribution to closing socio-economic gaps and it is managed via three (3) strategic options, namely:

- 1 Revitalization of local economies:** encouragement of productive vocations, entrepreneurship, green economy, labor, local goods, and services; and construction of road and community infrastructure to promote trade, connectivity, and social cohesion.
- 2 Promotion of education:** contribution to the goals of free and public national education, ensuring quality, coverage, and school retention, as well as the development and strengthening of a mindset and culture focused on innovation.
- 3 Access to basic public services such as energy, gas, and water:** interventions to reduce inequality and enable a just energy transition.

The strategy incorporates the following areas:

Engagement: seeks to build long-term relationships of trust with the different stakeholders in the territory to favor the achievement of business objectives and contribute to sustainable development. In this sense, by promoting and partaking in different engagement opportunities, the Ecopetrol Group has established itself as one more player in the territory, with the objective of sharing knowledge, expectations, and requirements, disseminating information on the Company's activities and results, participating in territorial planning, and building long-term visions for development.

(ECP024)

Social Investment: this is the business practice to contribute to the sustainable development of the communities of interest to the Company, or of regions in the country where said contributions are in line with the corporate strategy.

Its purpose is to boost local growth to improve the quality of life of the population and reduce unsatisfied basic needs, thus consolidating high levels of trust in the territories of influence.

Physical Security: this area manages the measures to mitigate the impacts caused by events that affect the security and integrity of the people, projects, and infrastructure of Ecopetrol and its Group.

The Vice Presidency of Sustainable Development is the area in Ecopetrol that leverages the implementation of the Social Settings Management Strategy, and its operating costs²⁹ for 2022 amounted to 71.2498 BCOP.

²⁹ Management costs (overheads).

(GRI 3-3-e)

Short, Medium, and Long Term Goals and Projects

The goals for 2024, 2030, and 2040 are set in three (3) strategic options: Dynamization of local economies, promotion of education, and access to public services.

		KEY INDICATORS	Short term by 2024	Medium term by 2030	Long term by 2040
REVITALIZATION OF LOCAL ECONOMIES	Employment generation¹		25,000	105,000	230,000
	<ul style="list-style-type: none"> Involvement of farmer families to productive chains 		4,475	9,000	18,000
	<ul style="list-style-type: none"> Youths (4RI²), Entrepreneurs, and MSMES strengthened 		5,878	13,500	25,000
	<ul style="list-style-type: none"> Km of tertiary roads intervened 		958	1,800	3,000
EDUCATION	Students benefitted		626,333	1,252,000	+ 2,000,000
	<ul style="list-style-type: none"> Improved education quality Higher school retention rates Larger school coverage 		100% of the municipalities prioritized ³ with training programs to reduce gas in education		
ACCESS TO UTILITIES	Closing the gap in the coverage of utilities				
	<ul style="list-style-type: none"> Improved access to drinking water (inhabitants) 		1,329,704	1,900,000	2,400,000
	<ul style="list-style-type: none"> Access to fuel gas through the grid (users) 		34,448	75,000	150,000

1 Jobs generated, calculated using the model-input methodology. DNP's Product. Includes all direct and indirect jobs generated by generated Ecopetrol's social investments.

2 Skills for the fourth industrial revolution

3 The prioritized municipalities are updated according to the Update of Territorial Strategies (bi-annually)

4 Source: DANE

Source: Vice Presidency of Sustainable Development

[GRI 3-3-e]

Main Achievements in Managing the Local Development Roadmap

Local Development Results	Unit of measurement	2019	2020	2021	2022
Benefited students	#	62,461	202,707	192,623	128,258
Jobs generated	#	0	0	1,773	4,235
Producer families benefited	#	134	509	1,099	2,179
Youth, entrepreneurs, and MSMEs benefited	#	0	728	491	10,531
Roads - tertiary network intervened	km	204.93	237.37	62	204.18
Inhabitants with access to drinking water	#	6,598	6,351	21,725	763,436
Users with access to fuel gas	#	3,789	770	6,132	7,683

Source: Vice Presidency of Sustainable Development

[GRI 3-3-e, 413-1, 11-15-2]

Monitoring the Effectiveness of the Measures Adopted

The effectiveness of the measures adopted to manage the impacts is measured using the instruments the business and emerging risk matrix, the internal control system, the balanced management board-TBG, and the performance contracts.

The environment monitoring and analytics process incorporates an information system to systematically and permanently record alarms and incidents and compare them between different periods of time.

In terms of social dialogue, the evolution of the consented sessions is monitored through alignment meetings with the participating areas and in compliance with the instructions for managing commitments with the Society, the Community, and the State (GDE-I-027) established by the OPC.

There is also an indicator that measures the number of permanent and voluntarily social dialogue agendas promoted, with the participation of Ecopetrol, in accordance with the goal established for each term.



Table 101 | Strategic Priorities/Options and Their Key Indicators

Priority	SDG	Description of alignment between the priority and business drivers	KPI Benefits for the business	KPI Benefits for Society or the Environment
Revitalization of the local economy: strengthen local productive vocations and economic recovery through inclusive rural development and entrepreneurship. Construction of roads and community infrastructure to promote trade and increase social cohesion.	Decent work and economic growth	Ecopetrol executes its operations in regions facing high levels of unsatisfied basic needs. Ecopetrol contributes to the diversification of the economy and the improvement of infrastructure in the territories where it operates and improves the quality of life of its neighbors. This, by strengthening the productive vocation of the population, promoting entrepreneurship, and building roads and community infrastructure.	<p>1. Perception survey conducted on Stakeholder Groups: Measures reputation and perception among the stakeholder groups of "Society and Community" and "Local State"</p> <p>[Attribute: strengthens the productive vocations of the territory and boosts local entrepreneurship]</p> <p>Frequency: every year Unit of measurement: percentage]</p> <p>The 2022 survey results show that 71% of the "Society and Community" and 84% of the "Local State" perceive Ecopetrol as a Company that strengthens the productive vocations of the territory and boosts local entrepreneurship. The 2022 survey results show that 77% of the "Society and Community" and 85% of the "Local State" perceive that Ecopetrol contributes to economic recovery.</p> <p>2. Deferred production* due to security reasons. Successful results were achieved between 2020 and 2022, with 146%, 184%, and 149% compliance rates compared to the expected targets, respectively</p> <p>*Volume of crude oil not produced vs expected</p>	<p>1. Number of small and medium-sized rural producers impacted. 2,179 producers benefited in 2022 from the Company's social programs associated with inclusive rural development. These programs seek to strengthen the production capacity of families living near the Company's areas of operation. The purpose of growing of these capacities is to connect producers with the market and other producers to improve their production and well-being.</p> <p>2. Number of beneficiaries impacted by social investment programs for entrepreneurship. In 2022, 10,531 beneficiaries received support through entrepreneurship, business development, and innovation programs. The objective was to generate income, employment, and well-being in the territories</p> <p>3. km of roads and community infrastructure completed. In 2022, Ecopetrol built and improved 204.18 km of roads and completed 2 community infrastructure projects, sports fields, and classrooms.</p>
Educational programs to improve the quality, retention, and coverage of education.	Quality education	The main components of Ecopetrol's social investment strategy, included in the social strategy (the main instrument for Local Development), incorporates educational strengthening in the areas near the Company's operations.	The 2022 survey results indicate that 74% of the "Society and Community" (SYC) Stakeholder Group and 83% of the "Local State" (EST) Stakeholder Group perceive Ecopetrol as a Company that makes social investments that contribute to territorial development and to improving the quality of life of its inhabitants.	<p>1. Number of beneficiaries from educational social investment programs: 128,258 students benefitted in 2022 from programs to improve education quality, retention, and coverage.</p>

Priority	SDG	Description of alignment between the priority and business drivers	KPI Benefits for the business	KPI Benefits for Society or the Environment
Access to services [Water, Gas, and Public Sanitation]	Clean water and sanitation	<p>Water is a vital resource for Ecopetrol's operations, as it is for the communities in the areas where the Company operates. Ecopetrol's integrated water management strategy aims to incorporate efficient water management into its value chain, projects, and operations, as a means of promoting sustainability and reducing environmental impacts and conflicts associated with water and access to it.</p> <p>Ecopetrol's main objective, as an energy Company, is to consolidate itself in the sector and advance on the path towards the energy transition, the electrification of economies, and decarbonization. All this, with the firm commitment of producing accessible, reliable, and sustainable energy and fuel gas for more people, and promoting inclusive growth in the regions where the Company operates.</p>	<p>1. Perception survey: measures the reputation and perception among the "Local State" and "Society and Community" (Attribute: make social investments that contribute to territorial development and improve the quality of life of the inhabitants; Frequency: every year; Unit of measurement: percentage). The 2022 survey results indicate that 74% of the "Society and Community" (SYC) and 83% of the "Local State" (EST) perceive Ecopetrol as a company that makes social investments that contribute to territorial development and to improving the quality of life of its inhabitants.</p> <p>2. Deferred production* due to security reasons. Successful results were obtained for 2020, 2021, and 2022, with 146%, 184%, and 149% compliance rates compared to the expected targets, respectively.</p> <p>*Volume of crude oil not produced vs. the expected potential.</p>	<p>11. Number of beneficiaries with access to services [water, gas, public sanitation].</p> <p>Water: In 2022, the Company improved the aqueduct in Norte de Santander, benefiting 763,436 inhabitants with access to water.</p> <p>Gas: In 2022, 7,683 families benefited from access to natural gas.</p>





[GRI 3-3-e]

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

By managing the material element of Local Development and the dynamics and results of its strategic options, adjustments were incorporated into the policy documents based on the results and lessons learned. In 2022, the new version of Ecopetrol's Procedure for the Management of Social Investment and Engagement Projects - GDE-P001 entered into force, as well as the Guide for the Construction of Ecopetrol's Sustainable Development Portfolio of Strategic and Mandatory Investments, which are regulatory documents that have a direct relationship with the management of Local Development.

328

[GRI 3-3-f]

How are Stakeholders Involved in Taking Action to Manage Local Development?

A roadmap was defined based on the diverse and inclusive participation of communities and territorial entities, through permanent dialogue and conciliation processes for the construction of long-term relationships that respect human rights and build trust. This democratic participation seeks to build joint approaches for the territory, reach agreements on social investment programs, and monitor the progress of implementation through technical taskforces and local dialogue.

The social dialogue approach involves the Stakeholder Groups in the territory, in pursuit of dynamic, inclusive, diverse, broad, and democratic processes.

Ecopetrol recognizes and respects diversity, and interacts with ethnic groups to build constructive relationships, considering the dynamics and processes between these communities, their organizations, and the State, with emphasis on the regulations that could affect their rights.

Managing the territory

Investment for Managing the Territory

The Sustainable Development Portfolio enables the implementation of the social settings management strategy, with investments in its three strategic areas. The investment executed in 2022 for each of these areas is specified below:

Table 102 | Investments by Strategic Pillar at Ecopetrol in 2022 (Million COP)

Strategic pillar	Strategic investment value ³⁰	Mandatory investment amount	Total amount
Engagement	30,799	9,568	40,367
Social investment	253,601	10,336	263,937
Subtotal	284,400	19,904	304,304
Physical security	NA	NA	243,759
Total	284,400	19,904	548,063

329

Source: Vice Presidency of Sustainable Development

Note: Also, for the period of 2022, more than \$238 MCOP were executed in sponsorships (commercial initiatives).

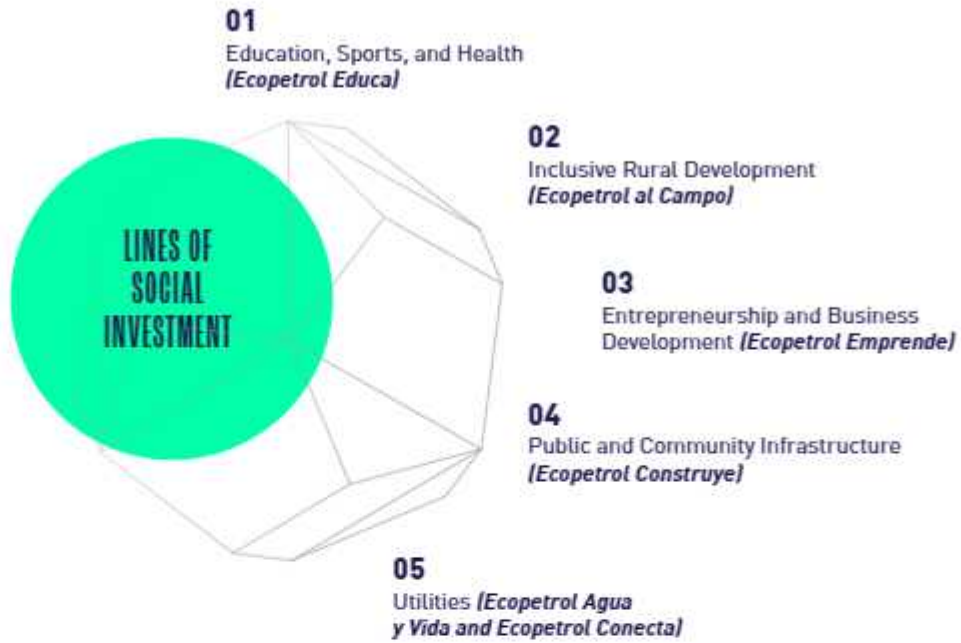
(ECP024) Social investment at Ecopetrol is the business practice to contribute to the sustainable development of its communities of interest or in regions around the country where such contributions are in harmony with the corporate strategy. Its purpose is to boost local growth to improve the quality of life of the population and reduce unsatisfied basic needs, thus consolidating high levels of trust in the territories of influence.

The Management of the Environment focuses on three prioritized strategic options in the Local Development roadmap:

- | | | |
|--------------------------------------|--------------|-------------------------------|
| a. Revitalization of local economies | b. Education | c. Access to public services. |
|--------------------------------------|--------------|-------------------------------|

³⁰ Strategic investments are social or engagement investments that leverage the viability of operations and growth projects, which are rigorously planned, designed, and executed, in order to contribute to the sustainable development of the territory.

These strategic options are deployed in 5 lines of social investment,³¹ namely:



Source: Vice Presidency of Sustainable Development

In addition to social investment, Ecopetrol also invests in engagement, which are institutional and community strengthening initiatives to shape suitable and trained people to take on the challenges of transforming their territories.



³¹ The goals and advances incorporate the results obtained from strategic social investments and those financed through the works-for-tax mechanism.

Social investment materializes through projects that are identified and prioritized in the territories in consultation with the Community and the State. The projects are formulated, structured, and executed with technical rigor, both for investments deployed voluntarily by the Company with its own resources, as well as for mandatory investments or tax mechanisms such as Works for Taxes.



[GRI 201-1, 11-14-2, 11-21-2] (WEF 18, 21, 32E)

Table 103 | Economic Value Distributed in Voluntary Social Investments in the Community (Million COP)

Year	2021	2022
Distributed economic value	199,057	284,400

331

[WEF 33E]

Table 104 | Amount of Voluntary and Mandatory Social Investments by Region in the Reporting Period (Million COP)

Region	Voluntary Social Investment	Mandatory Social Investment	Total investment Social
Sur	11,481	1,600	13,081
Piedemonte	28,163	5,039	33,202
Orinoquía	48,470	3,874	52,344
Oriente	10,297	7,306	17,603
Caribe	19,599	274	19,874
Catatumbo-Arauca	43,924	783	44,706
Central	34,837	1,028	35,865
Corporate	82,294	-	82,294
Transport environment	5,335	-	5,335
Total	284,400	19,904	304,304

Source: Vice Presidency of Sustainable Development

To learn about the specific results in 2022 for each of the lines of investment, visit the Ecopetrol website by [clicking here](#).



Education, Sports, and Health (Ecopetrol Educa)

Investments in education and sports enhance quality, coverage, and school retention. With this pillar, Ecopetrol contributes to promoting the rights of children and youth, the dissemination of culture, peaceful conflict resolution, and strengthening democratic principles. By 2024, Ecopetrol seeks to **benefit more than 626,000** children and youth, equivalent to 7% of the enrollment of public institutions in the country. By December 2022, **586,049 students had benefited**, representing 93.6% of the goal set, of which 128,258 benefited in 2022, with an emphasis on the following actions:

Education

Greater retention rates: measures adopted for children to remain in the school system and make good use of their free time. The following projects stood out in 2022: *Música en las fronteras* by the Batuta National Foundation; *Ella es astronauta* program, which seeks to train girls in female empowerment and STEM skills (*Science, Technology, Engineering and Mathematics*); and projects for the provision of school kits and furniture.

Higher quality: back-to-school strategy focused on promoting teacher training, provision of teaching material, and follow-up on the appropriation and sustainability of the investments.

More coverage: Ecopetrol fosters training for employment and benefits the best students in the regions in which it operates, through initiatives such as Bachilleres Ecopetrol, the Generación E Program led by the Ministry of National Education and Icetex, and the Utopia Program in partnership with Universidad de La Salle, and also through public infrastructure improvements.



Health

Ecopetrol Salud: health investments to trigger actions to improve the quality of the health service, including the provision of medical equipment to strengthen the health system and the organization of health days in the Catatumbo Region, with the support of Fundación Operación Sonrisa and Profamilia, which benefited the children and mothers from the U'wa Indigenous community.

Inclusive rural development – Ecopetrol al Campo

These investments seek to connect rural communities to production chains by taking advantage of market opportunities, strengthening capacities in the territory, and the sustainable use of natural resources. **Ecopetrol has set out to benefit 4,475 small producers by 2024.** 3,921 producers were benefitted in 2022, reaching 87.6% of the goal set. 15 projects were completed in 2022, involving farmer families from Meta, Putumayo, Arauca, and Santander.

Also, as part of the implementation of the Comprehensive Agricultural Solutions Program - Agrosol, whose purpose is to strengthen family farming and food security, 11 projects were completed aimed at providing technical assistance to rural inhabitants in Meta, Boyacá, Putumayo, Norte de Santander, Casanare, and Santander.

An inclusive food supply model was implemented in the municipalities of Villavicencio, Acacias, Castilla, and Guamal (Meta), in partnership with the Food and Agriculture Organization of the United Nations - FAO. This project supported 480 producers from 18 organizations in the four (4) municipalities, which made up the Meta Food Supply Network, by comprehensively strengthening their productive, associative, logistics, and commercial capacities, with more than 20 commercial agreements reached and \$2.8 billion pesos in sales.

18 projects continue in execution, with the participation of 6,101 farmer families, to strengthen productive chains in cocoa, coffee, fruit trees, bananas, vegetables, livestock, poultry, pig farming, and environmental services, among others.

A cooperation agreement was signed as part of the convention between the Ministry of Agriculture and Rural Development and Ecopetrol, in order to strengthen the productive capacities of the rural population, through the project titled *Building Rural Entrepreneurial Capacities, Confidence, and Opportunity - El Campo Emprende*. **This project will benefit more than 3,100 farmer families in 33 municipalities and 11 departments around the country.**



Entrepreneurship and Business Development - Ecopetrol Emprende

The interventions in the Entrepreneurship and Business Development pillar are intended to strengthen the business fabric by generating capacities for entrepreneurship and innovation, thus favoring the generation of income, employment, and economic diversification of the territories. To this end, **Ecopetrol has set the goal of reaching 13,501 beneficiaries by 2024**. 11,750 entrepreneurs, businesspeople, and youths benefited as of December 2022, equivalent to 87% of the goal set, of which 10,531 were benefited during 2022.



Some of the most relevant initiatives in 2022 include the consolidation of the Ecopetrol Emprende program at the national level, which is executed in partnership with CREAME Business Incubator, and whose objective is to contribute to economic reactivation and diversification by offering specialized business support and connecting with funding sources and commercial scenarios.

2,010 youths between the ages of 14 and 28 from the municipalities of Puerto Wilches (Santander), Taurameña (Casanare), and Villavicencio (Meta) benefited from the Jóvenes 4.0 Innovando y Transformando Territorios program, in partnership with Universidad Nacional de Colombia, and the Sacúdete con los Jóvenes del Territorio program also **benefitted 7,120 youths from 10 municipalities**. Both programs develop pedagogical processes to foster a mindset for innovation and entrepreneurship, and offer training in technologies and skills for the fourth industrial revolution (4RI).

(GRI 203-1)
(WEF 19)

334

Public and Community Infrastructure - Ecopetrol Construye

Ecopetrol's social investment in this pillar is intended to improve land intercommunication conditions to facilitate commercial exchanges, reduce travel times and transportation costs, as well as create spaces for coexistence, participation, education, and recreation.



To promote sustainable development in the territories, local and national partnerships were established in 2022 to diversify the infrastructure investment strategy. The partners include the municipalities of Puerto Gaitán, Castilla la Nueva, Acacias (Meta), Aguazul (Casanare), Arauquita (Arauca), Barrancabermeja (Santander), Ubalá, Santa María (Boyacá), and Medina (Cundinamarca); as well as the governorship of Santander and Casanare, and the Agency for Infrastructure of Meta, and other hydrocarbon sector operators. National partners include the National Federation of Coffee Growers - FNC and the United Nations Development Program - UNDP, which are strategic players working jointly with the communities to reach dispersed and rural areas of difficult access.

Intervention in 4.55 km of tertiary roads and 1.5 km of secondary roads. The partnership with the mayor's office of Barrancabermeja (Santander) is also worth highlighting, which allowed the paving and construction of complementary works in the road section spanning from the village of La Ceiba to Monumento al Obrero (3.8 km), in the township of El Centro; as well as the strategy in the region of Magdalena Medio, for the maintenance of 113.3 km of tertiary roads, through direct contracts, in the municipalities of Sabana de Torres, Yondó, Rionegro, Cantagallo, San Vicente de Chucurí, and Barrancabermeja (Santander).

(GRI 203-1)
(WEF 19)

Road Infrastructure

As a goal for 2024, Ecopetrol has set out to intervene 958 kilometers of roads.

As of December 2022,

- 708 kilometers have been intervened which represents 74% of the goal set;
- 204.18 km (176 km of voluntary investment and 28 km of works for taxes) of this section correspond to projects completed in 2022, benefiting more than 546,900 people and contributing to the dynamism of the regions, access to better land mobility conditions, and the generation of employment, mostly local.

Some of the important advances include the research project for the development of *new technologies for intervention in the tertiary road network by using bituminous material based on oily waste*, executed in partnership with Universidad Industrial de Santander, and with the participation of Ecopetrol in the *4th round of innovation and sustainability in transport infrastructure – "sustainability and resilience in transport infrastructure,"* which ranked among the 11 selected technologies that will continue on the path towards regulation.



(GRI 203-1)
(WEF 19)

Public Infrastructure of Community Interest

The intervention of 49 community infrastructures benefiting 6,400 inhabitants concluded in 2022, including the construction of the Plaza de Mercado El Achiote Puerto Caicedo (Putumayo) in partnership with the municipal mayor's office; the construction of one (1) community booth in Valle del Guamuez (Putumayo), the adaptation under contract of a community hall in Cartagena (Bolívar), and a digital classroom in Castilla la Nueva (Meta), all focusing on the promotion of community participation.

Public Services

This pillar seeks to improve access and coverage of basic public services for the communities in the areas of influence, in order to raise their living standards and close existing gaps due to unsatisfied basic needs.

(GRI 203-1)
(WEF 19)

Ecopetrol Agua y Vida – Drinking Water and Basic Sanitation

Ecopetrol has set out to benefit 1,329,704 people with access to drinking water and basic sanitation by 2024. 798,110 people have benefited as of December 2022, which is equivalent to 60% of the goal, of which 763,436 people benefited during 2022.

In 2022, with the involvement of the Ministry of Housing, City, and Territory, a new specific agreement was signed with the Public Services Company of La Guajira and the municipality of Manaure (La Guajira) for the construction of one (1) production module and six (6) public fountains that will improve **access to drinking water for more than 13,500 members of the Wayú community in the Medio and Alto Guajira Indigenous Reserve.**

Given the challenge of benefiting more than 1.3 million people by 2024 and 2.4 million people by 2040 with access to water for human consumption, through basic supply and sanitation solutions, continuity was given to the agreement signed with the Ministry of Housing, City, and Territory to promote social investment strategies with national programs designed to close gaps in terms of access to water in rural areas by implementing conventional solutions, such as differential or alternative schemes.

(GRI 203-1)
(WEF 19)

Ecopetrol Conecta - Energy and gas

Ecopetrol Conecta contributes to closing gaps in terms of access to public energy and gas services. By 2024, Ecopetrol has set out to **connect 70,000 households to the gas grid.** By December 2022, 18,374 households have already been connected to the gas service since 2019, which is equivalent to 26% of the goal set, of which 7,683 households were connected during 2022 in the municipalities of





ECOPETROL HAS SET OUT TO BENEFIT 1,329,704 PEOPLE WITH ACCESS TO DRINKING WATER AND BASIC SANITATION BY 2024.

Investments for Institutional and Community Strengthening

Throughout 2022, 88,538 people benefited from institutional and community strengthening programs and projects. Some of the projects completed in 2022 are the humanitarian aids provided with the support of the Colombian Red Cross.

The ongoing initiatives include the implementation of the project to strengthen young leaders in Puerto Wilches (Santander), in partnership with the United Nations Office on Drugs and Crime - UNODC, and for the youth groups in the rest of the country, in partnership with Asociación Amigos del Museo Nacional. The qualification of 65 Community Action Boards from Meta began in 2022, in partnership with the Administrative Unit for Solidarity Economy Organizations, in order to enable these organizations to develop their capacities as financial managers of their own territories within the framework of the Law.

Execution of Social and Engagement Investments

(GRI 203-2)
(WEF 19)

In 2022, social and engagement investment projects and initiatives (strategic/voluntary and mandatory) were executed for 304.304 BCOP (See Figure 41). This shows a 38% increase in the amount executed compared to the previous period, due to the increased budget allocated to the fulfillment of commitments and sustainable development investment plans in the territories, in addition to the entry into operation of the different vehicles signed in 2021 for more than 500 BCOP.

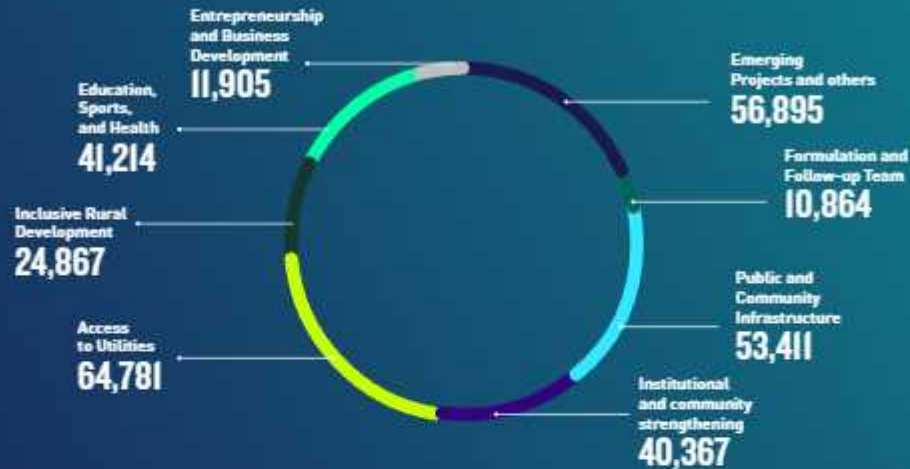
Figure 42. | Execution of Strategic and Mandatory Social Investments and Engagement by Ecopetrol from 2017 to 2022 (Million COP)



Source: Vice Presidency of Sustainable Development

The strategic (voluntary) and mandatory investment executed in 2022 is classified within the following lines of investment and other investments (See Figure 43), generating impact on different Local Development dimensions in the territories (See Table 104).

Figure 43 | Strategic and Mandatory Social Investments and Engagement by Ecopetrol in 2022 (Million COP)



Source: Vice Presidency of Sustainable Development

Table 105 | Ecopetrol results by line of social and engagement investments*

Lines of Investment	202 Results
1. Education, Sports, and Health (Ecopetrol Educa)	No. of beneficiaries: 128,258 No. of institutions strengthened: 2
2. Inclusive Rural Development (Ecopetrol al Campo)	No. of Indigenous Communities supported: 2 No. of small and medium-sized producers: 2,179
3. Entrepreneurship and Business Development (Ecopetrol Emprende)	No. of beneficiaries: 10,531
4. Public and community infrastructure (Ecopetrol Construye)	Km of roads intervened: 176 No. of structures built: 4 No. of structures intervened: 60
5. Utilities (Ecopetrol agua y vida and Ecopetrol conecta)	Water No. of people: 763,436 Gas No. of users connected: 7,683
Engagement – Institutional and community strengthening	Institutional and Community Strengthening No. of beneficiaries: 88,538 No. of institutions strengthened: 233

Source: Vice Presidency of Sustainable Development

*2022 certified goals

Ecopetrol's strategic investment is built by identifying opportunities to contribute to local development within the framework of defined social lines of investment. Projects and initiatives are prioritized in consultation with the Stakeholder Groups (national, departmental, and local governments, society, and community) and are rigorously structured as an integral part of the Company's environment plans to enable operations.

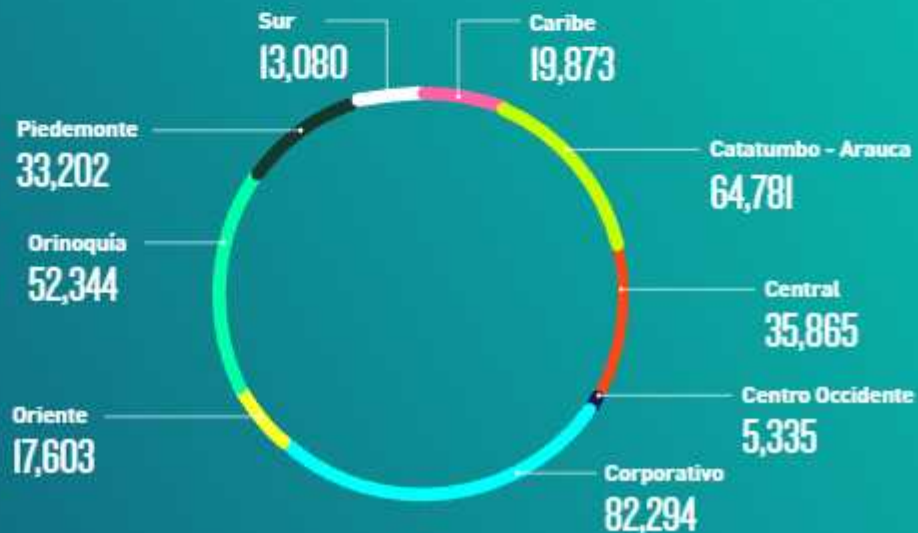
On the other hand, the mandatory investment consists of investments made by Ecopetrol to meet the social obligations contained in the contracts with the National Hydrocarbons Agency - ANH, and imposed by the environmental authorities as part of the processes of granting of permits and licenses, as well as other obligations, such as those arising from the processes to guarantee the right to prior consultation, which are executed not only to comply with legal

requirements but also as opportunities to contribute to the improvement of the socioeconomic conditions of the territory.

Compared to the previous year, there was a significant increase in *Public and Community Infrastructure* investments in 2022, with an additional investment of 33.6 BCOP, including the construction of classrooms at the Henry Daniels school, Castilla La Nueva (Meta) Phase II, with an execution of 5.331 BCOP for the Orinoquía region; and in *Inclusive Rural Development* investments, with an additional investment of more than 11.7 BCOP, including the project to strengthen the livestock production process in the Alto Unuma Reserve (Meta), with an execution of 4.661 BCOP in the Oriente region and the MAS Meta II project - Supporting rural entrepreneurs (Meta), with an execution of 2.69 BCOP in the Orinoquía region.

Of the investments distributed by region, the national investments managed from the corporate level can be highlighted. Moreover, the Orinoquía region stands out with the execution of more than 52.3 BCOP, mainly due to the rural gasification project in Guamal (Meta), with an execution of 11,828 BCOP; similarly, the Catatumbo - Arauca region, with the execution of more than 44.7 BCOP, mainly due to the Metropolitan Aqueduct project of Cúcuta, Villa del Rosario, and Los Patios (Norte de Santander), with an execution of 33,626 BCOP. (See Figure 44).

Figure 44 | Regional Overview of Strategic and Mandatory Social Investments and Engagement by Ecopetrol in 2022 (Million COP)



Source: Vice Presidency of Sustainable Development

Community benefit programs (PBC, as per its Spanish acronym)

The investments made through **Community Benefit Programs (PBC)** are Ecopetrol's direct contribution as a company in the hydrocarbons sector, by means of sustainable social investments deriving from the Exploration and Production and Technical Evaluation contracts and agreements entered into with the National Hydrocarbons Agency - ANH. This social investment is aligned with the social policies of the State, and in compliance with the goals proposed in the 2030 Agenda and with Sustainable Development Goals - SDGs, and seeks to improve the quality of life of the communities adjacent to the areas of operation of the organization.

In 2022, Ecopetrol invested 3.268 BCOP in PBCs, executed in 15 projects nationwide. Ecopetrol articulates and creates synergies between mandatory social investments such as PBCs and strategic (voluntary) investments. It similarly promotes and facilitates the convergence of mechanisms and sources of social investment available in conjunction with local and national governments, in order to maximize the impacts of said projects on the communities.

Table 106 | Community Benefit Programs by Region executed in 2022

Region	Amount (Million COP)
Orinoquía	1,967
Sur	936
Catatumbo-Arauca	365
Total	3,268

Source: Vice Presidency of Sustainable Development

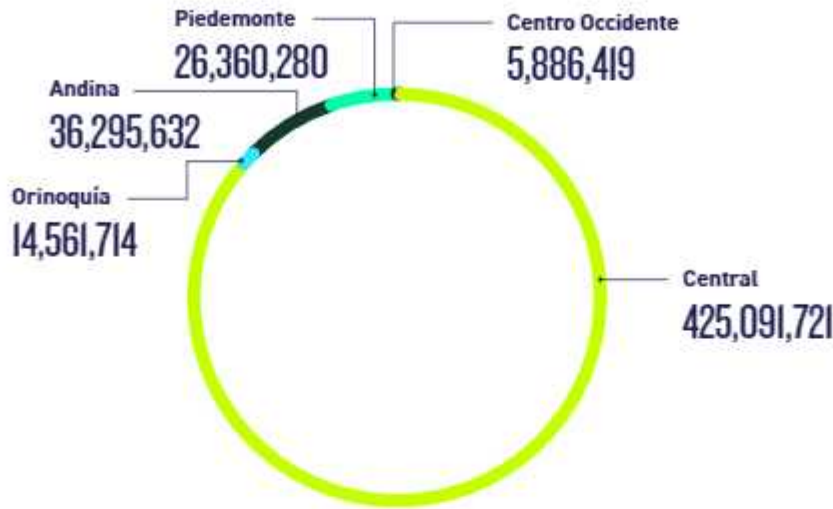
Assignments free of cost

In order to strengthen the relationship between the community and the Company, Ecopetrol, within the framework of its corporate social responsibility practices, seeks to improve the quality of life of stakeholder groups by awarding "Assignments free of Cost," prioritizing the requests submitted by entities located in the areas of operation and their area of influence.

As of December 31, 2022, Ecopetrol made assignments free of cost in the regions of: Central, Orinoquía, and Andina, with materials required by different municipalities such as: Rionegro, San Vicente de Chucurí, Concepción, and Puerto Parra (Santander); San Carlos de Guaroa and Acacias (Meta); Paz de Ariporo (Casanare); Medina (Cundinamarca); and the Cooagropaz Cooperative (Huila). The Company similarly assigned land to the municipality of Tibú (Norte de Santander) for the construction of a mega school in the industrial zone of this municipality.

The cost of the materials and land assigned amounts to 508,195,765 COP, with a total of 10 awards aimed at the construction, maintenance, improvement, and adaptation of different community structures, such as pedestrian and vehicular bridges in rural areas, parks and community education and sports venues, community restaurants, and cattle barnyards, among others.

Figure 45 | Total Assignments Free of Cost in 2022



Source: Vice Presidency of Sustainable Development

(ECP024)
(GRI 203-1)(WEF 19)

Works for Taxes

In 2022, the Ecopetrol Group continued to lead the implementation of the Works for Taxes mechanism³² in Colombia, with the highest participation in the country, assigning 16 projects during this term in the amount of 155.216 BCOP, which will benefit more than 128,000 Colombians.

With these projects, the Ecopetrol Group accumulates a total assignment of 59 projects since the beginning of the program, in the amount of 557.608 BCOP, which corresponds to 39% of the total assigned in the country.

During 2022, the Ecopetrol Group completed eight (8) projects

amounting to 101.374 BCOP that benefitted more than 276,556 inhabitants in 14 municipalities in four (4) departments around the country.

The resources executed by Ecopetrol under the Works for Taxes mechanism in the period of 2022 amount to 33 BCOP in Public and Community Infrastructure investments, including the urban area paving projects in Paz de Ariporo (Casanare), with an execution of 9.87 BCOP, and the secondary road improvement in Pajujil Cartagena del Chiará Stage 3 (Caquetá), with an execution of 8.309 BCOP, which together, account for 55% of the total resources executed in Works for Taxes.

³² Works for Taxes is a mechanism created by the National Government in 2017, which allows companies to pay up to 50% of their income and complementary tax via the direct execution of social impact projects in the Areas Most Affected by the Armed Conflict -ZOMAC, prioritizing the 170 municipalities with Development Programs with a Territorial Focus (PDET, as per its Spanish acronym), as established in the Peace Agreement with FARC EP, whose purpose is the construction, improvement, optimization, or expansion of infrastructure and provision of the necessary resources for the supply of road infrastructure, drinking water and sewerage, energy, education, and public health services, among others.

(GRI 201-1;
11-14-2)
(WEF 18,
21, 32)**Tabla 107** | Ecopetrol's 2022 Results under Works for Taxes *

Line of investment	2022 Results
Public and community infrastructure [Ecopetrol Construye]	Km of roads intervened: 28

Source: Vice Presidency of Sustainable Development

*Certified goals in 2022

Tabla 108 | Philanthropic Activities (COP)

Category	Amount	% of the total amount
Assignments free of cost	508,195,765	0.178
Strategic (voluntary) social and engagement investments	284,399,776,454	99.738
Sponsorships related to social causes and promotion of the Ecopetrol brand	238,195,000	0.084
Total	285,146,167,219	100

Source: Vice Presidency of Sustainable Development

Tabla 109 | Type of Contribution

Types of Contribution	Unit of measurement	2022
Strategic (voluntary) social and engagement investment + sponsorships related to social causes and promotion of the Ecopetrol brand	COP	284,637,971,454
Volunteer workers	COP	0
Free-of-cost asset transfer	COP	508,195,765
Operating costs	COP	71,249,829,641

Source: Vice Presidency of Sustainable Development

(GRI 413-1;
11-15-2)

Mechanisms for the Participation and Involvement of Stakeholders in the Management of Social Impacts

1,905 formal participation sessions were held in 2022 for society, the community, and the local government, of which 1,776 were in-person and 129 virtual, in the areas of interest to Ecopetrol with the presence of the Company, guaranteeing a 50.5% coverage (198 assets in total) for production assets and 58.7% (179 projects in total) for development projects, based on community participation and consultation.



Table 110 | Percentage of production assets with community participation and consultation programs

Year	%
2021	42.2
2022	50.5

Source: Vice Presidency of Sustainable Development

Table 111 | Percentage of development projects with community participation and consultation

Year	%
2021	49.4
2022	58.7

Source: Vice Presidency of Sustainable Development

The topics covered included the identification of impacts, possible risks, and the execution of mitigation and adverse impact management efforts for the projects.

Below are the scenario figures by region:

Table 112 | Engagement spaces by region

Region	No. of scenarios
Andina	797
Oriente	348
Caribe	5
Catatumbo Arauca	62
Centro Occidente	81
Piedemonte	69
Central	325
Orinoquía	197
Partners and subsidiaries	21
Total	1,905

Source: Vice Presidency of Sustainable Development



(GRI 413-1,
11-15-2)

Inasmuch as Ecopetrol recognizes and respects diversity, it interacts with ethnic groups in pursuit of a constructive relationship, mindful of the dynamics and processes between these communities, their organizations, and the State. The Company has adopted internal guidelines and procedures for its engagement with ethnic communities to conduct prior consultations and address situations of economic or physical resettlements, in accordance with Colombian legislation and the highest international standards, as established in the **Human Rights** section.

These instruments contain guidelines on the identification of affected communities and stakeholders, the implementation of a participation plan, access to relevant information, the importance of allowing communities to express their views on operational and project-related risks, the preservation of cultural heritage and other environmental

and social impacts and mitigation measures, the incorporation of the perspectives of affected communities in operating and project decision-making, grievance mechanisms for affected communities, including mechanisms to preserve cultural heritage, and the need to keep affected communities and other stakeholders informed.



(GRI 413-2,
11-15-3)
(WEF 28E)
(SASB EM-
EP-210b.1)
(SFC XVII)

Impacts Associated with the Business Activity and Management Measures

All operations and projects undertaken by Ecopetrol follow international due diligence standards, especially in Human Rights, as well as the regulations and national legal requirements set forth in the Constitution and established by law and by environmental authorities, such as the Ministry of Environment and Sustainable Development - MADS, the National Authority for Environmental Licenses - ANLA, and the Regional Autonomous Corporations - CAR, as well as the Ministry of the Interior for the specific case of prior consultations.



Additionally, the Company relies on an **Social Settings Management Strategy**, which establishes the importance of considering the rights of the Society, Community, and State stakeholder group.

By means of these instruments, Ecopetrol ensures the identification and assessment of social impacts and the definition of prevention, mitigation, control, and compensation measures. To identify impacts, ample and sufficient citizen participation spaces are organized, in pursuit of a respectful and representative engagement that favors active listening and allows access to information in a transparent, comprehensive, and timely manner, that is also adapted to the language and cultural approach of each case. In this sense, Ecopetrol conducts the necessary technical, environmental, and social studies to operate in a sustainable and balanced manner in the territories.

Articulation with State institutions for the management of impacts is deployed from local to national governments. It similarly involves the different associations, industry representatives, and community and State guarantors, in order to **support the right** to citizen participation and the peaceful resolution of conflicts.



(GRI 413-2, 11-15-3)
(WEF 28E)
(SASB EM-EP-210b.1)
(SFC XVII)

Below are some of the impacts identified and management measures adopted:

Table 113 | Operations Impacting Local Communities and Management Measures

Region	Operations	Impact identified	Management measures
Oriente	Production in the Rubiales and Caño Sur fields in the municipality of Puerto Gaitán, Department of Meta.	<ol style="list-style-type: none"> 1. Changes in accessibility, mobility, and local connectivity: impact on the joint-use road, especially during wintertime [Caño Sur – Rubiales and Alto Neblinas-Rubiales]. 2. Generation of social conflicts: formal appeals filed with institutions and de facto channels for the procurement of goods and services. 3. Presence of contractors working simultaneously. 4. Change in population dynamics and type of local workforce: increase in population density due to dependent migratory dynamics attributable to the industry. 5. Changes in the productive and commercial structure of local companies: generation of goods and service companies dependent on the industry. 6. Increased or decreased interaction between ethnic communities and foreigners: low community organization of ethnic groups and investment expectations with a differential focus. 7. Changes in the interpersonal ties between citizens and their institutions 8. Generation of conflicts over land use 	<ol style="list-style-type: none"> 1. Timely and transparent information and communication that enhances engagement with institutional support. 2. Multi-stakeholder, systematic, and anticipated social dialogue for the participatory construction of shared approaches on the territory and due diligence in light of de facto procedures. 3. Joint taskforces in the strategic and tactical articulation with operators for the comprehensive management of the territory. 4. Management of contractors to address impacts 5. Company's tactical and strategic articulation for the comprehensive management of the territory. 6. Economic diversification by strengthening productive vocations to generate non-oil jobs. 7. Reinforcement of Community Action Boards in the development of community management capacities and tools for dialogue, citizen participation, and transparency. 8. Timely and coordinated execution of Community Benefit Programs, both in compliance with ANH obligations and pursuant to strategic voluntary investments.
Andina Sur	<p>Upstream: Acae-San Miguel (Puerto Colón), Arrayán, Balcón, Brisas, Cebu, Churuyaco, CPOI, Dina Norte, Espino, Horruga, La Jagua, Loma, Larca, Loro, Mansoyé, Orito, Palermo, Palogrande, Pijao, Quiriyana, Río Ceibas, San Antonio, San Francisco, Santa Clara, Sucio, Sucumbios, Tello, Tempranillo, Tempranillo Norte Superior, Tenay, Yaguará, and Yurilla fields.</p> <p>Putumayo: [Orito, Puerto Caicedo, Puerto Asís, Guamuez Valley, San Miguel]</p> <p>Huila: [Neiva, Aipe, Palermo, Tello, Villavieja, Yaguará]</p> <p>Nariño: [Ipiales]</p>	<p>Putumayo:</p> <ol style="list-style-type: none"> 1. Change in employment dynamics: non-standardized practices outside the legal framework of contractor companies. 2. Changes in accessibility, mobility, and local connectivity: joint use and deterioration of roads and public infrastructure, especially during wintertime. 3. Social conflicts due to ethnic issues: expectations regarding differential inclusion in local agendas and labor participation. 4. Cumulative impacts generated by the industry. 5. Social conflicts due to social investment expectations. <p>Huila</p> <ol style="list-style-type: none"> 5. Changes in working conditions: generation of employment in energy transition projects with different working conditions (non-oil wages and less labor). <p>Huila and Putumayo</p> <ol style="list-style-type: none"> 6. Social conflicts due to changes in the employment, goods, and services dynamics: youth populations, women, professionals, seeking opportunities 7. Generation of social conflicts: new local players in search of social and political support. 	<ol style="list-style-type: none"> 1. Information and communication programs focusing on social dialogue as a tool for mutual understanding, with an emphasis on employability and goods and services. 2. Engagement mechanisms with communities and articulation within the Company for the comprehensive management of the territory. 3. Diverse and inclusive social dialogue scenarios for the construction of a joint approach for the territory. Reinforcement of Community Action Boards. 4. Promote the active participation of the population in the public employment system (SPE, as per its Spanish acronym) to reduce the levels of conflict. 5. Redevelopment and communication of the social investment portfolio.

Region	Operations	Impact identified	Management measures
Piedemonte	Yopal, Aguazul, Tauramena Cusiana, Cupiagua, Recetor, Pauto, Floreña Paz de Ariporo fields Llanos 9 Block (Turupe 1 Exploration Well).	<ol style="list-style-type: none"> 1. Changes in accessibility, mobility, and local connectivity: joint use and increased deterioration of access roads, especially during wintertime. 2. Changes in migration phenomena: arrival of population from other areas of the country in search of employment opportunities in the oil industry. 3. Changes in the economic activities in the area: changes in land use and transformation of production practices. 4. Changes in demographic variables: sudden change in the number of inhabitants in the area due to factors related to the transformation of opportunities deriving from the project. 5. Generation of social conflicts: dispute due to differing opinions on the amount and coverage of employment opportunities arising from job vacancies. 6. Changes in cultural dynamics: changes in the community's attachment to its territory due to the arrival of foreign personnel. 	<ol style="list-style-type: none"> 1. Meetings with regional transit authorities to learn about and share impressions on the most recurring road-related issues. 2. Consolidation of Solidarity Funds and reinforcement of management skills for Community Action Boards. 3. Support for local economic development. 4. Newsletters including content of interest to the community. 5. Informative sessions for municipal authorities and communities. 6. Organic strengthening of Community Action Boards in terms of their responsibilities and internal values as community players. 7. Raising awareness on the proper exercise of the rights and duties of communities and of Community Action Boards. 8. Cultural events incorporating artistic expressions and as an intercultural meeting place to strengthen social cohesion and the construction of the social fabric.
Caribe	Guajira (Uribia, Manaure, Maicao, Dibulla, Riohacha) Bolívar (Cartagena) Cesar (El Copey)	<ol style="list-style-type: none"> 1. Generation of expectations in the population: development of offshore projects associated with prior consultations and the non-definition of the black line in <i>offshore</i>, and the lack of awareness of stakeholder groups regarding labor recruitment regulations. 2. Generation of conflicts between stakeholders: new local players in search of social and political support. 3. Generation and alteration of social conflicts due to differing criteria for taking action between companies of the Ecopetrol Group in <i>offshore and onshore</i> projects. 4. Generation of expectations in the population due to the energy transition roadmap: employment expectations and configuration of Energy Communities. 	<ol style="list-style-type: none"> 1. Information and communication program focused on spaces for social dialogue as a tool for common understanding, with a focus on employability and goods and services. 2. Consolidating relationships of trust, mainly with ethnic groups and women under a differential approach, by implementing spaces for dialogue and improving their capacities. 3. Generation of synergies as the Ecopetrol Group. 4. Contribution to local development based on the consolidation of the sustainable development portfolio with investments in water, gas, education, circular economy, and green businesses. 5. Permanent, inclusive, timely, and transparent dialogue with new Community Action Boards, the ethnic groups of La Guajira and Cartagena-Bolívar, and with regional contractors

Region	Operations	Impact identified	Management measures
Central	<p>Santander [Barrancabermeja, Puerto Wilches, Sabana de Torres, San Vicente de Chucurí, Rionegro].</p> <p>Cesar [San Martín].</p> <p>Antioquia [Puerto Nare, Puerto Triunfo, Yondó].</p> <p>Bolívar [Caritagallo].</p> <p>Boyacá [Puerto Boyacá].</p>	<ol style="list-style-type: none"> 1. Change in employment dynamics: Contractor companies misaligned in the processes of hiring local labor. 2. Social conflicts due to changes in employment, and goods and services dynamics: youth populations, women, professionals, and unions in search of employment opportunities. 3. Conflicts between public and private stakeholders: in search of social and political support. 4. Changes in economic activities in the area: changes in land use and transformation of productive practices. 5. Changes in migration phenomena: arrival of population from other areas in search of job opportunities within the oil industry. 6. Changes in accessibility, mobility, and local connectivity: joint use of access roads close to housing units and increased deterioration, especially during wintertime. 7. Impact on the landscape due to noise, light, and particulate matter. 8. Conflict for damages against third parties. 9. Temporary and permanent resettlements 	<ol style="list-style-type: none"> 1. Information and communication program to strengthen skills for social dialogue and conflict management. 2. Implementation of articulation models for the segments in Magdalena Medio. 3. Management of neighborhood minutes in interdisciplinary work. 4. Emphasis on the topics of employment, labor, and goods and services with contractors. 5. Strengthening productive skills to generate employment outside the industry for economic diversification. 6. Prioritize the hiring of local labor and the procurement of local goods and services. 7. Understanding of the dynamics with a differential ethnic approach. 8. Communication of Ecopetrol's strategic social investment in the territory.
Centro Oriente	<p>Cundinamarca [Ubalá, Medina, Paratebuena, Guaduas, Yacopí, Puerto Salgar].</p> <p>Tolima [Cunday, Carmen de Apicalá, Ortega, Espinal, and Melgar].</p> <p>Boyacá [Santa María].</p> <p>Valle Del Cauca [Yumbo and Palmira].</p> <p>Caldas [La Dorada].</p>	<ol style="list-style-type: none"> 1. Changes in accessibility, mobility, and local connectivity: joint use and increased deterioration of access roads, especially during wintertime. 2. Increase or decrease of pre-existing conflicts: impacts generated by other industries previously installed in the territory that have generated mistrust in the population and in the development of new projects and the entry of the oil industry. 	<ol style="list-style-type: none"> 1. Development of educational programs, social dialogue. 2. Information and communication program focused on spaces for social dialogue as a tool for common understanding, with a focus on environmental issues, employability, and goods and services. 3. Investment in engagement initiatives to build trust.

Region	Operations	Impact identified	Management measures
Orinoquía	<p>VEX: Meta: [Cubarral, Granada, El Castillo, Lejanías, San Martín de los Llanos, Puerto Lleras, San Carlos de Guaroa, San Juan de Arama, Puerto López, Mapiripán, Fuente de Oro].</p> <p>Producción: Meta: [Mila vicencio, AcaCías, Guarmal, Castilla la Nueva].</p>	<ol style="list-style-type: none"> 1. Changes in interpersonal ties between citizens and their institutions: labor participation conflicts generating gaps and differences between the same population in the territory. 2. Invisible borders between municipalities in Meta, added to the concentrated presence of contractors working simultaneously. 3. Generation of social conflicts: Emergence of new local players (guilds, associations, and new unions) seeking social and political support. 4. Conflict over new projects in the low emissions business line: disagreement over salary differences and volume of labor recruitment in these projects compared to activities typical of the hydrocarbon industry. 5. Changes in economic activities in the area due to poor employment conditions: breach of labor obligations by contractor companies. 	<ol style="list-style-type: none"> 1. Early and systematic, timely and transparent information and communication program with institutional support and multi-stakeholder social dialogue. Participatory construction of shared approaches for the territory and due diligence in light of de facto proceedings. 2. Joint taskforces for strategic and tactical articulation with operators for the comprehensive management of the situation in the territories, as well as management of contractors to address impacts. 3. Strengthening of productive skills to generate employment outside the industry to trigger economic diversification. 4. Reinforcement of Community Action Boards (JAC) to strengthen their community management capacities and tools for dialogue, as well as citizen participation and transparency. 5. Timely and concerted execution of Community Benefit Programs, both in compliance with ANH obligations and pursuant to the strategic voluntary investment.

Source: Vice Presidency of Sustainable Development



(GRI 2-25,
2-26, 11-15)
(WEF 5)

Formal Grievance Processes

In order to ensure responsible business conduct, Ecopetrol establishes and provides Stakeholder Groups with the necessary mechanisms and spaces to communicate their expectations, disagreements, and needs, while ensuring a timely and thorough response to the petitions, complaints, claims, suggestions (PQRS), and compliments received. In the same way, participation sessions are organized for Stakeholder Groups to become informed about the activities conducted by the Company and to understand their perceptions, in order to build a close and trusting relationship with them.

The information arising from the PQRS, as well as the different participation scenarios promoted by Ecopetrol and/or those in which it participates, allows the identification of opportunities for improvement in the Company's processes and the structuring of alternative solutions to situations of dissatisfaction.

By managing and monitoring the requirements deriving from said interactions between Ecopetrol and its Stakeholder Groups, information can be obtained, which is then structured, analyzed, and converted into valuable information for decision-making by the different work teams, senior management, and government bodies.



For more information about the Citizen Participation Office, visit the Ecopetrol website by clicking on the following **link**.

350

(ECP022)

55,575 PQRS were managed throughout 2022: 40,438 were petitions and **15,137** complaints and claims. Also, **543** congratulation messages were received, accounting for a timely management indicator of **99.94%** (**32** cases addressed outside the terms of the law).

(ECP022)
(GRI 2-26)
(WEF 5)

Table 114. | Main Issues of Dissatisfaction of Ecopetrol Stakeholder Groups

Group thematic area (TOP 10)	No. of cases
Dissatisfaction with healthcare services	5,283
Discontent with personnel selection and recruitment processes	4,876
Information request or of documentation related to Ecopetrol S.A.	3,849
Community support	1,423
Damage to third parties generated by Ecopetrol or by contractors	1,226
Dissatisfaction with pension issues	1,070
Incomplete or erroneous response to user requests	923
Information request or of documentation related to Ecopetrol S.A.'s contractor companies	665
Discontent with payroll settlement	625
Alleged breach of contractors' labor obligations	613
Other issues	35,022
Total	55,575

Source: Vice Presidency of Sustainable Development

(ECP022)

In 2022, a total of **25** claims associated with labor practices were received through the OPC.

(ECP022)
(GRI 2-26)
(WEF 5)
(SFC XIII)

Stakeholder Groups that Used the OPC's Grievance Channels

Receiving PQRS at Ecopetrol is a multi-channel service for people to submit their requests. These channels meet international standards in terms of being legitimate, accessible, predictable, equitable, transparent, rights-compliant, and participatory. The citizen service channels arranged by Ecopetrol are: ECO zones, customized service offices, assistance brigades, email, corporate call center, correspondence offices. The Stakeholder Groups that made use of the channels provided by Ecopetrol were: employees; pensioners and their beneficiaries; society, the community, and the local State; suppliers; customers; shareholders and investors; and the national State.

(GRI 2-25)

To understand the users' perception of the mechanism, surveys are conducted every month on the usefulness and operability thereof.

The Citizen Participation Office monitors the relationships with its Stakeholder Groups. The purpose is to identify opportunities for process improvement using the PQRS received by the Company as a source of information, pinpointing expectations, non-conformities, process deviations, and alarms in the environment, and conducting a trend analysis of the PQRS and, in general, detecting situations that may affect the relationship by conducting monitoring reports, reporting PQRS

sensitive to alarms, and using KRIs as a control limit methodology based on historical data.

By monitoring **17** grouped issues, Ecopetrol analyzes the behavior of **80%** of all complaints received, allowing the Company and its decision makers to be alerted about the behavior of issues that entail business or process risks; once the trends and risk issues have been identified, an alert is sent to the Citizen Participation Office, which then conducts a root cause analysis and establishes improvement or mitigation plans to reduce said dissatisfactions to zero.



[GRI 2-25]

Ecopetrol has implemented guidelines with procedural and instrumental tools to ensure that the right of petition is managed. As part of the control and monitoring measures, indicators are implemented to measure the opportunity in citizen service, as well as internal management indicators to determine the quality and opportunity of the times established within the process. The whole process is supported by a technological management tool to control flows and times in accordance with current regulations. Furthermore, surveys are conducted to measure the satisfaction of petitioners with regard to the channels and the service. These are conducted every month using electronic channels and the deriving data is processed to obtain qualitative and quantitative results to identify actions for improvement in the process and the channels.

Monitoring is conducted with a registration form in the management tool used by the Citizen Participation Office - Salesforce.

As part of continuous improvement, the PQRS received by the Company are permanently monitored to identify opportunities for improvement in the processes and to define actions to mitigate the causes of non-conformity presented by the Stakeholder Groups.

17 dissatisfaction issues were monitored in 2022 and, together with the areas responsible for the processes, six **(6) improvement plans** were generated with **141 actions** completed in a timely manner, which impact the most relevant issues of four stakeholder groups in all regions in the country.

352

[ECP028] (SASB EM-EP-210a.3)

Incidents Caused by Third Parties

Attack Control Strategy

For the prevention of incidents caused by third parties, outside the management of internal incidents, Ecopetrol has adopted an Enabling Plan, which is an instrument to implement a preventive physical security model based on Human Rights standards to comply with the scope established in the Social Settings Management Strategy and whose central pillar is the cultural principle of "Life First".

The pillars of the Enabling Plan are the following: management in the protection of people, management in the protection of the Nation's critical and strategic infrastructure, and management for the viability of the operation. These pillars are managed by analyzing security risks and identifying possible impacts on Human Rights, in accordance with the provisions of the international standard of Voluntary Principles on

Security and Human Rights. Similarly, they constitute the foundation and roadmap for the implementation of lines of action for the management of identified risks, including attacks.

The four **(4) terrorist attacks** against Ecopetrol's infrastructure in 2022 were recorded in the department of Santander, in the municipality of Barrancabermeja. These events occurred in the first quarter of 2022, as a consequence of illegal conduct. It is worth highlighting that the infrastructure of Ecopetrol's subsidiaries and contractors was also affected by terrorist attacks. In order to minimize environmental and operating impacts, Ecopetrol articulated efforts with civil authorities and public forces for a quick intervention in these events and a timely reparation, as well as to guarantee the corresponding judicial investigations.



[SASB EM-EP-210a.1]

[SASB EM-EP-210a.3]
[SFCXVII]

[SASB EM-EP-210a.2]
[SFCXVII]

[SASB EM-EP-210b.2]
[SFCXVII]

Table 115. | Proven and Probable Reserves In or Near Conflict Areas

Proven and probable reserves in or near conflict areas	Unit of measurement	2022
Number of proven reserves in or near conflict areas		0
Total proven reserves		1,680,555
Probable reserves in or near conflict areas		0
Total probable reserves		425,682
Percentage of net proven reserves in or near areas of active conflict	%	0
Percentage of net probable reserves in or near areas of active conflict	%	0

Source: Vice Presidency of Sustainable Development

Given that some of Ecopetrol's areas of operation are affected by conflicts, thus increasing the risk of the Company, its suppliers, partners, and other related stakeholders of being involved in human rights abuses, Ecopetrol will therefore intensify its due diligence enforcement actions and will promote them along its value chain.

Interruptions Due to Non-technical Factors

Table 116. | Number of activity interruptions and total duration of project interruptions caused by non-technical factors*.

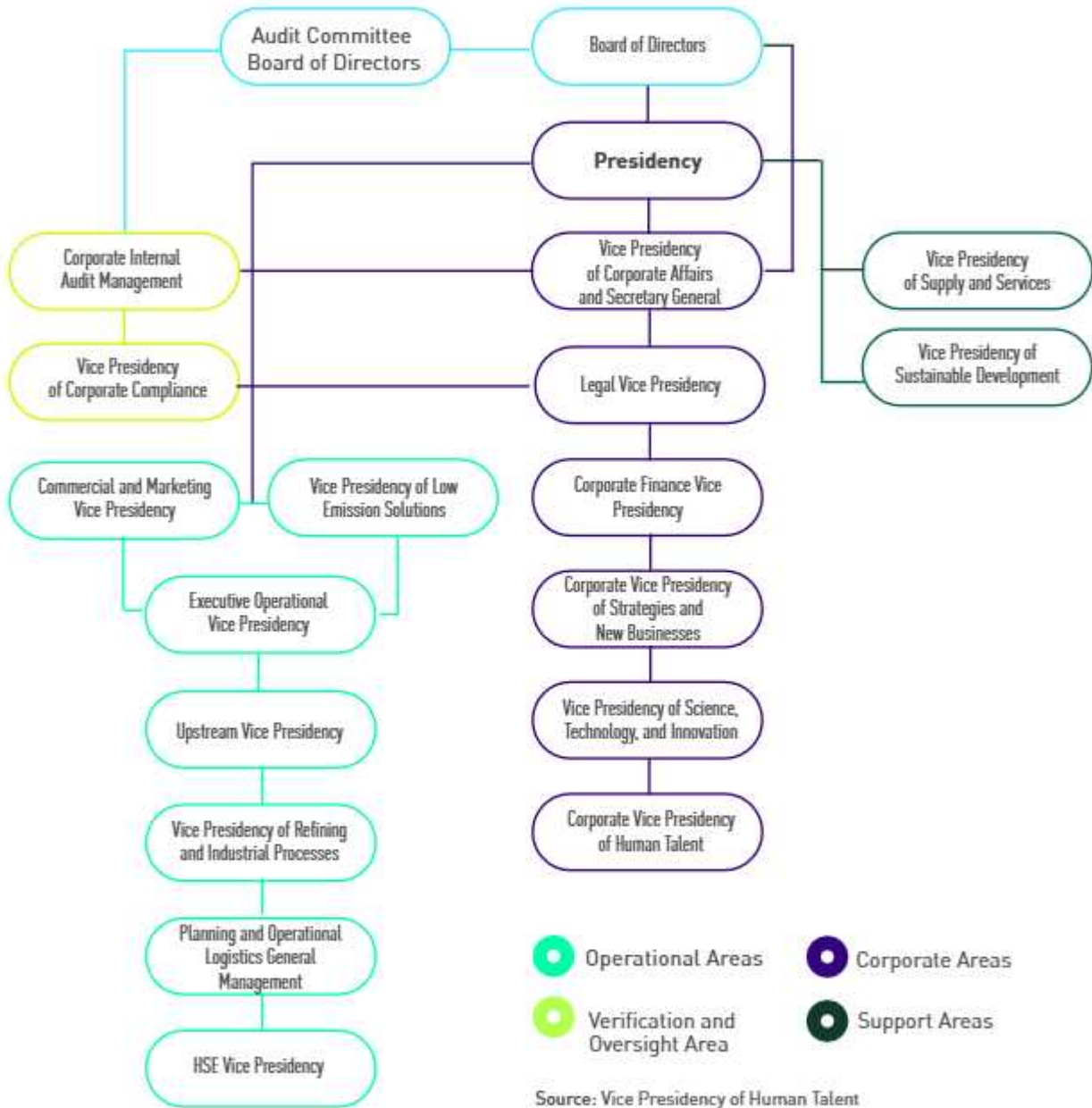
Required information	Unit of measurement	2022
Number of interruptions		664
Total duration of interruptions	Days	970.25

Source: Vice Presidency of Sustainable Development

* Includes projects executed by the *Upstream* segment's Projects Vice Presidency. Non-technical interruptions had an impact on 82 projects.

The interruptions due to non-technical factors occurred mainly on account of blockages in the execution areas, external actions that disturbed public order, or because of the rainy season.

Human talent ecopetrol's Organizational Structure



Source: Vice Presidency of Human Talent

General Human talent indicators

(GRI 2-7)
(WEF 17)(SFC
7.4.1.1.1.VII)

Table 117. | Total Employees by Employment Contract (permanent or temporary) and by Gender

General labor indicators	Men	Women	Other	Undeclared	Total
Total number of employees	7,068	2,428	0	0	9,496
Employees under indefinite contracts	6,608	2,266	0	0	8,874
Temporary employees	460	162	0	0	622

Source: Vice Presidency of Human Talent

(GRI 2-7)(SFC
7.4.1.1.1.VII)

The total number of employees was **9,322** in 2021, and **9,496** in 2022, with a variation of **1.86%**. The difference is given by new vacancies approved within the Company due to execution capacity and new operational needs.

(GRI 2-7)
(WEF 17)

Table 118. | Total Employees by Employment Contract (permanent or temporary) and by Region

Employees by region	Indefinite contract	Temporary	Total
Central	3,084	306	3,390
Bogotá	3,230	121	3,351
Caribe	1,076	39	1,115
Orinoquia	864	69	933
Sur	346	27	373
Oriente	274	60	334

Source: Vice Presidency of Human Talent

(GRI 2-7)
(WEF 17)

Table 119. | Total Employees by Region and Gender

Employees by region	Men	Women	Other	Undeclared	Total
Central	2,840	550	0	0	3,390
Bogotá	1,913	1,438	0	0	3,351
Caribe	965	150	0	0	1,115
Orinoquia	741	192	0	0	933
Sur	297	76	0	0	373
Oriente	312	22	0	0	334

Source: Vice Presidency of Human Talent

Table 120. | Non-guaranteed Hourly, Full-time and Part-time Employees

Hired employees	Number of employees
Non-guaranteed hours	0
Full time	9,496
Part time	0

Source: Vice Presidency of Human Talent

(GRI 2-20)
(WEF 18)

Compensation

Ecopetrol offers a Compensation Policy that ensures working conditions to encourage employees to give the Company their maximum commitment and potential, in order to attract, generate loyalty, and ensure the retention of the human talent required for the advancement of the strategy. The main total compensation components at Ecopetrol are fixed compensation, benefits, and variable compensation.

Fixed compensation

Fixed compensation consists of all guaranteed payments received by employees. In addition to the basic salary, it includes legal and extra-legal benefits and other components. In fixed compensation (monetary income), Ecopetrol offers a salary range between **80%** and **120%** of the reference market, allowing a progressive salary increase for employees,

according to performance requirements, experience, skills, and other criteria, and also according to the labor expense budget defined for each term. An equity analysis is systematically conducted to ensure that the employees who hold equivalent positions receive a fixed compensation within the established ranges, according to the level of the position held.

356

(ECP026)

In 2022, the current legal monthly minimum wage (SMLV, as per its Spanish acronym) in Colombia was 1,000,000 COP. At Ecopetrol, according to the salary structure in force as of January 1, 2022, the lowest defined monthly salary is COP 2,320,200 (2.31 SMLV), which is equivalent to 132% more than the legal minimum salary.

(WEF18)

Table 121. | Percentage Increase Ratio in the Total Annual Compensation of the Highest Paid Person in the Organization compared to the Median Percentage Increase in the Total Annual Compensation of all Employees.

Percentage increase ratio in terms of compensation	Unit of measurement	2022
Percentage increase in the total annual compensation of the highest paid person	%	7.32
Median percentage increase in the total annual compensation of all employees [excluding highest-paid person]	%	8.13
Percentage increase ratio of total annual compensation	Ratio	0.9

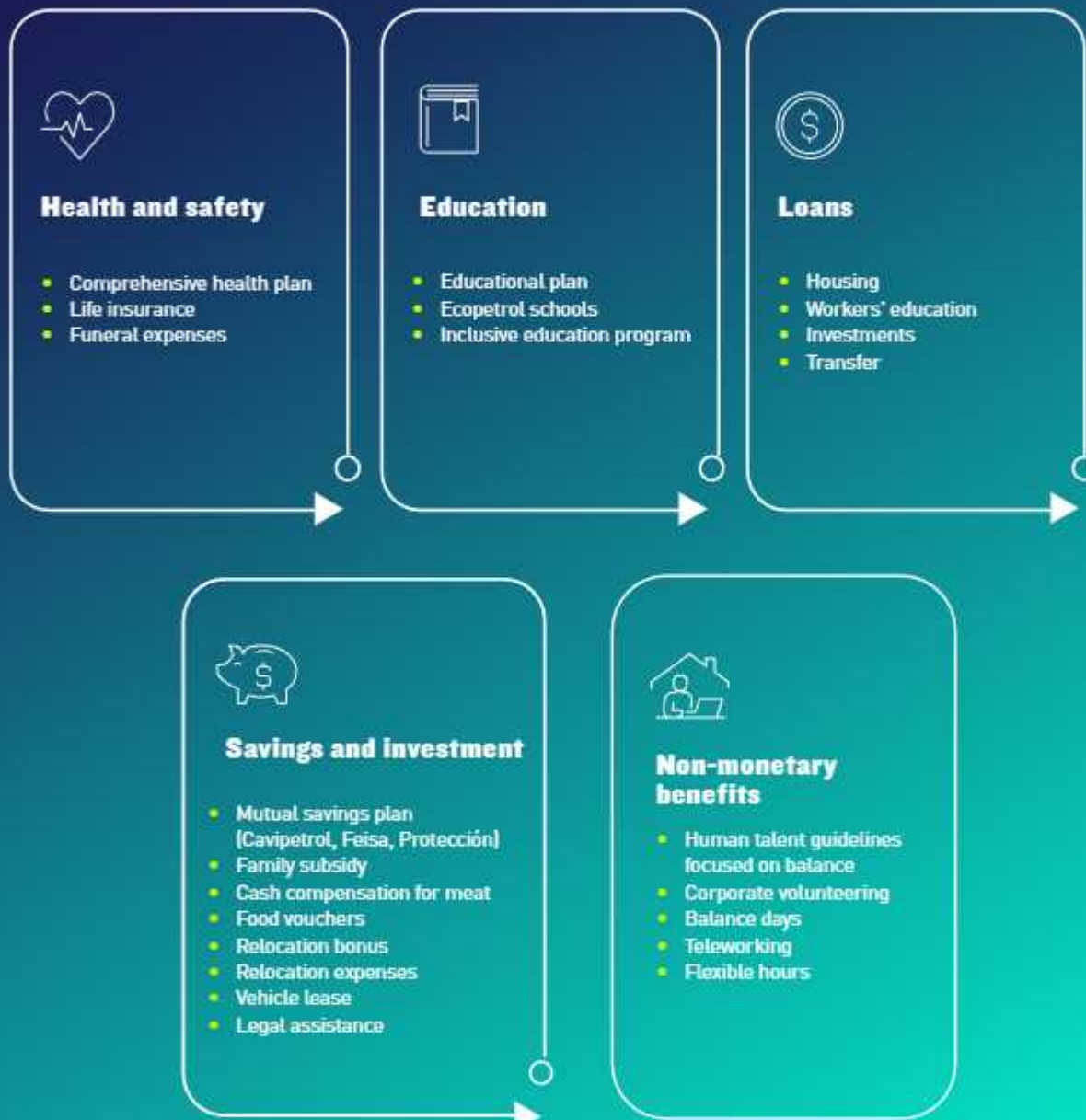
Source: Vice Presidency of Human Talent

(GRI 2-20,
401-2, 11-10-3)
(WEF 18)

Benefits

Ecopetrol offers its entire work team, regardless of the type of contract (permanent or indefinite), an attractive and competitive portfolio of benefits in order to foster the well-being of its personnel and their families, focused on five **(5)** major aspects:

Figure 46. | Portfolio of Benefits



Source: Vice Presidency of Human Talent

Figure 47 shows the coverage of benefits and their application as of December 31, 2022.

Figure 47. | Benefits Coverage



Source: Vice Presidency of Human Talent

Health

Within the framework of the excepted regime of the General System of Social Security in Health set forth in Law 100 of 1993, Ecopetrol acts as insurer and health service provider and administrator of its employees' occupational risk.

Life Insurance

By virtue of the Law and the conventional agreement, all Ecopetrol workers have the right to a life insurance as a benefit offered by the Company, regardless of their type of contract.

Education

Ecopetrol offers education grants for the children of its workers, equivalent to 90% of tuition and enrollment fees. The plan covers three (3) levels of preschool, five (5) levels of basic elementary school, six (6) levels of basic secondary and middle school, and one (1) higher education career according to the academic program chosen by the student.

In 2022, Ecopetrol invested **208,714,475,610 COP** in the education of employees and their families. Table 122 shows the education investments made from 2019 to 2022.

Table 122. | Education investments (MCOP)

	2019	2020	2021	2022
Education investments (MCOP)	171,748	185,700	192,119	208,714

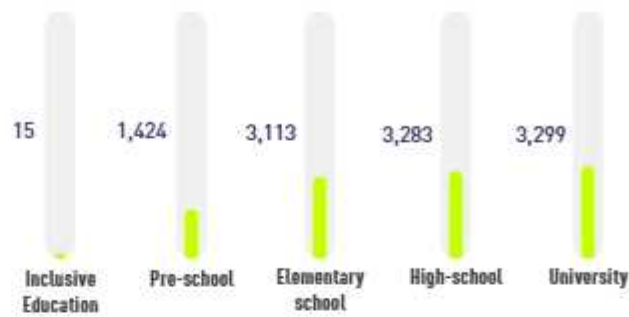
Source: Vice Presidency of Human Talent

Figure 48 shows the distribution of the beneficiaries of the education plan in 2022.

[ECP008]

13,392 people, including pensioners, were beneficiaries of the Company's educational plan in 2022.

Figure 48. | Beneficiaries of the Education Plan in 2022 *



Source: Vice Presidency of Human Talent

*The figure shows the number of beneficiaries of the education plan comparative to active workers

Savings and Investment

Some of the benefits associated with this concept include the mutual savings plan and the family subsidy.

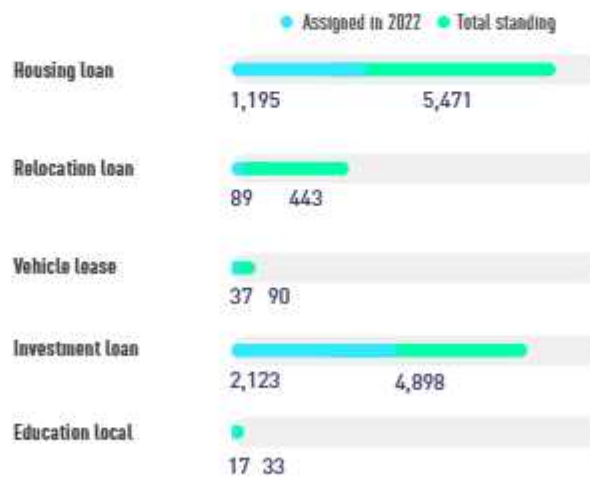
The mutual savings plan encourages savings by recognizing one peso for each peso saved by the worker. The maximum limit of the savings plan offered by the Company is 3% of the worker's basic salary.

The family subsidy is a benefit that contributes to alleviating the economic burdens of upkeeping the family, which is the basic foundation of society.

Loans

Figure 49 lists the total number of loans and allocations made in 2022.

Figure 49. | Total Number of Loans and Allocations in 2022



Source: Vice Presidency of Human Talent

According to the restriction established by the *Securities and Exchange Commission SEC*, in connection with the allocation of personal loans to *Executive Officers*, the members holding the current positions of President (CEO), Executive Vice President of Operations (COO), and Corporate Vice President of Finance (CFO) will not be able to benefit from this loan.

Non-monetary Benefits

Ecopetrol is interested in the balance between work and personal life, which is why it offer its workers not only the leaves of absence granted by law, but also others defined by the Company, thereby allowing granting working time flexibility in the moments that they required it the most. Some of these benefits are:

Parental leave

- 1 **Maternity leave:** every worker has the right to an **18-week** paid leave during childbirth (Law 1822 of 2017), payable with the worker's salary at the beginning of the leave of absence.
- 2 **Extended maternity leave:** every worker shift worker, once the legal maternity leave has ended, has the right to enjoy two **(2) weeks** of additional paid leave. All workers who do not work in shifts, upon their return to work at the end of the legal maternity leave, have the right to a half-day paid leave, plus one hour of breastfeeding, over the course of the next four **(4) weeks**.
- 3 **Paternity leave: 2-week** paid leave granted to workers, and applicable to the children born to the spouse or permanent partner, as well as to adoptive fathers (Law 2114 of 2021).
- 4 **Shared parental leave:** this allows parents to distribute the last six **(6) weeks** of the maternity leave. This leave will be paid based on the salary of the person concerned, for the corresponding time (Law 2114 of 2021).
- 5 **Extended Paternity Leave:** the Company grants a three-business-day paid leave after the expiration of the paternity leave or childbirth leave.
- 6 **Extended maternity and paternity leave** is paid leave that offers an additional leave of absence, as stipulated by law, to allow working mothers to gradually return to their workplace and fathers to spend three **(3) days** more with their children.

Table 123. | Non-monetary Benefit Coverage

Beneficio	# Employees
Birthday leave	6,518
Leave of absence due to home purchase	329
Relocation leave	95
Marriage leave	125
Extended paternity leave	120
Extended maternity leave	19
Volunteering	45
Split vacation	2,490
Flexible schedule	2,022
Telework	4,483

Source: Vice Presidency of Supply

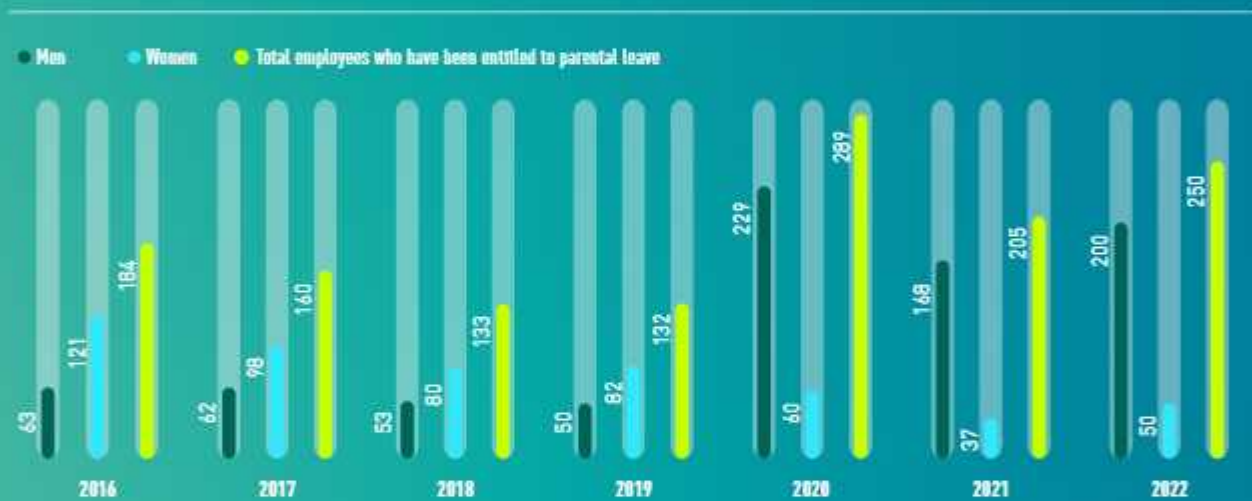
Table 124. | Parental Leave

Parental leave	Men	Women	Total
Employees who have been entitled to parental leave	200	50	250
Employees who have taken parental leave	200	50	250
Employees who have returned to work in the reporting period after the end of parental leave	198	50	248
Employees who have returned to work after the end of parental leave and who were still employed 12 months after returning to work	198	50	248
Return to work rate	99%	100%	99.202%
Employee retention rate	100%	100%	100%

Source: Vice Presidency of Human Talent

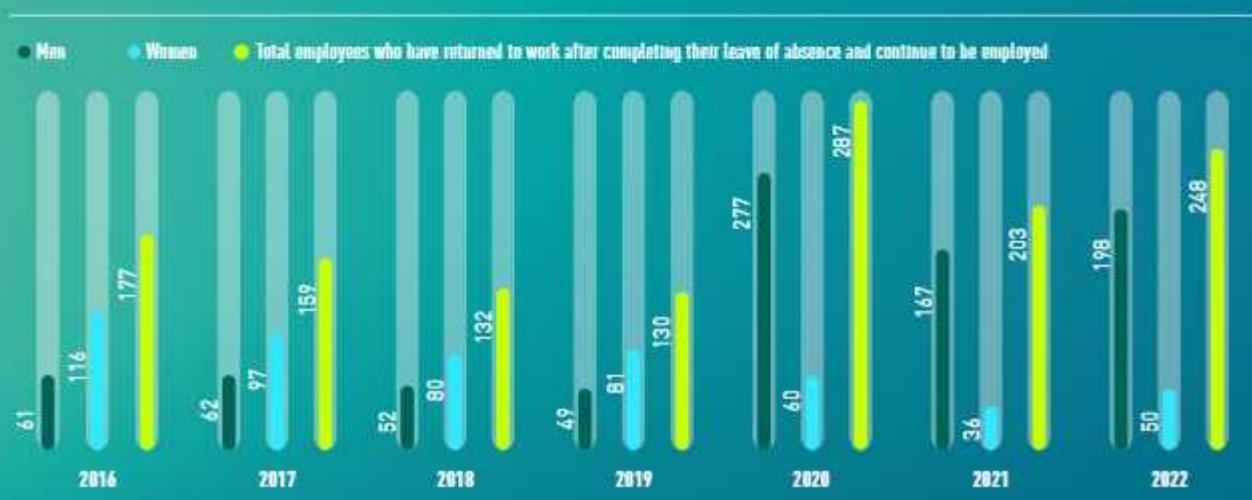
As of December 31, 2022, 99% of the employees who took a paternity or maternity leave continue to be employed by the Company.

Figure 50. | Total Employees Who Have Taken Parental Leave between 2016 and 2022, By Gender



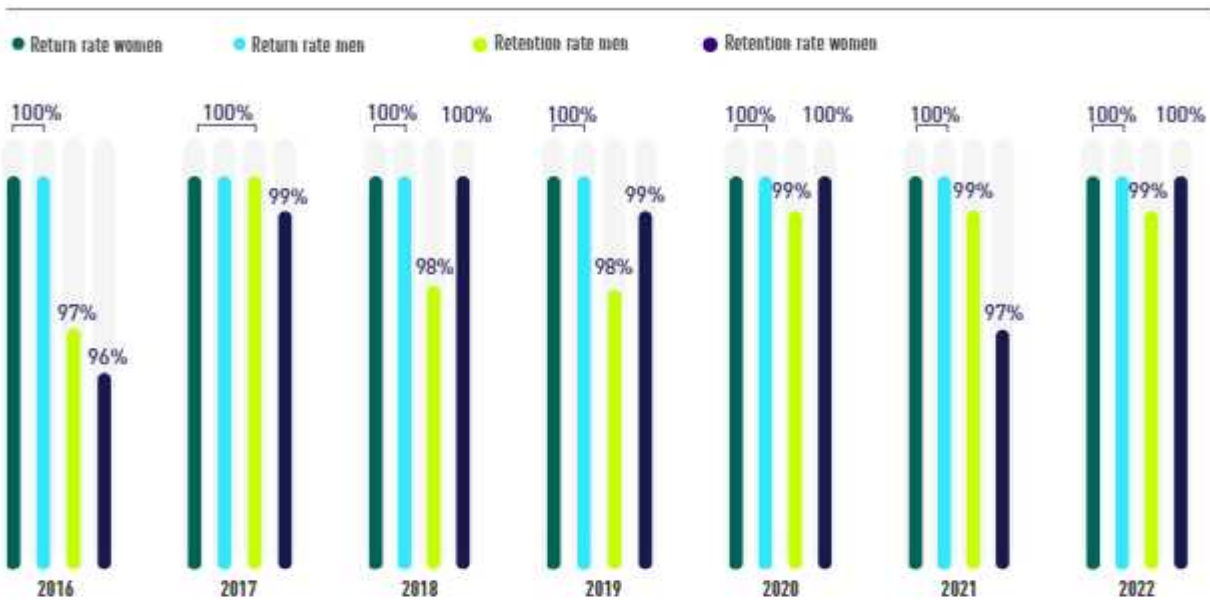
Source: Vice Presidency of Human Talent

Figure 51. | Total Employees Who Return to Work After the End of Parental Leave and that Remain Employed between 2016 and 2022, By Gender



Source: Vice Presidency of Human Talent

Figure 52. | Return to Work and Retention Rates of Employees Who Took a Parental Leave between 2016 and 2022, By Gender



Source: Vice Presidency of Human Talent

The implementation of **teleworking** was defined as of March 2022, within the framework of organizational needs, digital transformation, sustainable mobility, and human talent management, under the premises of worker loyalty, attraction, retention, and well-being, and in harmony with the productivity of the Company. The modality defined by Ecopetrol is referred to as Supplementary Teleworking, which allows workers to alternate their tasks between being in the Company and some other place on different days of the week using information technology.

The Company similarly offers another alternative referred to as **flexible schedule**, which also seeks to contribute to the work-life balance by allowing workers to opt for a schedule different than the usual, in accordance with the premises defined for each of the areas.



Variable Compensation

Variable compensation is a recognition granted by mere liberality by the Company for the results achieved, which is not guaranteed and will depend on the achievement of the defined goals.

All workers are eligible for annual variable compensation, provided that they meet the eligibility conditions established in current regulations, and their payment is subject to the approval of the Board of Directors.

Short-term variable compensation is paid annually based on business results (Grupo Ecopetrol TBG), considering discounts due to HSE events, ethical and disciplinary events, internal control aspects, and risks. It also considers the individual performance of workers.

The variable compensation for results achieved 2022 is reviewed between January and April 2023, once the results for the year are available and the individual performance evaluation process for the term is closed.

(ECP027)

Table 125. | Variable Compensation Paid in 2022

Variable compensation	Unit of measurement	2022
Number of employees eligible for variable compensation (period worked: 2021)	#	9,472
Percentage paid in 2022	%	103.6

Source: Vice Presidency of Human Talent

(GRI 201-3)
(WEF 18)

Retirement Plan

Ecopetrol, within the framework of the Human Talent planning process, continued to apply the **Retirement Plan** approved by the Company's Board of Directors to facilitate the dismissal, by mutual agreement, of personnel with more than 20 years of seniority and who met the other established requirements. This plan was designed and agreed with Unión Sindical Obrera within the framework of the 2018-2022 Collective Agreement. In 2022, 65 people took advantage of the **Retirement Plan**, adding up to a total of **580** workers who were dismissed under this modality between 2020 and 2022.



(GRI 201-3)
(WEF 18)

Obligations Under the Company's Defined Benefit Plan, Pension Plan, and Other Retirement Plans

By express mandate of Article 279 of Law 100 of 1993, Ecopetrol employees were exempt from being subject to the Comprehensive Social Security System contemplated therein.

Subsequently, Law 797 of 2003 included the employees who joined Ecopetrol from the entry into force thereof, that is, on January 29, 2003, in the General Pension System as mandatory affiliates; however, the exception contained in the aforementioned Article 279 of Law 100 of 1993 remained valid, pertaining to pensions of workers who had joined prior to that date.

The excepted pension regime expired on July 31, 2010, by virtue of the provisions of Legislative Act 01 of 2005, and therefore, as of August 1, 2010, all Company employees who did not acquire a pension right under Ecopetrol as of July 31 2010, are now covered under the General Pension System. Employees who received a retirement pension at Ecopetrol's expense for having consolidated their right on July 31, 2010 continue to receive allowances and social benefits (health services for the employee and their registered family members), as well as educational benefits at the Company's expense.

With respect to workers affiliated with the General Pension System, Ecopetrol makes the periodic contributions required by law. The respective pension administrators are now responsible for all the pension obligations. With regard the health and education benefits to which they are entitled, they are part of the labor liability payable by Ecopetrol.



Specific Fund to Meet Said Obligations

In 2008, Ecopetrol partially commuted the allowances amount under its pension liability, transferring said obligations and the corresponding monies to autonomous pension funds (PAP, as per its Spanish acronym). The funds transferred, or their earnings, cannot change their destination or be repaid to the Company until all pension obligations have been met.

The commuted obligation covers the payment of allowances and pension bonds; health and education disbursements remain under the labor liabilities payable by Ecopetrol.

A total of 12,100 pensioners are under Ecopetrol's responsibility, as of December 31, 2022, distributed as follows:

Table 126. | Number of Pensioners at Ecopetrol

Regional Unit	# of pensioners	%
Bogotá	2,844	23.50%
Caribe	1,196	9.88%
Central	6,636	54.84%
Orinoquía	86	0.71%
Sur	1,338	11.06%
Total	12,100	100%

Source: Vice Presidency of Human Talent

(GRI 401-1, 11-10-2) (WEF 17)

Strategic Workforce Planning

Ecopetrol uses People Analytics (PA) for its strategic workforce planning. This allows the Company to be better prepared for the future and have greater capacity to face internal and external changes. Currently, PA is used to address different human resource management challenges, such as talent retention, improvements in the hiring processes, learning and professional development, larger diversity among employees, and greater productivity.



Roadmap Talent attraction, development, and loyalty

Notable material element



[GRI 3-3]

Impacted Stakeholder Groups	Areas managing the impacts	Ecopetrol business line or segments generating the highest impact
Society and Communities	VTH	Upstream
Employees, pensioners, and their beneficiaries	VAB	Midsstream
		Downstream
		Commercial
		Low Emission Solutions

[GRI 3-3-a]

Why is the Element Material?

Employees are Ecopetrol's main asset. Due to the impact of talent management on the Company's performance, on the proper growth of the Colombian economy, and due to the priority given to it by Stakeholder Groups, it is therefore a notable material element recognized in the 2040 Strategy: Energy that Transforms, under the Pillar of Cutting-edge Expertise, which guarantees TSEG in the Ecopetrol Group on its path towards a just energy transition.

This material element ensures an optimal work environment, which in turn promotes learning and continuous training for the generation of skills.

[GRI 3-3-b]

Ecopetrol plays a fundamental role in preparing its different Stakeholder Groups towards a just energy transition "leaving no one behind." Inadequate human talent management will have a negative impact not only on the achievement of corporate goals towards this transition, but also on people's rights such as the right to work in decent conditions and the right to equality, inclusion, and non-discrimination, among others.

[GRI 3-3-c]

Policies and Commitments

In the 2040 Strategy, the Ecopetrol Group set out to ensure that **70%** of its workers develop cutting-edge expertise by 2030. This entails developing the necessary capacities to face the challenges for growth and TSEG.

[GRI 3-3-d]

How is the Material Element Managed?

The goals defined in the attraction, development, and loyalty roadmap are monitored by the Vice Presidency of Human Talent using the business indicators in the Balanced Management Board (TBG), which included the indicator of Re-tooling with Cutting-edge Expertise and Capabilities.

As part of the process risk cycle established by Ecopetrol, the relevant controls have been identified and implemented, and are permanently monitored, as a mitigation measure against possible existing risks.

How is the Material Element Evaluated?

To leverage the 2040 Strategy, Ecopetrol strives for its talent to achieve exceptional performance with the following goals:

- **70%** of workers retooled (Reskilling/Upskilling) by 2030.
- **95%** of workers and leaders with the respective certificates ratifying the skills acquired to perform their roles by 2023.
- Maintain favorability indexes at **90** in the Ecopetrol Group's Cultural Transformation index by 2030.
- **40** points in employee experience in the NPS (Net Promote Score) by 2030.
- Be the **#1** company in Human Talent attraction, development, and loyalty according to external measurements by 2030.

(GRI 3-3-e)

Short, Medium, and Long Term Goals and Projects

Projects in the lines of work

● Short Term: 0 to 2 Years

<ul style="list-style-type: none"> • People Retooling and retrofitting with new capabilities. 	<ul style="list-style-type: none"> • Planning the Human Talent of the future. 	<ul style="list-style-type: none"> • Retrofitting with new capabilities: upskilling and reskilling. 	<ul style="list-style-type: none"> • Learning platform for self-development.
<ul style="list-style-type: none"> • Certifications. • Strengthening the Culture: People and Organization 	<ul style="list-style-type: none"> • Implementation of the cultural appropriation strategy: continuous measurement (<i>Mirada al Espejo</i>). 	<ul style="list-style-type: none"> • Closing gaps in the results of <i>Mirada al Espejo</i>. 	<ul style="list-style-type: none"> • Simplification of the organization, processes, and technology.
<ul style="list-style-type: none"> • Culture laboratories. • Employee experience. 	<ul style="list-style-type: none"> • Implement an employee experience model. 	<ul style="list-style-type: none"> • Hiring and flexible work schemes. 	<ul style="list-style-type: none"> • Work schemes (<i>Economía del tiempo</i>).
<ul style="list-style-type: none"> • Strengthening the employer brand strategy. 	<ul style="list-style-type: none"> • Talent Management Analytics, Automation, and Digitization. 	<ul style="list-style-type: none"> • Analytics for better informed decisions in human talent processes. 	<ul style="list-style-type: none"> • Talent management automation and digitization.



Medium Term: 3 to 5 Years

- People Retooling and retrofitting with new capabilities.
- Planning, focus adjustments, and learning schemes.
- Strengthening the Culture: People and Organization.
- Employee experience.
- Review cycle of the Declaration of Culture.
- Review cycle and implementation of adjustments for more flexible work schemes.
- Talent Management Analytics, Automation, and Digitization.
- Strengthening advanced analytics, artificial intelligence, machine learning, and data-orientation in human talent at the Ecopetrol Group.

Long Term: More than 5 Years

- People Retooling and retrofitting with new capabilities.
- Planning, focus adjustments, and learning schemes.
- Strengthening the Culture: People and Organization.
- Review cycle of the Declaration of Culture.
- Employee experience.
- Review cycle and implementation of adjustments for more flexible work schemes.
- Talent management analytics, automation, and digitization.
- Human talent advanced management and assessment based on modern technologies.

(GRI 3-3-e)

Main Achievements in Managing the Attraction, Development, and Loyalty Roadmap

Efficiency monitoring has been conducted for the following indicators, and the main advancements are described below:

Table 127. | Main Achievements and Advancements in Attraction, Development, and Loyalty

Strategic options	Main achievements in managing material element roadmap	Advancements of each of the elements in 2022
<p>People Retooling (Continuous Learning and Development) and Upskilling with new capabilities (upskilling, reskilling)</p>	<ul style="list-style-type: none"> The Cutting-edge Expertise strategy was enabled by developing and strengthening the five (5) key skills for the Ecopetrol Group's strategy: Digital transformation, Energy transition, Execution, Agility, and Innovation. Efforts were deployed to ensure that the organization's technical team has the necessary skills to meet the corporate objectives of Energy Transition on the five work fronts: Circular Economy, Renewable Energies, Decarbonization, Fuel Quality, and Energy Efficiency. Digital skills were developed at Ecopetrol to improve operating performance and enable the sustainability and growth strategy. The necessary Innovation and Agility skills to address technological challenges and strategic decisions were developed. The practice of water injection in the production fields was standardized and implemented, with more than 493 attendees in the Recovery program. The operation of the Company's offshore projects was guaranteed, with more than 44 attendees in the offshore program. The Ecopetrol Group's Board of Directors program strengthened the operation of the boards of directors through the development of skills to capitalize on their executive experience in these areas. Talent Planning: The Talent Planning Process was defined and implemented for the first time, allowing the identification of the necessary talent to deploy the strategy in the short, medium, and long term. 	<p>Of the five skills defined, Ecopetrol was able to attain an installation rate of 98%, with a coverage of more than 6,213 people and completing more than 18,000 Cutting-edge Expertise learning actions.</p> <ul style="list-style-type: none"> Energy transition: More than 4,600 people adopted the skills Digital transformation: More than 1,766 people adopted the skills Agility: More than 1,380 people adopted the skills Innovation: More than 480 people adopted the skills Execution: More than 120 people adopted the skills <p>Two (2) years were invested in the development of learning methods and skills through Genius, with more than 12,000 Ecopetrol Group employees transforming the potential to take on the new challenges of growth and TSEG, producing +600 thousand contents in LXP Genius between videos, podcasts, readings, and others.</p> <p>More than 3,500 officials certified in law, industry, and internal regulations.</p> <p>The execution of the new Talent Planning process allowed the identification of the required future skills and an estimation of the necessary labor force, considering the current supply and future demand for talent. The 2022 scope included the business areas, and the 2023 scope will include the corporate areas and subsidiaries.</p> <p>The identified skills have allowed the University, together with the businesses, to build the 2023 Learning Plan, and the Labor Force estimate served as input to build Labor Expense scenarios.</p> <p>A tool was developed in-house to support the Talent Planning process with dashboards for Skills, Workforce Projection, Workforce Gap Identification, and Action Plan Records.</p>

Strategic options	Main achievements in managing material element roadmap	Advancements of each of the elements in 2022
<p>Strengthening the Culture (People and Organization)</p>	<p>Implementation of the Cultural Appropriation Strategy:</p> <p>Progress Indicators: Progress was made in the closing of gaps for each Cultural Principle, with significant advancements in the Innovation Strategy, Ethical Tour, HSE Strategies, and Diversity and Inclusion.</p> <p>Continuous Measurement (Mirada al Espejo): A strategy was defined to continuously measure progress in the appropriation of the Declaration of Culture. The <i>Mirada al Espejo</i> measurement of Our Declaration of Culture will be taken every two years and pulses will be applied in the intermediate years to confirm the progress of appropriation. A pulse facilitated by Mercer was taken at the end of 2022, whose initial goal was to obtain 40% of responses for a statistical confidence of 95%; however, the goal was exceeded with a 72% participation rate, which demonstrates the Company's interest in participating in the cultural transformation.</p> <p>Closing gaps in the results of <i>Mirada al Espejo</i>: it is worth noting that the question on Work and Life Balance increased significantly and that the levels of commitment remain very favorable. However, efforts must continue to improve communication from the leaders and to care for the health and emotional well-being of our collaborators.</p> <p>Culture Laboratories: Culture laboratories began to be implemented in digital projects in order to find the main adaptive challenges. Each of the projects has activities to close the main adaptive challenges.</p>	<p>Implementation of the Cultural Appropriation Strategy:</p> <p>*November 30, 2021.</p> <p>Advancement in the Pulse</p> <p>Progress was evinced in the following statements:</p> <ul style="list-style-type: none"> • By means of my objectives, I contribute to achieving the Company's results • In my team we know and practice the Code of Ethics • I value the benefits that I receive in addition to my salary and I feel committed to my Company • I am motivated to go beyond what is normally expected of me to contribute to the success of the Company • I can have a good balance between my work and my personal life



Strategic options	Main achievements in managing material element roadmap	Advancements of each of the elements in 2022
Employee Experience	<ol style="list-style-type: none"> 1. The last survey recorded a score of 4.6/5 in terms of satisfaction. 2. In Economy of Time <ul style="list-style-type: none"> • Launch of the #EnTusManos Balance Board for 800+ leaders and launch of live ideas to 8,600 employees. • Creation of a network of champions. • Improved from 68 to 73 points in the 2022 pulse question regarding wellness. 3. Employee Experience: <ul style="list-style-type: none"> • Definition of the ToBE Employee experience roadmap • EX Baseline • Implementation of flexible work measures 	<ol style="list-style-type: none"> 1. Work model: <ul style="list-style-type: none"> • 52% of employees work in shifts under the flexible schedule modality. • 15% of employees with the possibility of teleworking have requested a second teleworking city in Colombia. • 48% of the work team are teleworkers in relation to the plant. A flexible working model is available: Ecopetrol, 33% in the office and 67% at home - In the refineries: 3x2 and 2x3 model. 2. Economy of Time: <ul style="list-style-type: none"> • 20+ reports by Corporate Communications containing balance-related best practices, tools, and experiences. • Started the development of the 2nd Minimum Viable Product of the #EnTusManos Balance Board to add demographic filters, absenteeism data, and UX improvements. • Three (3) monthly meetings with balance explorers (201 champions). • Reviews by segment with the VTH team on the Balance agreements (Challenges x VP). • Statement of challenges x VP: progress testimonials from the Finance Vice-President, the Commercial and Marketing Vice-President, the Legal Vice-President, and the Corporate Compliance Vice-President. 3. Employee Experience <ul style="list-style-type: none"> • 36 workshops, 108 surveys, ASIS Journeys, and possible TOBE Journeys were conducted for the processes. • The actions to be deployed were defined. • The Net Promoter Score (NPS) baseline was obtained to measure employee experience. • Implementation of supplementary teleworking, flexible hours, second teleworking site, and the first cases of autonomous teleworking were enabled for particular cases.



Strategic options	Main achievements in managing material element roadmap	Advancements of each of the elements in 2022
<p>Talent Management Analytics, Automation, and Digitization.</p>	<p>1. Analytics for better informed decisions in Human Talent processes</p> <p>1.1 Incorporation of analytical models to support decision making: Baseline measurement of the analytical maturity of VTH, with a satisfactory result.</p> <p>1.2 Use of standardized metrics for Human Talent processes in the Ecopetrol Group: Creation of a single repository for data queries and analytics.</p> <p>2. Talent management automation and digitization</p> <p>2.1 Standardization of digital platforms for human talent management and automation of data consolidation for all human talent processes at the Ecopetrol Group: 22 automations in Human Talent processes and initiation of the Subsidiary Data Transmission Automation project.</p> <p>2.1 Using artificial intelligence to predict and improve the management of Human Talent processes and worker experience: The data lake (Datamart) and the Human Talent Laboratory are created.</p>	<p>1. Analytics for better informed decisions in Human Talent processes</p> <p>1.1 Incorporation of analytical models to support decision-making: a score of 2.3/4.0 was attained in the VTH analytical maturity measurement taken by consultancy firm Accenture, ranking higher than industries such as Banking and Communications. This measurement follows the efforts exerted in 2021 and 2022 and serves as a baseline measurement to mark growth for human talent.</p> <p>1.2 Use of standardized metrics for Human Talent processes in the Ecopetrol Group: "Cerebro" was created as a single repository for data queries and analytics, with 55 dashboards to date with personnel process metrics, which have gradually started to incorporate information on the Ecopetrol Group, including the description of fields and data sources that make up each data asset.</p> <p>2. Talent management automation and digitization</p> <p>2.1 Standardization of digital platforms for the management of human talent and data consolidation automation for all human talent processes at the Ecopetrol Group: 22 automations were implemented as technological improvements, including the following: Budget control of positions in SuccessFactors, birthday and work anniversary card, Genius user flow and information reporting, mass upload of requisitions, progression and promotions form and budget control, approval flows applicable to framework and temporary contracts on mission, among others. Start of the subsidiary data transmission automation project, whose purpose is to obtain around 268 data fields from Human Talent processes, automating the delivery and verification of the information provided by sending it only to Datamart to generate unified query views for the 15 subsidiaries. The first Minimum Viable Product is created in 2022, with a data loading powerAPP, which is an application programming interface [API] for capture and direct connection with the parent company and one of the subsidiaries.</p> <p>2.2 Using artificial intelligence to predict and improve the management of Human Talent processes and worker experience: The data lake [Datamart] is created, which is the foundation of the necessary infrastructure to centralize and store a greater amount of data; and the Human Talent Laboratory is also created to design statistical models and artificial intelligence to solve the hypotheses proposed for improving workers' experience and optimizing the management of human talent processes.</p>

Indicators	Progress made by each of the indicators in 2022	Goal
Human talent re-tooling with cutting-edge expertise and the necessary skills (RCC).	Installation of the skills required by human talent for the execution of the strategy with a 98% compliance rate.	80% (2022)
NPS@ Employees	2022 Pulse: 79 - included only a sample of the population	30 (2023)
Merco Personas (Merco Talento)	Ecopetrol ranked first in 2022 among the best companies to attract and retain talent in Colombia	First place by 2030
Human Talent chapter on sustainability indicators: Dow Jones	Ecopetrol scored 75 out of 100, climbing seven (7) points compared to the 2021 measurement and to the variables of the Human Talent Vice Presidency; in 2022, the Company obtained the maximum score for the first time in five (5) more variables: Discrimination & Harassment, Workforce Breakdown: Race/ Ethnicity & Nationality, Employee Development Programs, Hiring, Employee Engagement Trend.	70 points (2023)

Source: Vice Presidency of Human Talent

(3-3-e)

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

The implementation of lessons learned is reflected in the organizational changes and permanent reviews and improvements made on Ecopetrol processes. The cultural transformation has leveraged the creation of value between 2015 and 2022; and ultimately, the transformation of cutting-edge expertise will leverage the energy transition between 2023 and 2030, upon being incorporated into the 2040 Strategy: Energy that Transforms.

(GRI 3-3-f)

How are Stakeholders Involved in Taking Action to Manage the Material Element?

The material element of attracting, developing, and retaining talent mainly involves the Employees Stakeholder Group.

The identification of the skills required by each worker, as well as their required level, began in 2022. The learning actions were subsequently assigned according to the skill and compliance therewith was monitored. The commitment of each worker to their learning and the development of new skills is essential for the achievement of corporate goals in this regard.

Capabilities, Knowledge, and Skills

[GRI 404-2, 11-10-7] (WEF 16)

The Ecopetrol Group defined **Cutting-edge Expertise** in its 2040 Strategy: "Energy that Transforms," defining five (5) key skills for the materialization thereof. To this end, programs focused on the following scopes were established:



Energy transition:

Create, develop, and manage low-emission businesses and projects that accelerate decarbonization and diversification. This seeks to ensure that the technical team acquires the necessary skills to meet the corporate objectives in the five (5) lines of work: circular economy, renewable energy, decarbonization, fuel quality, and energy efficiency. Among others, it will boost the development of circular thinking, the development of skills by structuring renewable energy business cases, the development of skills that favor the reduction of emissions, and the management of the greenhouse gas inventory, and the optimization of energy demand. More than **27,000** content pieces have been completed to date by the work team.



Digital transformation:

Seeks to develop digital skills to improve operating performance and enable the TESG and growth strategy, while preventing reprocessing by managing the support information. More than **28,000** content pieces have been completed to date.



Agility:

Adjust work schemes, processes, and decision-making to respond quickly to market changes and generate greater value. More than **5,900** content pieces have been completed to date.



Innovation:

Generate improvements, create new alternatives and solutions, and develop products that leverage growth and TESG. More than **3,900** content pieces have been completed to date.



Execution:

Take responsibility for the necessary activities to achieve the established results, supporting others in the construction of a common purpose. More than **500** actions have been completed to date.

(GRI 404-2, 11-10-7) (WEF 16)

The Master's and PhD program Abroad offers opportunities for the Ecopetrol team to develop cutting-edge expertise in the best universities in the world. **68** scholarship holders have benefited from this program (period 2017-2022) in areas of study such as energy resources, environment, earth sciences, seismic modeling, and others.

The language program seeks to establish a level of functional language in the work environment with different strategies: virtual, customized online, immersion abroad. More than **3,000** workers have benefited from this program.

A team of **37** operators from the Barrancabermeja refinery obtained their professional degree in Refining and Petrochemical Process Engineering from Universidad Industrial de Santander (UIS). This program strengthened the ties between the academy and the industry, as well as professional growth, and improved the execution of processes.

As part of the initiative for the generational succession of operators structured by the Vice Presidency of Refining and Industrial Processes, **59** operators completed the FIBO Comprehensive Basic Operator Training Program. This program seeks to instill the Company's Declaration of Culture in new workers, as well as the fundamental concepts of the operation and the industry, while promoting collective leadership, operating excellence, diversity and inclusion, and exceptional performance.



(ECP008) (WEF 16)

The Company invested a total of **47,980,099,804 COP** in 2022 for the training of its workforce.

(GRI 404-1, 11.10.6) (WEF 16)

Table 128. Average Employee Training Hours, by Job Category

Average training hours per employee, by job category	Total number of training hours	Average training hours per employee
Senior management	537	29.83
Management	8,258	67.14
Middle management	51,010	74.68
Supervision	56,602	135.74
Professional technician	481,568	76.90
Operating	213,813	107.28
Total	811,788	491.58

Source: Vice Presidency of Human Talent

(GRI 404-1, 11.10.6)

Table 129. Average Employee Training Hours, By Gender

Average training hours per employee, by gender	Total number of training hours	Average training hours per employee
Men	655,331	92.72
Women	156,457	64.44
Total	811,788	157.16

Source: Vice Presidency of Human Talent



7,198 EMPLOYEES RECEIVED TRAINING IN CLIMATE CHANGE AND ENERGY TRANSITION

(TCFD G-3)

(GRI 404-1, 11.10.6)

Table 130. | Total Number of Hours Dedicated to Training in Human Rights Policies or Procedures

Training in human rights policies	Unit of measurement	2022
Total number of hours dedicated	#	5,673
Number of employees receiving training	#	2,107
Percentage of employees receiving training	%	22.19

Source: Vice Presidency of Human Talent

375

In 2022, **7,198 employees** received training in climate change and energy transition through the following programs:




-  Energy Transition Program in partnership with Instituto Francés del Petróleo (IFP), aimed at learning about the global challenges to mitigate climate change and better understanding the lines of action defined to achieve Ecopetrol's decarbonization goals. The IFP School is an entity associated with the energy industry in terms of innovation and sustainable development.
-  Programs were designed and executed in partnership with Waste2worth concerning the financial model of circular projects, life cycle analysis, and circular indicators.
-  Contents on fuel quality, decarbonization, circular economy, energy efficiency, energy transition, and climate change were developed, with more than 31,000 actions deployed by **7,198** workers during 2022.

Table 131. | Training and Development

	Unit of measurement	2022
Average training and development hours by FTE	Hours	85,487
Average investment in training and development by FTE	COP	5,061,192

Source: Vice Presidency of Human Talent

Culture

Employee experience

Ecopetrol changed the periodicity of the "Mirate al Espejo" Cultural Transformation Index. This currently takes place every two (2) years to be able to act on the results of the survey. However, the Company has implemented a listening strategy to continually survey employees on specific growth opportunities.

In 2022, Ecopetrol conducted a workforce pulse (survey) to obtain feedback on levels of commitment, and the result remains "highly favorable" compared to the benchmark. This shows that the employees of the Ecopetrol Group are very much committed to the Company **(96%)**.

Table 132. | Level of Commitment

Commitment	Unit of measurement	2019	2020	2021	2022
Workforce commitment	%	65.3	96	96	96*
Percentage of data coverage	%	91.6	82	92	92

* 2022 employee commitment target: 96%

Source: Vice Presidency of Human Talent

For more actions and results associated with the appropriation of culture, [click here](#).



Diversity and Inclusion

The Ecopetrol Group is committed to highlighting the importance of diversity, embracing differences, and promoting the development of increasingly inclusive environments, where all people feel welcome, appreciated, treated fairly and with respect, and in which they have access to equal opportunities so that they contribute the best of themselves.

In terms of human talent, the Company adopts labor practices aligned with this framework, applicable to the Board of Directors, senior management, and all people working at the Ecopetrol Group. In this sense, it is worth highlighting the **Diversity and Inclusion Program (DEI)**, which is based on the principles of meritocracy, equity, and justice. Below are some advancements and achievements:





1 The team of diversity sponsors and champions continues to grow: the Ecopetrol Group has **32** senior³³ management sponsors and 931 volunteer champions who promote the program.



Talent diversity is thriving: in four

(4) YEARS,

the participation of women in leadership positions has increased by 12.5 percentage points, from 18% to **30%** in Ecopetrol, and 24% to **31%** in the Ecopetrol Group.



The plant employs more than **566 people with disabilities (6%)**, predominantly physical disabilities accounting for **80%**, followed by **9%** with mental challenges.



Ethnic self-identification and other social and cultural conditions are monitored every two years by means of the Culture survey, which was conducted in 2021. **7%** of the population identifies itself as an ethnic minority (Afro-descendant, Indigenous, Black, others). The cultural pulse was conducted in 2022 **(69% COVERAGE)** whose results showed that **5%** identified themselves as an ethnic minority.



The number of Ecopetrol employees with same-sex partners grew from **9 TO 27.**

To learn more about the composition of the labor force, click this [link](#).



Ecopetrol made progress in the objectives of providing a more inclusive experience for all Stakeholder Groups and achieving high standards of diversity, equity, and inclusion:

- **Inclusive environment:** people in the Group rate their diversity and inclusion experience at **93%**; women rated it at **94%** compared to men at **92%**.
- Ecopetrol becomes a **global diversity and inclusion benchmark in the oil & gas sector**, chosen as 1 of the 3 best companies, out of more than 1,000 applications from **62 countries** submitted to the ADIPEC AWARDS 2022 (the most prominent global meeting event in the energy industry).
- **Adherence to UN conduct principles and standards** for companies that address and prevent discrimination against the SOGI (Sexual orientation and Gender Identity or LGBTQ+) population.

³³ Sponsors in the Ecopetrol Group are distributed as follows: Seven (7) from Ecopetrol, seven (7) from Dicensa, five (5) from Cerit, seven (7) from Esentia, one (1) from ECP America-USA, three (3) from Hocol, one (1) from ODC, and one (1) from OOL, for a total of 32 sponsors.

- **Adherence to WEPs Principles** (Women Empowerment Principles), scoring **91** points and a leading rank in the measurement.
- First time implementation of the **UN LGBTIQ+** Standards Gap Analysis Tool, with a rating of **85% at the leading level**.
- Third place in the **Ranking of Inclusive Companies** (emphasis on LGBTI) awarded by the National Consultancy Center, in partnership with the LGBTI Chamber of Commerce of Colombia, with a score of **88%**.
- 4th measurement in the **Ranking Pair** (going to the version of private companies), ranking **2nd**, with **81** points, amongst the companies with more than 5,000 employees in Colombia.
- **2022 Iberoamérica Incluye Award to the Disability pillar** under the Diversity and Inclusion Program.

Ecopetrol continues to excel in DEI in 2022:

- **Inclusive Company Seal:** Ecopetrol was awarded the highest inclusion recognition by ANDI, USAID Colombia's Program of Alliances for Reconciliation, ACDI/VOCA Colombia and Deloitte.
- **Friendly Biz Corporate Seal:** Ecopetrol obtained this seal awarded by the Colombian LGBT Chamber of Merchants, and audited by Future Builder, to companies committed to the respect and inclusion of the LGBT+ community.
- **Equipares Silver Seal:** Ecopetrol is bestowed the Equipares Silver Seal (System for Gender Equality) with a rating of 98.47%. Ten (10) Group companies have already adopted processes in favor of gender equality.
- **Club del 30%:** Ecopetrol adheres to the initiative that promotes greater participation of women in boards of directors.
- **Global Diversity, Equity, and Inclusion Benchmark (GDEIB):** in the maturity verification of the GDEIB standard, Ecopetrol was rated 4.0/5.0 (progressive level) by expert panelists authorized by the Center for Global Inclusion.
- **Valuable 500:** global alliance of the 500 most influential companies driving the disability agenda.



The following indicators are monitored to ensure that the Company is fulfilling its promise of being a diverse and inclusive workspace:

(GRI 405-1,
11-11-5)
(WEF2, 11)

Table 133. | Percentage of Employees by Job Category and Gender.

Employees by job category	Men	Women	Total
Senior management	14	4	18
Management	89	34	123
Middle management	473	210	683
Supervision	410	7	417
Professional technicians	4,239	2,023	6,262
Operating	1,843	150	1,993
Percentage of senior management	77.778%	22.222%	100%
Percentage of management personnel	72.358%	27.642%	100%
Percentage of middle management	69.253%	30.747%	100%
Percentage of supervision personnel	98.321%	1.679%	100%
Percentage of professional technicians	67.694%	32.306%	100%
Percentage of operating personnel	92.474%	7.526%	100%

Source: Vice Presidency of Human Talent

(GRI 405-1,
11.11.5)
(WEF2, 11)

Table 134. | Percentage of Employees by Job Category and Age Group.

Employees by job category	Under 30 years	Between 30 and 50 years	Over 50 years	Total
Senior management	0	6	12	18
Management	0	69	54	123
Middle management	0	491	192	683
Supervision	0	248	169	417
Professional technicians	365	4,620	1,277	6,262
Operating	109	1,269	615	1,993
Percentage of senior management	0%	33.333%	66.667%	100%
Percentage of management personnel	0%	56.098%	43.902%	100%
Percentage of middle management	0%	71.889%	28.111%	100%
Percentage of supervision personnel	0%	59.472%	40.528%	100%
Percentage of professional technicians	5.829%	73.778%	20.393%	100%
Percentage of operating personnel	5.469%	63.673%	30.858%	100%

Source: Vice Presidency of Human Talent

(GRI 405-1,
11.11.5)
(WEF2, 11)**Table 135. |** Percentage of Employees
by Job Category and Other Diversity Indicators

Employees by job category	Ethnic minority	People with disabilities	LGBTQI+	Total
Senior management	1	0	0	1
Management	0	0	0	0
Middle management	7	11	0	18
Supervision	0	55	3	58
Professional technicians	219	211	20	450
Operating	104	289	4	397
Percentage of senior management	0%	0%	0%	100%
Percentage of management personnel	0%	0%	0%	0%
Percentage of middle management	38.889%	61.111%	0%	100%
Percentage of supervision personnel	0%	94.828%	5.172%	100%
Percentage of professional technicians	48.667%	46.889%	4.444%	100%
Percentage of operating personnel	26.196%	72.796%	1.088%	100%

Source: Vice Presidency of Human Talent

(GRI 2-27,
405-1, 11.11.5)
(WEF2, 11, 17)**Employees by Job Category and Other Diversity Indicators****Table 136. |** % of FTE for Diversity Indicators

Diversity indicator	% of FTEs	Is the indicator public?	Coverage
People with disabilities	6	Sí	>75% of FTEs
LGBTQI+	0.3	Sí	<25% of FTEs
<30 years	5	Sí	>75% of FTEs
30-50 years	71	Sí	>75% of FTEs
>50 years	24	Sí	>75% of FTEs
Others --> Inclusive education plan	3	Sí	>75% of FTEs

Source: Vice Presidency of Human Talent

[405-2, 11.11.6]
[WEF11]

Table 137. | Female Representation in Work Positions

Diversity indicator	Percentage (0 - 100%)	Public target	Target year
Percentage of women in the total workforce (as a % of total staff)	26%	0%	0
Percentage of women in all managerial positions, including junior, middle, and senior managers (as a % of total managerial positions)	30%	0%	0
Percentage of women in junior or entry-level management positions (as a % of all junior management positions)	31%	0%	0
Percentage of women in senior management positions, i.e., at most two levels from CEO or comparable positions (as a % of total senior management positions)	27%	0%	0
Proportion of women in leadership positions in revenue-generating roles (such as sales), as a % of all managers of this type (i.e., excluding support roles such as HR, IT, Legal, etc.)	23%	0%	0
Proportion of women in leadership positions in revenue-generating roles (such as sales), as a % of all managers of this type (i.e., excluding support roles such as HR, IT, Legal, etc.)	19%	0%	0

Source: Vice Presidency of Human Talent

[GRI 405-2,
11.11.6]
[WEF12, 19E]

Table 138. | Ratio of the base salary and remuneration payable to women compared to men for each job category.

Salary ratio	Female average salary	Male average salary	Proportion
Executive level (base salary only)	848,214,624	1,043,013,039	0.81
Executive level (base salary + other cash incentives)	1,060,268,280	1,364,897,915	0.78
Management level (base salary only)	383,543,784	412,416,477	0.93
Management level (base salary + other cash incentives)	444,832,228	482,289,854	0.92
Non-administrative level	213,812,577	198,654,590	1.08

Source: Vice Presidency of Human Talent

[ECP026]

The average wage difference in 2022 between men and women was 2.1% (salary segregation*).

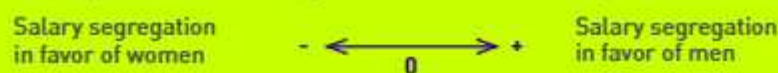
Salary Segregation Index*

The salary segregation index is designed to monitor the salary differences between population groups. Both men and women are used for the current base.

Whenever the index = 0, there is no salary gap, i.e., the closer it is to zero, then there is an equitable salary distribution, regardless of gender or sex.

SALARY SEGREGATION INDEXES	2019	2020	2021	2022
	2.24	2.18	2.94	2.10

To analyze the **level of the position**, the result is interpreted as follows:



*Equipares Methodology

(GRI 405-2, 11-11-6) (WEF12, 19E)

(GRI 2-30, 407-1, 11-13-2) (WEF21E)

At Ecopetrol, the results of the equal pay analysis are similarly supervised and disclosed.³⁴

Table 139. | Diversity indicator

Breakdown	Percentage of total labor (as a % of total labor)	Percentage in all managerial positions, including junior, middle, and senior managers (as a % of total managerial workforce)
Afro-descendant	2.12%	1.3%
White	31.8%	42%
Native	0.5%	0.3%
Mestizo	62.9%	55.4%
Black	1.1%	0.7%
Other ethnicities	1.6%	0.3%

Source: Vice Presidency of Human Talent

To learn more about the Diversity and Inclusion Program, click on the following [link](#).



Well-being of Collaborators

The Well-being Plan promotes the balance between work and personal life and good physical and emotional health for collaborators to develop their full potential and contribute to the sustained growth of the Company's strategy. This plan consists of three **(3) interrelated pillars**: Have fun / Share / Take care of yourself

Mobility:

Ecopetrol implements mechanisms that facilitate the assignment of its workers to other Group companies and external entities, as well as transferring them to different regions in the country within the company, under the principles of equity and ensuring competitive conditions.

Internal Mobility

Internal mobility at Ecopetrol can take place permanently in a new workplace, or temporarily by ensuring the worker's the return to his/her original workplace.

A total of **384** people were transferred in 2022: 296 **(77%)** to new permanent workplaces and 88 **(23%)** were temporary transfers. The total number of workers transferred was 358, given that a worker may be transferred more than once during the year. Below is a breakdown of this population:



MEN:
273 (76%)



WOMEN:
85 (24%)

³⁴ The equal pay analysis is reported on a >75% FTE.

Figure 53. | Type of Internal Mobility



Source: Vice Presidency of Human Talent

Figure 54. | Internal mobility of workers



Source: Vice Presidency of Human Talent

External Mobility

External mobility at Ecopetrol applies when a leadership, tactical, or operating position/role needs to be covered in one of the Group Companies due to organizational needs or because of a collaboration agreement entered into with state entities. This process can take place with or without suspending the employment contract. At the level of State entities, it is always without suspending the contract.

As of December 31, 2022, there were a total of 245 ongoing processes for external mobility assignments; a total of 239 (98%) cases with suspended contracts and 6 (2%) with active contracts. 99% of the processes correspond to assignments to companies within the Ecopetrol Group and 1% to different external entities. The gender classification is as follows:



MEN:
221 (90%)



WOMEN:
24 (10%)

Figure 55. | Ecopetrol Group Assignments / Others



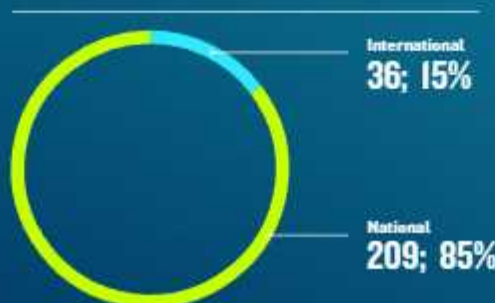
Source: Vice Presidency of Human Talent

Figure 56. | Type of Mobility



Source: Vice Presidency of Human Talent

Figure 57. | Geographic Scope



Source: Vice Presidency of Human Talent

(GRI 404-3)
(SFC 7.4.1.
3.1.VII)

Performance Evaluation

Table 140. | Employees By Gender and By Job Category Who Have Undergone a Periodic Evaluation of Their Performance and Professional Development During the Reporting Period

Performance evaluation and professional development	Men	Women	Total percentage of employees
Senior management	0.16%	0.04%	0.2%
Management	0.95%	0.37%	1.32%
Middle management	1.74%	0.98%	2.72%
Supervision	3.32%	1.28%	4.6%
Professional technicians	49.08%	21.08%	70.16%
Operating	19.43%	1.57%	21%
Total	74.68%	25.32%	100%

Source: Vice Presidency of Human Talent

Note: This table lists the percentage of Ecopetrol's direct employees by position level and gender. The performance evaluation model applies to 100% of direct collaborators, with 9,122 collaborators evaluated by the end of the year.

Table 141. | Type and Employee Coverage of Individual Performance Evaluations Used for Performance-related Individual Compensation.

Performance evaluation type	% of employees
Performance by objectives: systematic use of agreed and measurable goals	100%
Multidimensional performance evaluation (180°)	18.62%
Comparative ranking between employees in the same job category	100%

Source: Vice Presidency of Human Talent

The decrease recorded in the 360° evaluation in 2022, with respect to the previous period, was due to the prioritization of the retooling strategy in the Company. For 2023, the plan is to apply the 360° evaluation again to **100%** of the population of eligible leaders.



(ECP010)

Succession

Leaders and succession candidates are continually appraised at Ecopetrol, in order to define development plans to prepare them in advance. This is a cyclical process and one that is reviewed each year to include new critical leadership positions and new candidates as potential successors. This is one of the key resources in the Company to guarantee that leadership positions are filled accordingly.

By year end in 2022, **398** critical leadership positions subject to succession were defined for Ecopetrol: **22** corresponding to senior management levels, **124** to management levels, **158** to heads of department, **55** to coordinators, and **39** to other leaders. To this end, the Company has a total of 1,283 succession candidates, 467 women (**36%**) and 816 men (**64%**). The results of the process are consolidated at the end of 2022 into 26 talent maps encompassing all companies under the Ecopetrol Group. The Group's cross-cutting committees were established for a comprehensive view of the human talent in the Company by role (for example: supply, audit, legal, compliance).

(ECP009)

Leadership Development:

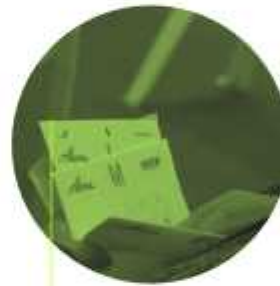
School of Culture and Leadership:

Set of learning experiences to develop and strengthen leadership skills and the management of leaders and successors in the Company, consisting of:



Formal training

Apprenticeship courses with partner institutions.



Learning through third parties

Coaching and mentoring.



Exposure and practice

Assignment to different roles.



Leadership certification

Which requires the fulfillment of requirements associated with expertise, implementation, and results, allowing the organization's leaders to be certified in one of the four (4) defined levels (bronze, silver, gold, and diamond).

(ECP009)(SFC
7.4.1.3.1. VII)

360° Evaluation for Leaders

This is a development tool based on the measurement of the leadership skills of the person appraised throughout their different networks of engagement (boss, collaborators, peers, and clients) in order to have a broad understanding and perspective of their role as leaders. This tool can be used to measure the evolution in the development of skills of the persons who have already been previously evaluated, and also to determine the current level of development of those who are just being included in the evaluation group.

This measurement has been refined over four (4) editions at Ecopetrol, which has allowed us to see the evolution of the valued skill set. A scale of four (4) levels of development has been defined: (1) leader with potential

failure, (2) leader in development, (3) competent leader, and (4) extraordinary leader; in this way, the leaders appraised under the methodology are classified into one of these levels to define the corresponding support plan in their development process.

The strategy of assessing these competencies has been progressively applied to different levels of leadership throughout the various editions, beginning with vice presidents and expanding coverage to managers and subsequently to heads of department and coordinators. Ecopetrol has increased its level of development in the competent leader category from **66%** in 2018 to **97%** in 2021. The overall result of the last measurement taken in 2021 stood at 4.32/5.

Talent Relay

(GRI 401-1,
11-10-2)
(WEF 17)**Table 142** | New Hires by Age in 2022

New hires by age	Number of new hires (#)	New hire rate (index)
Under 30 years	157	29.02
Between 30 and 50 years	362	66.913
Over 50 years	22	4.067
Total	541	100

Source: Vice Presidency of Human Talent

(GRI 401-1,
11-10-2)
(WEF 17)**Table 143** | New Hires by Gender in 2022

New hires by gender	Number of new hires (#)	New hire rate (index)
Women	186	34.381
Men	355	65.619
Total	541	100

Source: Vice Presidency of Human Talent

(GRI 401-1, 11-10-2)(WEF 17)

Table 144. | New Hires by Region in 2022

New hires by region	Number of new hires (#)	New hire rate (index)
Central	165	30.499
Bogotá	265	48.983
Caribe	37	6.839
Orinoquía	32	5.915
Sur	10	1.848
Oriente	32	5.915
Total	541	99.999

Source: Vice Presidency of Human Talent

(GRI 401-1)

Table 145. | Internal Recruitment

% of internal recruitment	Unit of measurement	2019	2020	2021	2022
Total number of hires	#	603	96	96	96*
% of vacancies filled with internal candidates	%	91.6	82	92	92
Average Cost of Hiring/FTE	COP	2,652,848	3,423,808	2,149,533	3,040,838

In developing the diversity and inclusion policy and objectives, several affirmative measures were implemented to increase the participation of underrepresented groups in the Company:

- 1** Development and training of the selection team and people in leadership positions involved in the inclusive recruitment and selection process. This training seeks to strengthen workers' diversity, equity, and inclusion skills. Some of the topics included are: how to conduct inclusive recruitment, guidelines to mitigate the effect of unconscious biases in the selection process, guidelines for conducting interviews without biases and considering differential treatment, business diversity objectives, among others.
- 2** Strategic diversity objectives were also established for all Ecopetrol positions: A more diverse talent: ensuring a **40-70%** participation rate of underrepresented groups or that face more barriers to labor inclusion in the selection process by 2030.
- 3** An affirmative measure applies in the case of leadership vacancies, which requires the participation of at least one female candidate in the processes that are opened. This measure has allowed Ecopetrol to break the glass ceiling in 2022, with a **30%** participation of women in these positions (considering that it was 18% when it was first implemented in 2018).

Ecopetrol adopts business practices to employ local people at the operating sites for at least **80%** of the sites owned or operated by the Company. In compliance with Decree 1668/16, pertaining to local labor, the announcements referred to in said regulation were published on the Public Employment Service's webpage. Click [here](#) for more information on the recruitment process.



(ECP 009)

Skills Assessment

The skills assessment defines the focus of resources in terms of training, and it is therefore essential for it to be conducted under the principles of validity, objectivity, confidentiality, and integrity. Usually, the process is led by experts/technical references and leaders within the organization, and it can be done using one of the following mechanisms available: Implementation of instruments/technical assessment interviews, certifications by an accredited entity, evaluation of the learning cycle, compliance with the training curriculum and/or development plan, endorsement by a technical expert or leader, and the selection process. The validity of the assessment results ranges from one (1) to five (5) years maximum, depending on the mechanism used, provided that there are no significant changes in the skills associated with the profile of the evaluated collaborator. Currently, the appraisals of **95%** of the petrotechnical population and **65%** of the general population continue to be valid.

(GRI 401-1, 11-10-2)(WEF 17)

Staff Turnover

Table 146. I Staff Turnover by Management level, Age, Gender, Region

	Hires	Dismissals	Beginning of 2022	End of 2022	Staff turnover rate
Total Turnover Rate	533	365	9,322	9,496	4.77
Turnover Rate by Management Level					
Senior management (extended Steering Committee - President, Vice Presidents, and Managers who are on the extended committee)	0	1	26	24	2
Management (all other Managers)	3	16	125	117	7.85
Middle management (Heads of Department, Coordinators, and A, B, C, and D leaders)	20	32	614	681	4.01
Supervision (Supervisors)	0	11	477	484	1.14
Professional technician (map of professional technical positions)	410	223	6,078	6,197	5.16
Operating (map of operating positions)	100	82	2,002	1,993	4.55
Turnover rate by age					
Under 30 years	153	77	415	476	25.81
Between 30 and 50 years	359	128	6,418	6,434	3.79
Over 50 years	21	160	2,489	2,586	3.57
Turnover rate by gender					
Women	183	115	2,350	2,428	6.24
Men	350	250	6,972	7,068	4.27

	Hires	Dismissals	Beginning of 2022	End of 2022	Staff turnover rate
Voluntary turnover rate	533	104	9,322	9,496	3.38
Turnover rate by region in Colombia					
Bogotá	255	166	3,246	3,351	6.38
Caribe	37	22	1,099	1,115	2.66
Central	167	138	3,371	3,390	4.51
Oriente	32	3	304	334	5.48
Orinoquía	32	25	919	933	3.08
Sur	10	11	383	373	2.78

Source: Vice Presidency of Human Talent

Note: The time horizon taken for the calculations in this report was the entire year of 2022.

(ECP 009, 010)
(GRI 404-2,
11-10-7)
(WEF 16)

Development of Leadership Skills in Key Talent



New Generations Program: investing in the growth of new generations of talent is part of the “retooling” required at Ecopetrol to anticipate future challenges.



Seedbeds: seeks to promote the development of seed talent as drivers of change and cultural transformation to energize the Ecopetrol talent, strengthen the advancement of current projects, and ensure a generational relay.

389

The New Generations and Seedbeds programs covered 694 hours of training, with the participation of 207 Ecopetrol workers.



High Potentials: seeks to accelerate the comprehensive evolution of professionals with high growth potential in order to strengthen the leadership, strategic thinking, and management skills required in the Company’s new context of transformation and challenges. It is a competitive advantage since it consolidates the foundations for the next generation of talent at Ecopetrol and retains the most talented professionals.

(GRI 230, 407-1,
11-13-2)
(WEF 21E)

Association and Collective Bargaining

Ecopetrol’s internal regulations ensure respect for the rights of workers, such as the constitutional right to freedom of association and freedom of union. As proof thereof, there are currently **28** coexisting union organizations in the Company, of which **19** are industry unions and nine **(9) are company** unions, according to the classification of the Law [Article 356 of the Substantive Labor Code].

(ECP011)

Industry Unions

1. **ADECO**
Association of Workers, Managers, Professionals, and Technicians of Companies engaged in the Economic Activity involving the Natural Resources of Oil, Fuels, and Derivatives.
2. **ASINPE**
Trade Union Association of Oil Industry Workers
3. **ASINTRAHC**
Trade Union Association of Hydrocarbon Industry Workers in Colombia
4. **ASOPETROGAS**
Trade Union Association of the Oil and Gas Industry
5. **SINANPE**
National Oil Industry Union
6. **SINATRINHI**
National Union of Hydrocarbon Industry Workers
7. **SINDEIP**
Oil Industry Union
8. **SINDINAPETROLEO**
National Oil and Industry Union
9. **SINDISPETROL**
National Union of Workers of Operating Companies, Contractors, Subcontractors Offering Services and Activities in the Oil and Petrochemical Industry, and the Like
10. **SINOME**
Energy and Mining Workers Union
11. **SINTRAMANPETROL**
National Union of Maintenance Workers of the Oil, Gas, and Coal Industry
12. **SINTRAMEN**
Union of Mining and Energy Industry Workers
13. **SINTRAPECOL**
Union of Oil and Hydrocarbon Industry Workers in Colombia
14. **SINTRAPETGAS**
Oil and Gas Workers Union
15. **UNTRAPETROL**
Oil Workers Union
16. **USO**
Oil Industry Workers Union
17. **USOLEODUCTOS**
Trade Union of Pipeline and Polyduct Workers
18. **USTRASEN**
Trade Union of Energy Sector Workers
19. **UTIPEC**
Union of Oil and Energy Industry Workers in Colombia

Company Unions:

1. **APROTECH**
Association of Professionals and Technologists Employed by Ecopetrol S.A.
2. **ASOPETROL**
Union Association of Energy Industry Employees
3. **ASPEC**
Trade Union of Ecopetrol S.A. Professionals
4. **ASTECO**
Trade Union of Ecopetrol Workers
5. **ASTIPHEC**
Trade Union of Oil and Hydrocarbon Industry Workers at Ecopetrol S.A.
6. **SINPECO**
Ecopetrol Oil Workers Union
7. **SINPROECOP**
Ecopetrol S.A. Professionals Union
8. **SITRAECO**
Ecopetrol S.A. Workers Union
9. **TRASINE**
Unionized Workers of Ecopetrol S.A.

[GRI 407-1,
11-13-2]
[WEF 21E]

Ecopetrol is committed to respecting the right to freedom of association and collective bargaining, in accordance with the highest international human rights standards. Similarly, the Company respects and promotes fundamental labor rights.

In 2022, Ecopetrol continued with a work scheme with the coexisting union organizations in the Company, through harmonious and constructive labor relations based on direct communication schemes. The union relationship scheme, which is based on the recognition and respect of rights and duties, was strengthened with the purpose of leveraging the construction of healthy relationships, in favor of the Company's growth and the well-being of the entire Ecopetrol work team. Ecopetrol adheres to the commitments consented with union organizations and established in the Collective Labor Agreement (CCT) and other agreements, both with the Boards of Directors and with the Sub-directorates of these coexisting organizations in the Company, and in compliance with current regulations.

Ecopetrol, respectful of the exercise of union work, generates the union permits required by the USO and fully complies with the granting of the economic requirements, aid,

travel expenses, air tickets, security schemes, and other guarantees set forth in the applicable conventional and legal framework.

The validity of the current CCT agreed in the last negotiation in 2018 expired on December 31, 2022. This Convention establishes the working conditions and benefits applicable to Company workers under this collective agreement during its term.

The CCT will be subject to a new negotiation process in 2023, if the conditions provided for by Law are met; that is, the manifestation of interest by the signatories to modify its content and the submission of petitions by the unions. An eventual negotiation process of the CCT is part of the provisions set forth under Colombian legal regulations and it constitutes a normal stage in the consolidation of labor relations and interaction with union organizations, in which the Company will seek to promote a constructive dialogue to reach agreements, without causing any impacts on operations.

[GRI 2-30][WEF 21E]

78% of Employees are Covered under Collective Bargaining Agreements.



(GRI 2-30-b)

Applicable Scheme

There are 2 salary schemes at Ecopetrol: Collective Labor Agreement and Agreement 01 of 1977. This Agreement is an administrative act issued by the Board of Directors, in accordance with its legal and statutory powers. It is not a collective agreement (it does not arise from a negotiation process between the Company and non-unionized workers) and it determines the salary and benefits structure for managerial, technical, and dependable personnel who voluntarily adhere to it or who are subject to it by exclusionary clause.

The aforementioned salary and benefits schemes are exclusive and must be applied in a comprehensive manner, regardless of the method adopted or applicable to the worker, by virtue of the principle of inseparability, to the extent that one and the other enshrine different prerogatives.

The 2018-2022 Collective Labor Agreement recognizes the classification of managerial, technical, and dependable workers and the coexistence of the salary and benefits scheme contained in Agreement 01 of 1977.

(ECP011)

Conventional Health Agreement

The health provisions of the Collective Bargaining Agreement are laid out in Chapter VI "Medical Services," as follows: Ecopetrol, by virtue of the provisions under Article 279 of Law 100 of 1993, is exempt from the General System of Social Security in Health (SGSSS) and, therefore, its duly registered workers, pensioners, and family members are governed by the system of social security in health established in the CCT Ecopetrol - USO.

The Company provides the following medical services to the recipients of the health service: general medicine outpatient consultation, specialized consultation and second concepts, alternative medicine and complementary therapies, priority care, program for highly dependent chronic patients,

home care and hospital-at-home, paramedics, dentistry, occupational health, among others. The general considerations under the Health Plan include the supply of medicines, 100% coverage of rehabilitation treatments for family members, emergency services nationwide in places other than the location of the medical services, referrals for diagnosis, and treatment when there are no services available at the location, among others. It also establishes the conditions for the provision of medical services for waived diseases for permanent and fixed-term contract workers, such as the determination of labor protection timeframes for workers.

(GRI 402-1, 11-10-5)

There is no defined minimum number of weeks to report significant operating changes in human talent issues that could affect workers. However, whenever these situations are to arise, they are communicated to the workers in advance in the communications strategy designed for this purpose and also through the area managers. In the same way, permanent dialogue spaces are organized with the most representative trade union organizations to inform the changes and the corresponding business strategy. This, in order to guarantee respect for the rights of workers and union organizations.

Roadmap Occupational health

Notable material element



[GRI 3-3]

Impacted stakeholder groups	Areas that manage the impacts	Ecopetrol business line or segments generating the highest impact
Suppliers	HSE Vice Presidency	Upstream
Society and Communities		Midstream
Employees		Downstream
		Commercial
		Low emission solutions

[GRI 3-3]

Why is the Element Material?

Occupational health is a notable material element that generates value for the Ecopetrol Group by promoting healthy work environments, with healthy and productive work teams, preventing impacts on communities, contributing to the efficiency of processes, and preserving the Company's reputation.

[GRI 3-3-b,
403-2, 403-9,
11-9-10]
[WEF 15]

The activities undertaken in the hydrocarbon sector are considered of substantial risk. The activities or processes that could suddenly release energy and cause serious injury are identified during the risk assessments. Some of the hazards that can cause these events include working at height, intervening electrical systems, driving vehicles, entering confined spaces, mechanical lifting of loads, operating pressure systems, among others. For this type of activity, Ecopetrol has adopted safe practices that define the responsibilities, skills, and control measures to be followed in these situations. These potential hazards and their corresponding controls make up the Rules that Save Lives, which is a communication and internalization mechanism for workers. The first principle of control is: if it is not feasible, don't do it, or do it in another way that eliminates the risk.

Workers at High Risk or with Incidence of Diseases Related to their Work Activity

Within the framework of Decree 2090 of 2003 "Which defines the high-risk activities for the health of workers and modifies and sets the conditions, requirements, and benefits in the pension system of the workers who operate in said fields" and Decree 2655 of 2014, the Ecopetrol units that undertake high-risk activities, and which are therefore subject to the aforementioned standards are described below:

1

Work involving exposure to high temperatures, above permissible limits, determined by the technical standards of occupational health:

- Management of Development and Production Operations at Sea of the Central Regional Vice Presidency: workover activities for the trades of floor hand and derrickman.
- Management of River Development and Production Operations of the Central Regional Vice Presidency: workover activities for the trades of floor hand and derrickman.
- Cartagena Refinery Management - Acid Zone Alkylation Plant: operations, supervision, and maintenance activities.

2

Work with exposure to proven carcinogenic substances:

- Aromatic Plant - Petrochemical Department - Barrancabermeja Refinery.
- Maintenance Group VI - Barrancabermeja Refinery
- Industrial Laboratory - Barrancabermeja Refinery
- Acid Plant - Cracking III - Barrancabermeja Refinery
- Alkylation, Hydroisomerization, and Merox Plant - Cracking II - Barrancabermeja Refinery.
- Maintenance Department - Welders - Barrancabermeja Refinery.

3

In the Fire Departments, the activity related to the specific task of acting in firefighting operations:

- Emergency Prevention and Control Coordination - Barrancabermeja Refinery.
- Emergency Prevention and Control Coordination - Cartagena Refinery.
- Production Coordination at Orito.



With regard to the incidence of occupational diseases at Ecopetrol, no events associated with the activities referred to above were reported in 2022.

Occupational health at Ecopetrol allows for the early and proactive management of occupational risks, in order to promote, maintain, and improve the physical, mental, and social health of workers; contribute to the prevention of occupational diseases through a set of interdisciplinary activities for the identification and management of hazards and risks in the work environments, both in the current operation of the assets and in the design phases of new projects, and in the work activities performed while teleworking, or others defined by Ecopetrol. The foregoing, to avoid negative impacts on the work teams, communities, and suppliers, which may affect, among others, their rights to physical and mental health and to working in decent conditions.

[GRI 3-3-c,
403-2, 11-9-3]

Occupational Health Policies and Commitments of the Company

The cultural principle of "Life First" guides Ecopetrol's HSE efforts since it establishes the Company's commitment to the preservation of life in its different manifestations. This is why permanent care is exerted for the individual, the people around them, and the planet. These results are translated into the following behaviors:

- We take care of ourselves and take care of others
- We act with rigor and discipline with regard to the HSE management system
- We protect the environment and our surroundings with future generations in mind

The Company's commitment to the principle of "Life First" is reflected in the 2040 Strategy "Energy that Transforms". Also, the **Ecopetrol Comprehensive Policy** mentions that "[t]he commitment to life, environmental protection, and the prevention of injuries and illnesses are present in all our activities. Accordingly, we make our best efforts to protect the lives of people and the environment, implementing appropriate safety and health standards at work, while protecting the environment and ensuring the sustainability of the operations."



In this sense, Ecopetrol has a public commitment to health and safety at work, which includes the following elements:

- Compliance with relevant international health and safety standards and regulations at work, as well as voluntary programs, and/or health and safety collective agreements at work.
- Applicable to all Company operations/employees, as well as contractors or individuals under the supervision of the Company.
- Committed to continuously improve the performance of the occupational health and safety management system.
- Establishment of priorities and action plans.
- Setting quantitative targets to improve OHS performance metrics.
- Support for the adoption of the OHS policy.
- Consultation and participation of workers and, if available, of worker representatives.

The highest-ranking decision-making body in these matters is the Steering Committee.

(GRI 3-3-d,
403-6)

How is the Material Element Managed?

The HSE Vice Presidency manages the potential hazards and risks in the work environments as follows:

- Caring work environments with high occupational health standards and developing strategies to anticipate risk management from the initial stages of the projects, as well as risk management in existing facilities.
- Promoting healthy lifestyles and preventing the occurrence of occupational diseases by:
 - Adopting healthy habits in the work setting.
 - Managing psychosocial risk factors to mitigate any effects on the physical and mental health of people seeking to achieve a work-life balance.
 - Offering preventive and occupational medicine.
 - Comprehensive labor rehabilitation in the event of health-related instances.

For the above, Ecopetrol ensures:

1. Safe, healthy, and sustainable operations:

1.1 Risk management in existing facilities: intervening in the sources of industrial hygiene hazards - chemicals and ergonomics to close gaps and minimize risks against people's health, by implementing:

- i) hazard identification and health risk assessment**
- ii) industrial hygiene program**
- iii) ergonomics program**

1.2 Incorporate standards (methodologies and technical principles) of industrial hygiene and ergonomics in all stages of Ecopetrol's prioritized projects, so as to ensure health and well-being conditions for the personnel who have to interact with the facilities and equipment when they enter the operation.

1.3 Identify hazards, and evaluate and manage the occupational health risks of new alternative energy technologies.



2. Healthy workers with quality of life:

2.1 Occupational Health: promotion of healthy lifestyles and prevention of occupational diseases; this integrates a set of strategies aimed at promoting and maintaining healthy habits in the work setting that favor and influence individual risk management, as well as the adoption of behaviors that bring about the prevention of occupational disease and quality of life for the work team.

2.2 Mental health and psychosocial risk: this entails the management of psychosocial risk factors in order to mitigate the effects on the physical and mental health of people in pursuit of achieving a work-life balance. It similarly entails the strengthening of protective factors that help this balance and that allow workers to maintain a healthy work environment. This strategic line also incorporates efforts to prevent and control the consumption of alcohol and psychoactive substances.

2.3 Preventive and occupational medicine: Set of articulated programs, procedures, instructions, and activities that seek to maintain the health of workers and prevent the occurrence of occupational diseases during all stages of their employment relationship with Ecopetrol.

2.4 Comprehensive Labor Rehabilitation Program: the workforce in an organization and the preservation of their health are some of the most important lines of action in occupational health. In the event of health incidents that affect the workers' ability to work, actions must be taken for them to recover their maximum workability for social and labor reinstatement.

(GRI 3-3)

How is the Material Element Evaluated?

The effectiveness of the occupational health strategy is evaluated as follows:

- **Intervention of work environments:** compliance with intervention plans (HRA-Hygiene-Ergonomics-Psychosocial) and risk level control of critical trades.
- **Occupational risk management in projects:** intervention of psychosocial aspects, management of ergonomic risks, industrial hygiene, and occupational risks in the new normal.
- **Preventive and occupational medicine:** periodic comprehensive health evaluations, occupational disease, and occupational risk management during the COVID-19 health emergency.
- **Innovation and Technology:** data analytics to predict and alert possible risks in occupational health.

(GRI 3-3-e)

Monitoring the Effectiveness of the Measures Adopted for this Material Element

The Department of Occupational Health is responsible for monitoring and reporting on the compliance and impact of the tactical and operating plans. The lines of action are divided into intervention plans for safe, healthy, and sustainable operations, including HRA plans, industrial hygiene plans, ergonomics plans, psychosocial plans, and intervention plans for healthy workers with quality of life, such

as the preventive medicine and work program, the occupational health promotion and prevention program, and the occupational epidemiological surveillance program. Monitoring is conducted based on the information contained in internal tools: www.ecosaludocupacional.com, www.ecohigieneindustrial.com, and Power BI created for the permanent monitoring of management efforts.



(GRI 3-3-e)

Short, Medium, and Long Term Goals and Projects

Below are the Company's short, medium, and long-term goals focused on strategic options:

Improvement of existing facilities

Short term:

- Control the risk level of identified critical trades.
- Complete diagnosis in the management of operations that are of substantial risk to health (valve operation, control rooms, equipment, and tools, closed sampling, and airtight tank measurements)

Medium term:

- Evaluate the cost-efficiency of interventions to improve working conditions.
- Comply with **20%** of the occupational risk intervention program in the facilities.

Long term:

- Implement closed sampling and airtight tank measurement systems.
- Implement the recommendations for valves, control rooms, equipment, and tools identified as critical.
- Comply with **50%** of the occupational risk intervention program in the facilities.

New international quality facilities in petrochemical processes and new processes (alternative energy generation)

Short term:

- Update industrial hygiene and ergonomics standards applicable to new projects based on findings in existing facilities and international standards.
- Incorporate industrial hygiene and ergonomics standards into the projects defined in the service level agreement with the business unit.

Medium term:

- Continue incorporating industrial hygiene and ergonomics standards in the projects defined in the service level agreement with the business unit.

Long term:

- Reduce human error as a causal factor in accidents.
- Incorporate industrial hygiene and ergonomics standards in projects and new businesses developed by the Company associated with the production of new energies, offshore exploration, etc.

399

Opportunities for innovation, technological updating, and application of data analytics

Short term:

- Incorporation of data analytics for effective intervention and risk control in work environments (optimization processes, high-risk procedures, exposure, and risk characterization).
- Monitoring of health variables with the use of technology and data analysis.

Medium term:

- Preventive (predictive) detection of potential health cases.

Long term:

- Health case management using risk detection models with an accuracy rate of more than **85%**.

Mitigating the risks to the health of workers and the community (environmental health)

Short term:

- Generate a methodological guide to mitigate the risks to the health of workers and the community.

Medium term:

- Development and validation of the methodology
- Implementation in critical areas / processes

(GRI 3-3-e)
(WEF 25E)

Main achievements in Managing the Occupational Health Roadmap

The 2022 Recordable Injury Index (TRIF) presents an excellent result of 0.33 accidents per million hours worked, being the lowest in Ecopetrol's history, coupled with zero fatalities for the second consecutive year. This demonstrates the commitment to the safety and integrity of people at all levels in the Company, in accordance with the cultural value of "Life First." This sustained improvement in the accident rate has been thanks to the strengthening of the HSE management system with the implementation of safe practices and rigorous world-class standards, as well as the empowerment of the Board of Directors and senior management.

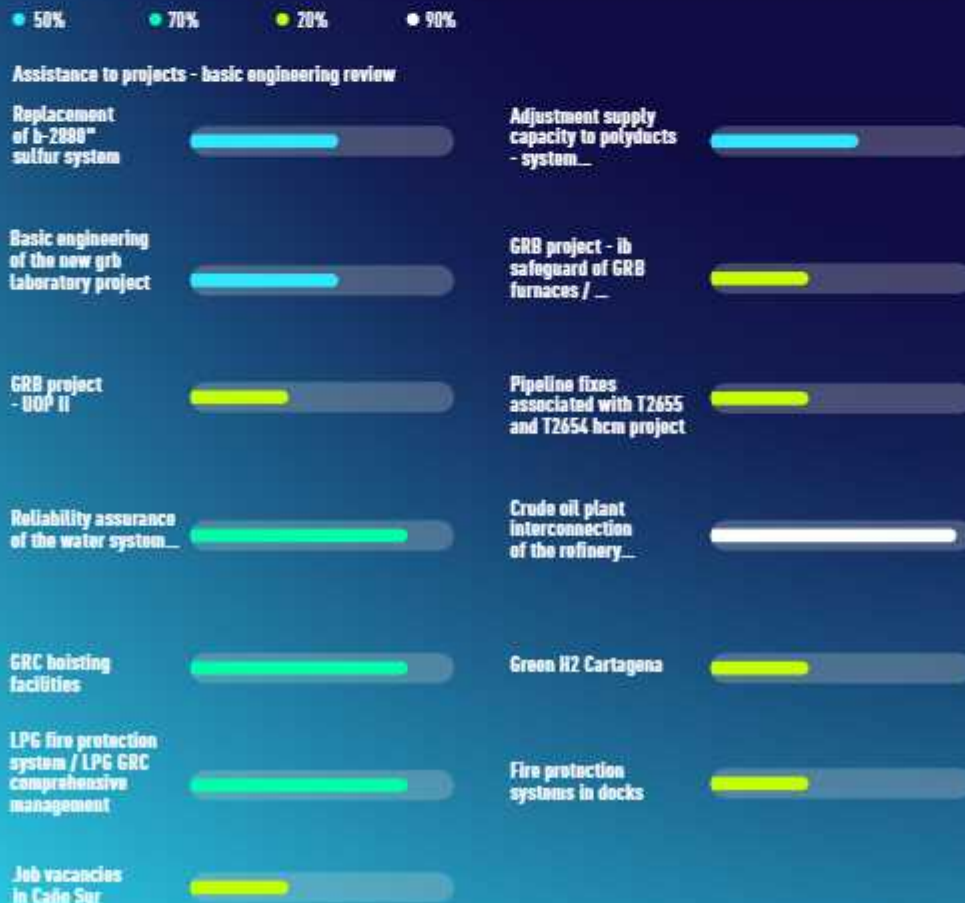
● Incorporation of industrial hygiene and ergonomics standards in projects and new facilities:

The purpose of this activity is to ensure the incorporation of industrial hygiene and ergonomics standards in all maturation phases of the projects managed in the Ecopetrol Group. The technical analysis of ergonomics and industrial hygiene in the projects is based on the control of uncertainty and the anticipation of the effects (mainly the negative ones) of variability in a work system.

In 2022, the Department of Health began supporting and providing technical advice to the following projects in an effort to ensure compliance with industrial hygiene and ergonomics standards.



Figure 58. | Progress in the Technical Monitoring of Industrial Hygiene and Ergonomics



Source: HSE Vice Presidency





THE IDENTIFIED HYGIENE AND ERGONOMIC RISKS WERE REDUCED OR ELIMINATED IN 100% OF THE TRADES SUBJECT TO INTERVENTION.

Risk Level Control Indicator

This indicator contributes to proactively managing occupational risk in work environments and preventing the occurrence of occupational diseases by evaluating the impact of intervention plans established for chemical, physical, and ergonomic agents.

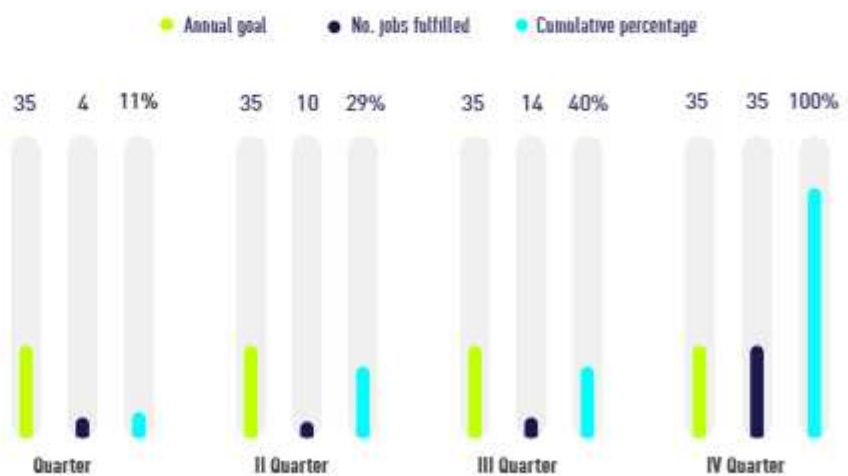
The Risk Level Control Indicator is made up of trades with tasks evaluated using methodologies for the analysis of physical load and physical and chemical risks. The purpose is for the Department of Occupational

Health to provide support to the different areas in the management of said risks, in order to eliminate or reduce them.

In 2022, **35** trades with Very High, High, or Medium risk levels in terms of industrial hygiene or ergonomics were included in the indicator.

By the end of 2022, the identified hygiene and ergonomic risks were reduced or eliminated in **100%** of the trades subject to intervention planned for this term.

Figure 59. | Compliance with Risk Level Control Strategies - 2022



Source: HSE Vice Presidency



Industrial hygiene

The activities planned for 2022, as described below, recorded a **100%** compliance rate:

- Gathering information in the field on the status of process samplers and airtight tank measurements.
- Final diagnosis with general findings and recommendations.
- Identification of gaps in closed and open samplers and tank measurements that can potentially lead to the systematic exposure of the work team to chemical agents.
- Presenting the diagnosis to the business areas to trigger commitment in the search for control alternatives.



Ergonomics

- Gathering of information to identify the ergonomic requirements for valves, control rooms, and tools.
- Final diagnosis with findings and recommendations for intervening in work environments.
- Definition of health risk activities while operating valves, control rooms, and tools.
- Presenting the diagnosis to the business units to make sure that the recommendations are implemented.

402



Monitoring the effectiveness of the measures adopted

Management of the COVID-19 pandemic with strategies that allowed business continuity and protected the health of workers.



Occupational Health for the Teleworking modality

Implementation of teleworking with highly favorable results for the health and well-being of the staff. An initial job evaluation strategy was established by ergonomics experts, providing support and advice to **97.3%** of Ecopetrol teleworkers nationwide.

Figure 60. | Compliance with the Evaluation of Teleworking Stations

Population defined for Teleworking



4,360*
TELEWORKERS

* Excluding population not subject to EPT

Source: HSE Vice Presidency

TELEWORKING STATUS EXECUTED

POPULATION 4,244

% 97.3

Source: HSE Vice Presidency

- The strategy contemplated a second evaluation for the people who required adjustments in accordance with the recommendations of the experts. By the end of 2022, 93.1% of teleworking stations had completed their verification process.

Figure 61. | Compliance with the Adequacy Verification of Teleworking Stations

Verification of teleworking conditions



Source: HSE Vice Presidency

Management of Psychosocial Risk and Mental Health

- Group psychosocial intervention strategy by means of workshops to accompany and advise workers on the conditions in which they have faced the process of the pandemic and teleworking. 264 workshops were held in 2022, covering a total of 4,408 people.
- Individual psychosocial intervention strategy to support self-management in workers and their families, in order to raise awareness about self-care, new habits, and healthy lifestyles. Individual interventions were conducted on 1,277 workers in 2022.
- Individual assistance strategy to leaders, by providing them with tools to strengthen teamwork and achieve a work-family balance. 1,126 leaders were covered in 2022, which is equivalent to 96.4% of the target population.
- Identification of operating trades with prioritized occupational risks for intervention.

403

In addition to the aforementioned achievements, the psychoactive substance prevention program was also updated, and the COVID-19 pandemic was adequately managed with strategies that allowed business continuity and protected the health of workers.

(GRI 3-3-e)

Lessons Learned and Incorporation Into the Company's Operating Policies and Procedures

The effectiveness of the intervention plans that support the strategic objectives of Occupational Health management is disclosed at all levels of the Company, and the actions that have a positive impact on work environments are incorporated into the tactical and operating plans of the business units. After reviewing the management and impact of the actions, the Occupational Health strategy is formulated and updated by the HSE Vice Presidency.

(GRI 3-3-f, 403-4)

How are Stakeholders Involved in Taking Action to Manage the Material Element?

The leadership of the material element of occupational health is exercised by the HSE Vice Presidency, with the participation of the entire Ecopetrol work team and its contractors, who are an integral part of the Company's processes, thereby guaranteeing the adoption of safety and health measures in the workplace, the improvement of worker behaviors, conditions, and the work environment, and the effective control of hazards and risks in the workplace.

Chapter X of the Collective Labor Agreement (2018 - 2022) states as follows: Occupational Health defines the scope agreed with the unions on the management of Health and Safety of Workers at Ecopetrol. As expressed in Article 78: "OCCUPATIONAL HEALTH at Ecopetrol contributes to developing the human potential of the workforce; promotes, improves, and maintains the physical, mental, and social health of workers; prevents occupational diseases and accidents. It similarly



encourages workers to be in work environments attuned to "their physical and psychological conditions" and ensures the operation of the Regional and Local Joint Occupational Health Committees.

There are 10 Joint Occupational Health Committees (COPASOS) and 23 Local Occupational Health Committees (COLOSOS) set up throughout the Company, with management and worker representatives. The COPASOS are advisory bodies created to promote and monitor compliance with Occupational Health Programs. The COLOSOS are participation instances for worker representatives to collaborate with the administration in the promotion, prevention, and control of occupational risk factors, by implementing measures and solutions that are within their reach, or that may otherwise be proposed to the competent authorities. The percentage of workers represented in COPASOS and COLOSOS is **100%** of the population.

(GRI 403-7, 11-9-8)

For its part, in all stages of the procurement process (preparation, planning, selection and procurement, execution and completion, and closure), compliance by suppliers with HSE guidelines and requirements is ensured by adequately managing the risks.

Accordingly, HSE management with suppliers is ensured by complying with the guidelines defined in the HSE requirements guide in the planning and execution of the contracts, which outlines the aspects that ensure all HSE-related matters in each of the stages of the procurement process:

- 
Preparation: in this phase, Ecopetrol confirms that the bidders meet the requirements for a supplier to participate in a selection method, beginning with legal criteria such as certifying that it has an Occupational Health and Safety Management System, as well as additional requirements such as the RUC (Uniform Contractors Registry) certification, with a rating of at least **80%**, or ISO 45001 Certification, or Certification under other standards recognized by the oil industry, such as OHSAS 18001, IGS/ISM Code or Norsok S-006, or STOW.
- 
Planning: in this phase, the risk level of the contract is assessed and the corresponding HSE specifications to be required are defined. To this end, a general HSE annex is outlined for all contracts, as well as a specific annex that is included in Medium, High, and Very High risk level contracts, and the HSE indicators to be evaluated in the course of the contract are also determined.

- **Selection and Procurement:** in this stage, the HSE issue becomes relevant for high-risk contracts where the bidders are invited to make a site visit to become acquainted with the facilities where the contracted activities are to take place, for them to consider the necessary aspects in their risk analysis and the structuring of the proposals submitted.

- **Execution:** during execution, monitoring and verification processes are conducted through different activities: HSE meetings and committees, HSE audits, planned and unplanned inspections, behavior assurance, and performance evaluations.

- **Completion and Closing:** a final evaluation of the contractor's performance is conducted and the lessons learned are documented to serve as input for the planning of future contracts.



**[GRI 403-1,
11-9-2]**

Ecopetrol has implemented an HSE Management System to establish the necessary elements for the Company to adequately manage its risks, in order to protect life and foster the protection of the environment. The HSE Management System was established based on current national regulations (Decree 1072 of 2015) and international standards (ISO 45001 and ISO14001).

The System consists of a logical and phased process, based on continuous improvement and including culture, leadership, politics, organization, planning, implementation, evaluation, auditing, and improvement efforts, in order to anticipate, recognize, assess, and control the risks that may affect safety and health at work and in the environment.

**[GRI 403-8,
11-9-9]**

The System covers the processes of oil and gas exploration and production, the production of refined products and petrochemicals, the trading of hydrocarbons, and administrative and/or business support processes. Process owners are responsible for implementing the sub-elements of the HSE Management System, which must be consistent with the risks associated with each particular process.

**[GRI 403-2,
11-9-3]**

Within the framework of the "Life First" cultural principle, Company employees are provided with a tool to report unsafe behaviors and conditions electronically or via a telephone line. Also, visits, inspections, and conversation spaces are promoted between leaders and collaborators to report hazardous situations and conditions and improve the established controls.

(GRI 403-2, 11-9-3)

On the other hand, Ecopetrol fosters autonomy and self-care as part of its prevention approach. As a fundamental element of the job control practice, whenever an unsafe act or condition is identified, "Everyone has the obligation and authority to stop any unsafe task." This premise has been disclosed from Senior Management to all direct employees and contractor personnel. The next step is to hold a safety conversation to inform the people involved of the act or condition identified so that it can be corrected by jointly reassessing whether the ac-

tivity can continue safely or whether it should be suspended until the unsafe conditions are solved.

Ecopetrol has different means of communication available to workers and contractors, where they can raise queries or submit complaints about possible retaliations that they may be subject to after reporting a situation associated with the unsafe execution of any task.

(GRI 403-2, 11-9-3)

Although there are different methodologies for hazard identification and risk analysis and assessment depending on the type of situation, Ecopetrol uses the "bowtie" methodology for everything associated with industrial safety, and for the identification of occupational health hazards and risks, the Company applies the HRA (Health Risk Assessment) methodology. A task risk analysis must be conducted for all activities, previously prepared and approved by competent personnel of the implementing party and the person in charge of the area where the activity will take place. Each hazard identification and risk analysis and

assessment methodology defines intervention priorities based on controls aligned with the controls hierarchy laid out in the ISO 45001:2018 standard. The risk analysis is continuously applicable to each activity, and the health and "bowtie" risks are updated periodically or each time a new hazard is identified, a new production or technological process is introduced, or a change is made that poses risks on health, people, or the environment.

(GRI 403-2, 11-9-3)

All incidents or alarms associated with environmental, industrial safety, process safety, and occupational health matters in the Company trigger a process of reporting, recording, investigating, and implementing corrective actions, in order to ensure the incorporation of lessons learned, and thus reduce the probability of recurrence and improve the performance of the Company.

Based on the actual or potential consequence of the incident, the investigation team is assigned as defined by the Company. The causes that originated the incident and the necessary actions to avoid the recurrence thereof are established by identifying critical factors and immediate causes associated with unsafe conditions or behaviors and determining basic causes or root causes. Subsequently, the lesson learned is communicated and incorporated in the applicable area. Compliance with the measures resulting from incidents is monitored using the technological tool determined by the Company.

Overall, the consolidated results of the investigations are analyzed to identify common causes and their trends, and thus define actions to improve the HSE Management System.



(GRI 403-3,
11-9-4)

Ecopetrol has an Occupational Health Department responsible for:

- | | |
|---|---|
| 01 Leading the management of preventive and occupational medicine at Ecopetrol. | 02 Defining and generating the necessary guidelines, guides, procedures, instructions, formats, and tools for the adequate provision of occupational medicine services. |
| 03 Planning and ensuring the necessary budgetary resources to leverage occupational health management. | 04 Providing technical support to Ecopetrol's Business Units in occupational medicine and other occupational health issues, participating in strategic scenarios to control occupational risks in work environments. |
| 05 Monitoring compliance with preventive and occupational medicine guidelines and standards. | 06 Participating in the investigation of work accidents and occupational diseases. |

(GRI 403-5)

To guarantee the quality of occupational health services, Ecopetrol, through the Occupational Health Department, offers the induction process to the staff of companies that provide preventive and occupational medicine services.

This induction includes the presentation of hygiene, ergonomics, and psychosocial results reporting on the health conditions of the workers, which must be used for promotion and prevention activities and for the structuring of comprehensive action plans targeting the individual. Furthermore, a quality assessment is conducted in the provision of occupational health services in accordance with current regulations in Colombia.

407

(GRI 403-9,
11-9-10)
(WEF 15,25E)

Description of the Main Types of Occupational Injuries Suffered by Ecopetrol Employees

Ecopetrol places significant emphasis on understanding, monitoring, and controlling the impacts on the health and safety of workers. No fatal accidents were recorded in 2022, and 13 recordable injury cases were materialized, with **62%** leading to registered leaves of absences and **38%** giving rise to restricted work or medical treatment. Overall, the body parts that were most affected by these accidents were the upper and lower limbs.



(GRI 403-9,
11-9-10)
(WEF 15, 25E)

Table 147. | Occupational Injuries Suffered by Ecopetrol Employees

Employees	Unit of measurement	2019	2020	2021	2022
Number of hours worked	#	27,788,636.32	28,111,374.41	27,904,070.59	28,036,721.39
Number of deaths resulting from an occupational injury	#	1	1	0	0
Number of work-related injuries with severe consequences (not including deaths)	#	0	0	0	1
Number of recordable occupational injuries	#	24	19	9	11
Death rate resulting from occupational injuries	Index	0.036	0.036	0	0
Severe consequence occupational injury rate (not including fatalities)	Index	0	0	0	0.036
Recordable occupational injury rate*	Index	0.864	0.676	0.323	0.392

Source: HSE Vice Presidency

* The Recordable Workplace Injury Rate includes fatalities, accidents involving lost-time, restricted work, and medical treatment; unlike LTIFR, which only includes accidents involving lost-time and fatalities.

(GRI 403-9,
11-9-10)
(WEF 15,25E)

Description of the Main Types of Occupational Injuries Suffered by Ecopetrol Contractors

Ecopetrol places significant emphasis on understanding, monitoring, and controlling the impacts on the health and safety of contractors. No fatal accidents were recorded in 2022, and 43 recordable cases materialized, with 77% leading to registered leaves of absences and 23% giving rise to restricted work or medical treatment. Overall, the body parts that were most affected by these accidents were the upper and lower limbs. It is worth highlighting a 22% reduction in the number of recordable cases compared to 2021, mainly as a result of improvements in the risk analysis of operating activities, thus strengthening HSE skills and prior risk assurance.

[GRI 403-9,
11.9.10]
[WEF 15,25E]

Table 148. | Contractor Occupational Injuries

Contractors	Unit of measurement	2019	2020	2021	2022
Number of hours worked	#	128,419,931.82	105,233,715.45	117,935,944.3	139,953,435.23
Number of deaths resulting from an occupational injury	#	2	2	0	0
Number of work-related injuries with severe consequences (not including deaths)	#	1	1	0	0
Number of recordable occupational injuries	#	70	48	55	45
Death rate resulting from occupational injuries	Index	0.016	0.019	0	0
Severe consequence occupational injury rate (not including fatalities)	Index	0.008	0.01	0	0
Recordable occupational injury rate	Index	0.545	0.456	0.466	0.322

Source: HSE Vice Presidency

409

[GRI 403-10,
11-9-11]
[WEF 15, 25E]

Table 149. | Occupational Illnesses and Diseases Suffered by Employees

Occupational illnesses and diseases suffered by employees	Unit of measurement	2019	2020	2021	2022
Number of deaths resulting from an occupational illness or disease.	#	0	0	0	0
Number of recordable occupational illnesses and disease cases	#	3	1	3	1

Source: HSE Vice Presidency

[GRI 403-8,
11-9-9]

At Ecopetrol, LTIFR³⁵, DART³⁶, or LWR³⁷ metrics are monitored for workers and contractors.

³⁵ Lost-Time Injury Frequency Rate

³⁶ Days Away, Restricted, or Job Relocation Rate

³⁷ Lost Work Rate

(GRI 403-2,
11-9-3)
(ECP002)**Table 150. |** Lost-time Injury Frequency Rate – Workers*

LTIFR	Unit of measurement	2019	2020	2021	2022
Employees	LTIFR	0.58	0.43	0.11	0.25
Data coverage (as a % of employees, operations, or revenue)	%	100	100	100	100

Source: HSE Vice Presidency

* The information reported spans across the Ecopetrol Group, which includes the following Companies: Hocol, Reficar, Esenttia, Cenit, ODL, ODC, and Ocensa.

(GRI 403-2,
11-9-3)
(ECP002)**Table 151. |** Lost-time Injury Frequency Rate – Contractors*

LTIFR	Unit of measurement	2019	2020	2021	2022
Contractors	LTIFR	0.33	0.36	0.31	0.24
Data coverage (as a % of contractors, operations, or revenue)	%	100	100	100	100

Source: HSE Vice Presidency

* The information reported spans across the Ecopetrol Group, which includes the following Companies: Hocol, Reficar, Esenttia, Cenit, ODL, ODC, and Ocensa.

410

(GRI 403-2,
11-9-3)
(WEF 25E)

Fatal accidents involving employees and contractors are monitored at Ecopetrol. **It is worth highlighting that no employee or contractor fatalities were reported in 2022.**

(GRI 403-2,
11-9-3)**Table 152. |** Number of Work-related Fatalities Suffered by Employees and Contractors.

Fatalities	Unit of measurement	2019	2020	2021	2022
Empleados	LTIFR	1	1	0	0
Contratistas	%	2	2	0	0

Source: HSE Vice Presidency

Ecopetrol monitors the TRIFR³⁸, TRIR,³⁹ or AFR⁴⁰ metrics of its workforce and contractors.

38 Total Recordable Injury Frequency Rate

39 Total recordable incident rate

40 Accident Frequency Rate

[GRI 403-2,
11-9-3]
[ECP003]

Table 153. | Total Recordable Injuries - Employees*

TRIFR	Unit of measurement	2019	2020	2021	2022
Empleados	TRIRF	0.864	0.676	0.323	0.392
Data coverage (as a % of employees, operations, or revenue)	%	100	100	100	100

Source: HSE Vice Presidency

* The information reported spans across the Ecopetrol Group, which includes the following Companies: Hocol, Reficar, Esentia, Cenit, ODL, ODC, and Ocensa.

[GRI 403-2,
11-9-3]
[ECP003]

Table 154. | Total Recordable Injuries – Contractors*

TRIFR	Unit of measurement	2019	2020	2021	2022
Contractors	TRIRF	0.545	0.456	0.466	0.322
Data coverage (as a % of contractors, operations, or revenue)	%	100	100	100	100

Source: HSE Vice Presidency

* The information reported spans across the Ecopetrol Group, which includes the following Companies: Hocol, Reficar, Esentia, Cenit, ODL, ODC, and Ocensa.

[SASB EM-
EP-320a.1]
[SFC XVI]

Table 155. | TRIR Recordable Incident Rate for Direct Employees.

Required information	Unit of measurement	2019	2020	2021	2022
Total hours worked in the year	Hours	10,723,986.18	9,567,670.91	9,110,190.95	1,145,713.16
Number of fatalities presented in the year	#	0	0	0	0
Number of registered work injuries	#	13	6	4	3
Number of occupational diseases registered	#	5	3	1	2
Number of occupational diseases registered	#	2	1	0	1
Near misses registered in the year	#	NA	NA	NA	NA
Total Recordable Incident Rate (TRIR)	Rate	1.40	0.73	0.73	0.26
Fatality rate	Rate	0	0	0	0
Near miss frequency rate	Rate	NA	NA	NA	0

Source: HSE Vice Presidency

[SASB EM-EP-320a.1]
[SFC XVII]**Table 156. |** TRIR Recordable Incident Rate for Indirect Employees.

Required information	Unit of measurement	2019	2020	2021	2022
Total hours worked in the year	Hours	49,932,323.82	30,384,734.01	34,789,757.5	83,006,505
Number of fatalities presented in the year	#	2	0	0	0
Number of registered work injuries	#	38	15	19	32
Number of registered leaves of absences	#	24	13	16	26
Number of occupational diseases registered	#	NA	NA	NA	NA
Near misses registered in the year	#	NA	NA	NA	NA
Total Recordable Incident Rate (TRIR)	Rate	0.76	0.49	0.55	0.14
Fatality rate	Rate	0.19	0	0	0
Near miss frequency rate	Rate	NA	NA	NA	0

Fuente: Vicepresidencia de HSE.

412

[SASB EM-EP-320a.1]
[SFC XVII]**Table 157. |** TRIR Recordable Incident Rate for all Employees (direct, indirect, short-term*).

Required information	Unit of measurement	2019	2020	2021	2022
Total hours worked in the year	Hours	60,656,309.99	39,952,404.92	43,899,948.45	94,465,218.16
Number of fatalities presented in the year	#	2	0	0	0
Number of registered work injuries	#	51	21	23	35
Number of registered leaves of absences	#	29	16	17	28
Number of occupational diseases registered	#	2	1	0	1
Near misses registered in the year	#	NA	NA	NA	0
Total Recordable Incident Rate (TRIR)	Rate	0.87	0.55	0.52	0.135
Fatality rate	Rate	0.03	0	0	0
Near miss frequency rate	Rate	NA	NA	NA	0

Source: HSE Vice Presidency

*Ecopetrol does not have short-term employees.

Note: Ecopetrol does not have an indicator for near misses.

(GRI 403-5)

Table 158. | Occupational Health Training

Training

<ul style="list-style-type: none"> Occupational health management focuses Occupational health risk management Main occupational health programs at Ecopetrol Occupational health Health and safety hazards in teleworking Promoting the generation of healthy boundaries Dedicate time to your mental health E+ talk on wellness and health - Lower the intensity of your days and seize your time Epidemiological surveillance in occupational health: a matter that requires conceptual precision 	<ul style="list-style-type: none"> I take care of myself - occupational health Healthy breaks - abdomen and back Diagnosis of health conditions. Occupational medical examinations. Ergonomics and health Epidemiological surveillance in occupational health. Goals. Work is health if consumed in moderation UEC Ergonomics - Copaso UEC Psychosocial risk - COPASO The importance of mental health and psychosocial support Mental health Mental health I 	<ul style="list-style-type: none"> Mental Health II UEC Occupational epidemiological surveillance- Copaso UEC Industrial hygiene - Copaso Taking care of physical and emotional health to improve well-being The importance of mental health and psychosocial support UEV SG SST Occupational health and safety management
--	---	--

Source: HSE Vice Presidency

(SASB EM-EP-320a.1) (SFC XVI)

Table 159. | Figures Corresponding to Average Training Hours in Health, Safety, and Emergency Management for Direct Employees.

Required information	Unit of measurement	2022
Total training hours in health, safety, and emergency management provided to employees throughout the year	Hours	155,301
Total number of company employees	#	9,496
Average training hours in health, safety, and emergency management for employees	Hours	16

Source: HSE Vice Presidency



(SASB EM-EP-320a.1)
(SFC XVI)

Table 160. | Figures Corresponding to Average Training Hours in Health, Safety, and Emergency Management for Indirect Employees.

Required information	Unit of measurement	2022
Total training hours in health, safety, and emergency management provided to employees throughout the year	Hours	43,192
Total number of company employees	#	5,987
Average training hours in health, safety, and emergency management for employees	Hours	7

Source: HSE Vice Presidency

(SASB EM-EP-320a.1)
(SFC XVI)

Table 161. | Figures Corresponding to Average Training Hours in Health, Safety, and Emergency Management for Direct, Indirect, and Short-term Employees.

Required information	Unit of measurement	2022
Total training hours in health, safety, and emergency management provided to employees throughout the year	Hours	198,493
Total number of Company employees	#	15,483
Average training hours in health, safety, and emergency management for employees	Hours	13

Source: HSE Vice Presidency

(SASB EM-EP-320a.2)
(SFC XVI)

Management systems used to embed a culture of safety throughout the exploration and production life cycle.

Ecopetrol S.A. has deployed an HSE Management System to establish the necessary elements for the Company to adequately manage its risks, in order to protect life and foster the protection of the environment by defining the basic mandatory requirements under the HSE Management System.

The HSE Management System was established based on current national regulations (Decree 1072 of 2015) and international standards (ISO 45001 and ISO14001).

The HSE Management System consists of a logical and phased process, based on continuous improvement, involving culture, leadership, policy, organization, planning, implementation, evaluation, auditing, and actions for improvement in order to anticipate, recognize, evaluate, and control the risks that may affect safety and health at work and in the environment.

Roadmap

Process safety

Notable Material Element



(GRI 3-3)

Impacted stakeholder groups	Areas managing the impacts	Ecopetrol business line or segments generating the highest impact
Suppliers, contractors, and their workers	VHSE	Upstream
Society and Communities	VPU	Midstream
Employees	VRP	Downstream
		Low emission solutions

(GRI 3-3-a)

Why is the Element Material?

In the Ecopetrol Group, process safety tends to yield the highest operating performance, intervening the greatest risk of technological origin by adopting the necessary measures and actions to prevent and mitigate the release of hazardous substances or energy, which would pose risks to the rights of work teams, suppliers, and communities to health, decent working conditions, and a healthy environment. The impact of these measures is evinced in the reduction of operating and occupational incidents with the potential for a major accident or disaster, thus providing an effective management framework for Ecopetrol's operations and demonstrating the commitment to the utmost principle of the Declaration of Culture, "Life First."

(GRI 3-3-b)

Within the framework of its due diligence efforts, Ecopetrol recognizes that, in its relations with suppliers and contractors, the Company must implement strict guidelines on the matter to prevent any type of accident or risk for rightsholders.



(GRI 3-3-c)

Policies and Commitments

Process safety is reflected in the 2040 Strategy: "Energy that Transforms" and in Ecopetrol's cultural principle "Life First," which guides the HSE-related course of action for the Company's work teams while confirming their commitment to the preservation of life in its different manifestations, resulting in the following behaviors:



Also, the **Ecopetrol Comprehensive Policy** mentions that "[t]he commitment to life, environmental protection, and the prevention of injuries and illnesses are present in all our activities. Accordingly, we make our best efforts to protect the lives of people and the environment, implementing appropriate safety and health standards at work, while protecting the environment and ensuring the sustainability of our operations."



(GRI 403-3, 11-9-4)

How is the Material Element Managed?

Within the TSEG pillar under the 2040 Strategy: "Energy that Transforms," process safety is classified as a notable material element. Ecopetrol's ambition is to become a global benchmark in industrial safety, adopting best practices and undertaking operations under tolerable risk levels. To this end, the Company focuses on four **(4) lines of work:**

- | | |
|---|---|
| <p>01 Consistency, commitment, and visible leadership in process safety.</p> | <p>02 Management of risk-based process safety.</p> |
| <p>03 Trend analysis and learning from experience.</p> | <p>04 Emerging risk management</p> |

In 2022, the measures to prevent or mitigate potential negative impacts included:

1

Commitment to process safety management (culture, compliance with standards, competencies, workforce participation, and disclosure to stakeholders)

- Design and implementation of the PROCER skills certification program (Process Safety Elements)
- Analysis for the closing of gaps in process safety in the upstream and downstream segments and in the projects.
- Communication of high consequence scenarios to internal and external Stakeholder Groups (labor force, local authorities, and communities).

2

Understanding hazards and risks:

- Review and adjustment of criteria for the identification of high consequence scenarios based on the Colombian regulatory update (Major Accident Prevention Program - PPAM)
- Monitoring and follow-up on the status of high consequence scenario barriers (Dynamic Risk Management - GDR)
- Assessing the effectiveness of physical barriers considering the information from the asset integrity tool (SAP).

3

Learning from experience:

- Construction and communication of case studies related to Tier 1 and Tier 2 process safety incidents.
- Review and update of the management procedure for process safety incidents.

4


Risk management:


- Design and communication of quality assurance and control (QAQC) guidelines for asset integrity.
- Design and implementation of a new digital tool for managing changes in process technology (OpenText).
- Design and communication of updated operating analysis guidelines.
- Review and update of the guidelines for the management of contractors with a focus on the material element.
- Review and update of the guidelines for the safe isolation of plants and equipment (SAS)
- Incorporation of process safety practices in hydrogen projects and initiatives.

(GRI 3-3)

How is the Material Element Appraised?

The element is appraised using “Process Safety Performance Indicators for Refining and Petrochemical Industries” (API 754), issued by the American Petroleum Institute. The results are monitored in different instances and timeframes: weekly in the HSE reports, monthly in the performance report submitted to the Executive Committee and the Ecopetrol Board of Directors, and in the monthly HSE committees of the businesses.

-  Tier 1 Process Safety Frequency Index: N1 or “Tier 1” incidents are considered those with the most severe consequences such as disabling injuries or fatalities, major environmental impacts, damage caused by fire or explosion amounting to more than USD 100,000, or losses related to the containment of materials above the limits defined by API 754.

-  Tier 2 Process Safety Frequency Index (IFSP N2): N2 or “Tier 2” incidents are considered minor consequences.

(GRI 3-3-e)




Goals and short, medium, and long term projects.

Short term (2021-2023):

Goals:

-  Process safety frequency index of N1 incidents (IFSP N1) at **0.05**
-  Process safety frequency index of N2 incidents (IFSP N2) lower by **15%** compared to the 2021 result.

Projects:

-  Incorporation of guidelines for NA-TECH (events of natural origin that cause technological accidents) risk assessments.
-  Definition of the process safety strategy for the alternative energy business portfolio.
-  Establishment of individual onsite and offsite risk measurements for all Ecopetrol facilities.
-  Update of Ecopetrol’s risk assessment matrix.

Medium term (2024-2030):

Goals:

-  Process safety frequency index of N1 incidents (IFSP N1) at **0.04**.
-  Process safety frequency index of N2 incidents (IFSP N2) lower by **30%** compared to the 2020 result. (IFSP N1) at 0.04 and (IFSP N2) lower by **30%** compared to the 2020 result.



Projects

- Prioritization and strengthening of asset integrity based on risk management.
- Definition of Process Safety skills for leadership positions.
- Inclusion of hydrogen, gas, and offshore in existing process safety guidelines.

419

Long term (2031-2050):

Goals:

Process safety frequency index of N1 incidents (IFSP N1) at **0.04**.

Process safety frequency index of N2 incidents (IFSP N2) lower by **50%** compared to the 2020 result.

Projects:

- Management of individual non-tolerable on-site and off-site risk values⁴¹.
- Inclusion of NATECH in dynamic risk management.
- Ensure the defined Process Safety skills for all positions that have an impact on it.

⁴¹ Individual risk: Risk of fatality to which an individual is exposed annually for being in a certain location within the environment of an activity.

(GRI 3-3-e)

Main Achievements in Managing the Process Safety Roadmap

- Scenarios identified and managed in light of potential disaster risks.
- Dynamic risk management: progress in understanding and reducing High and Very High critical risks.
- Incorporation of industry standards and best practices for the safe evolution of operations.
- IFSP N1: 0.02 events/million hours worked (3 events), Ecopetrol Group results.
- IFSP N2: 0.05 events/million hours worked (9 events), Ecopetrol Group results.

(GRI 3-3-e)

Monitoring the Effectiveness of the Measures Adopted

<p>1 Reduction of NI (TIER 1) process safety incidents that occurred in the ECOPETROL GROUP: 3 in 2022, compared to a 4 in 2021.</p>	<p>2 Reduction of N2 (TIER 2) process safety incidents that occurred in the ECOPETROL GROUP: 10 in 2022, compared to a 15 in 2021.</p>
<p>3 62.5 % reduction in the risk of high-consequence scenarios (decrease in 15 SCENARIOS with an H rating) compared to 2021.</p>	<p>4 In terms of understanding and reducing the risk of high-consequence scenarios, 86.89% was recorded compared to 74.35% in 2021.</p>
<p>5 Reduction in 23 high-consequence scenarios compared to 2021:</p> <p>(220 SCENARIOS) in 2021</p> <p>(197 SCENARIOS) in 2022.</p>	



[GRI 3-3-e]

Lessons Learned and Incorporation into the Company's Operating Policies and Procedures

The measures adopted are part of the HSE Management System's review and continuous improvement cycle, which have been incorporated into the Company's practices, standards, and procedures. With the foregoing, risks were better addressed in terms change management, the management of high-consequence scenarios, asset integrity management, the incorporation of corporate standards in the risk management of hydrogen projects and initiatives, and the management of process safety incidents. The continuous incorporation of lessons learned from process safety incidents into the HSE Management System has strengthened the standards, practices, and procedures of the material element.

[GRI 3-3-f]

How are Stakeholders Involved in Taking Action to Manage Process Safety?

The employees and contractors that make up the different areas of Ecopetrol and its affiliated companies are responsible for managing the measures to prevent or mitigate potential negative impacts. The Stakeholder Groups, such as local authorities and communities, are informed of the management exerted for the high consequence scenarios identified in the Ecopetrol Group's different areas of influence. The different work teams participate in the drafting and implementation of national regulations in partnership with government authorities and associations.

[GRI 11-8-3; ECP006]

Table 162. | Process Safety* Incidents at all 3 Levels

Number of incidents	Unit of measurement	2022
Tier 1	#	3
Tier 2	#	9
Level 3	#	4,688

Source: HSE Vice Presidency

Note 1. Tier 1 and 2 process safety incidents are events associated with hydrocarbon transportation processes that reported loss of containment of a hazardous substance. Level 3 events are losses of containment of less than one barrel that do not affect people, the environment, the economy, or the Company's reputation.

Note 2. The data reported here covers the entire Ecopetrol Group.

Frequency Index of N1 Incidents (IFSP N1):

High consequence scenarios and H risks were reduced in some of cases: -
23 high consequence scenarios (current: 197), **-10 H risk scenarios** (current: 9)

Table 163. | Number of Tier 1 Process Safety Events per Million Hours Worked.

Frequency Index of N1 Incidents (IFSP N1):	Unit of measurement	2019	2020	2021	2022
Number of incidents per million hours worked	#	0.03	0.05	0.03	0.02
Data coverage (as a % of employees, operations, or income)	%	100	100	100	100

Source: HSE Vice Presidency

Frequency Index of N2 Incidents (IFSP N2):

Table 164. | Goal towards the number per million hours worked in 2022.

2019	2020	2021	2022
-	-	0.05	0.04

Source: HSE Vice Presidency

(SASB EM-EP-540a.1)
(SFC XVI)

Table 165. | Process Safety Event (PSE) Rates for Highest Consequence Losses of Primary Containment (LOPC) (Tier 1).

Process Safety Event (PSE) rates for Highest Consequence Losses of Primary Containment (LOPC) (Tier 1)	Unit of measurement	2019	2020	2021	2022
Total hours worked in the year (employees and contractors)	Hours	60,656,309.99	39,952,404.92	43,899,948.45	94,465,218.16
Number of Process Safety Events (PSEs) for Highest Consequence Losses of Primary Containment (LOPC) (Tier 1)	#	3	5	2	2
Process Safety Event (PSE) Rate for Highest Consequence Losses of Primary Containment (LOPC) (Tier 1)	Rate	0.05	0.13	0.05	0.004

Source: HSE Vice Presidency

[SASB EM-EP-540a.2]
(SFC XVII)

Management systems used to identify and mitigate catastrophic and final risks.

In the Ecopetrol Group, process safety tends to achieve the best operating performance, intervening in the greatest risk of technological origin by adopting the necessary measures and actions to prevent and mitigate the release of hazardous substances or energy. The impact of these measures is to reduce operating and occupational incidents with the potential for a major accident or disaster, providing an effective management framework for Ecopetrol's operations and demonstrating commitment to the principle of "Life First" under the Declaration of Culture.

Within the TESG pillar, Ecopetrol's ambition is to become a global benchmark in industrial safety, adopting best practices and undertaking operations within tolerable levels of Process Safety risk. To achieve this, the Company focuses on the four lines of work mentioned above under the section of "How is this material element managed?"

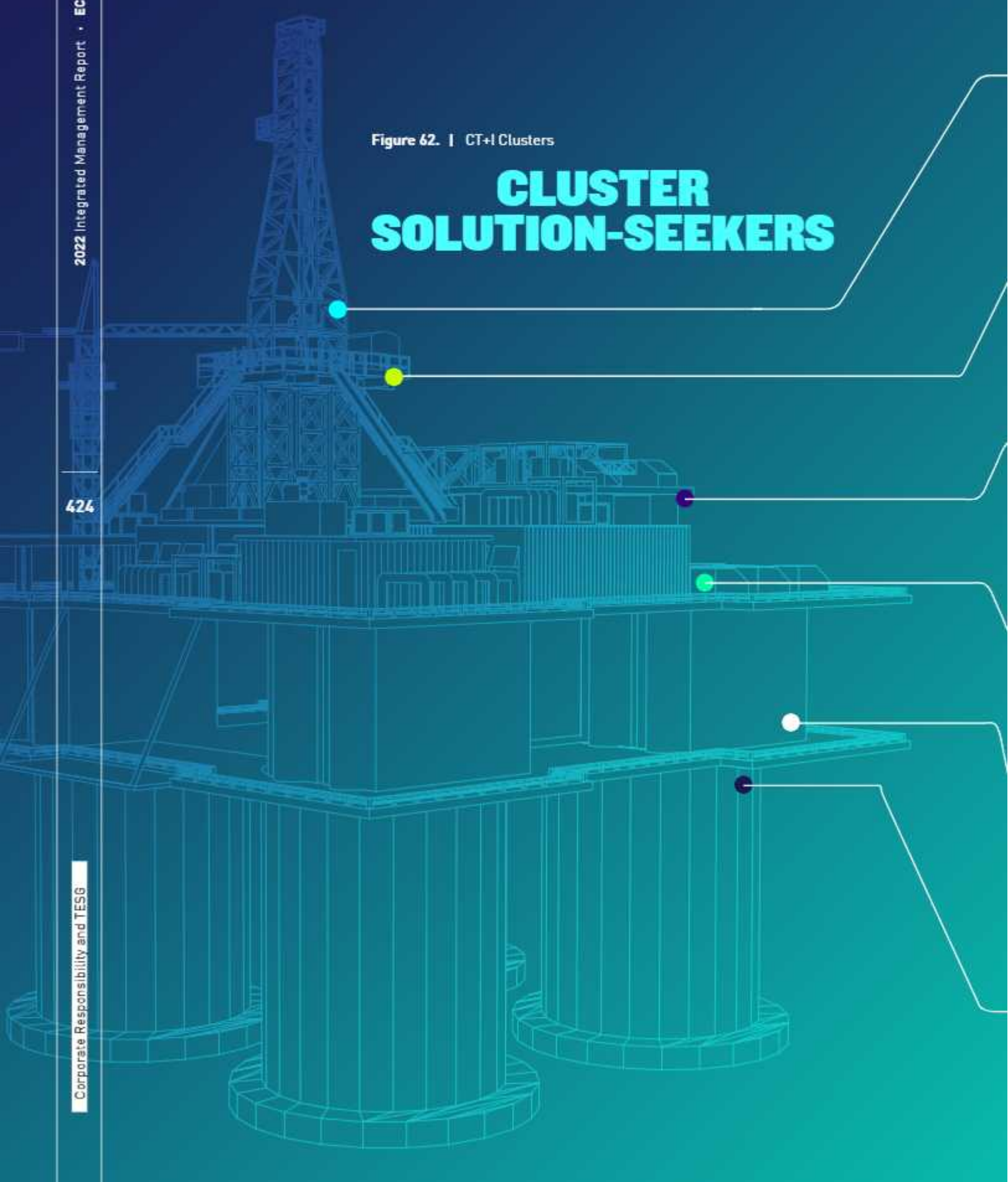
IV.4. Science, Technology, and Innovation

The 2040 Strategy requires robust support in terms of expertise, technology, innovation, and human talent to leverage the competitiveness of the traditional business, diversify energy sources, accelerate decarbonization, and implement the TESG agenda. This is why "Cutting-edge Expertise" is one of the drivers of the Company's vision, and within this, the science, technology, and innovation (ST+I) strategy continues to evolve and is consistent with global trends in terms of technology and innovation, which materializes into the commitment to generate an incremental EBITDA of between 20 and 30 TRILLION USD by 2040, with the unification of the portfolio, joint planning with the business, and execution systems.

Declaring CT+I as the main lever for sustainable growth acknowledges the need to adapt, adopt, develop, and access, by means of global knowledge ecosystems and forms of science, technology, and innovation applied to the great challenges of the energy transition and climate change. In this order of ideas, the Ecopetrol Group established a link between strategic goals and technological challenges through clusters, which propose disruptive solutions to major obstacles using cutting-edge technology. These clusters are the guiding principles of the CT+I strategy. They steer and focus the efforts of the Ecopetrol Group and its Energy Human Tech ecosystem.

Figure 62. | CT+I Clusters

CLUSTER SOLUTION-SEEKERS





Decarbonization

Zero net emissions (100% Scope 1 and 2, and 50% Scope 3) vs. 2019 to 2050.

- Energy Efficiency.
- Advanced biofuels.
- CCUS.
- Natural climate solutions.



Resilient Assets

Contribute to production growth of 750 kbp by recovery, exploration, and international growth to 2040.

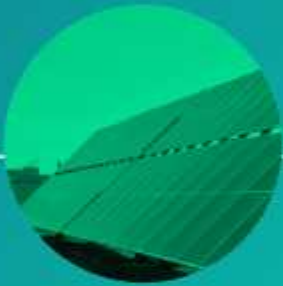
- Dilution
- Transportation diversification
- Smart grids
- Reserves and production
- Operational availability
- Cost efficiency



TESG

Boosting economies, education, and access to public services by 2040.

- Smart territories
- Impact innovation
- Regional showcase
- Transparency
- Government



Energy Transition

Leverage 6% of the business diversification target with low-emission H2 by 2040

- Hydrogen
- Photovoltaic
- Wind
- Storage
- Petrochemicals 2.0
- Distributed generation
- Geothermal



Industrial Revolution 5.0

Achieve 100% automation of processes 100% by 2030.

- Robotics and automation
- Digitalization
- Cybersecurity
- 5G
- Quantum
- Advanced materials



Circular Economy

Reduce fresh water catchment 2030 - 58%; 2045 - 66% and zero discharges by 2045.

- Water
- Chemical recycling
- Waste use

(GRI 102-19; 2-13)

Ernesto Gutiérrez de Piñeres, Vice President of Science, Technology, and Innovation, is the leader of the CT+I strategy, materializing it into an evolving operating model to ensure flexibility, agility, strategic focus, and superior performance, by means of four (4) dimensions:

- **CT+I Planning:** CT+I investment guidelines and portfolio planning.
- **Innovation and orchestration:** scouting of solutions, maturation, and steering.
- **Execution** depending on internal capabilities and technological maturity.
- **Marketing** and technology transfer.

Furthermore, the CT+I strategy strives for: (i) productivity: agile, simple, compliant, and productive processes to focus people on activities that generate value, (ii) extension of capabilities: smart digital operations and infrastructures, and (iii) cybersecurity: secure and available digital operations. Consistent with this, the Vice Presidency is also made up of a cybersecurity and cyberdefense management unit.

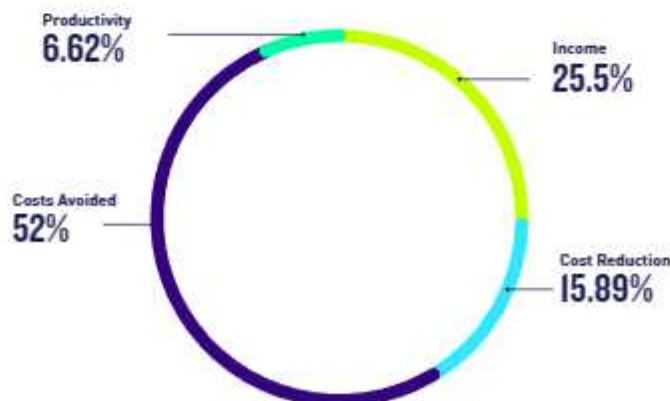
CT+I Value in 2022

In 2022, the CT+I portfolio consisted of 201 projects in execution, generating certified benefits in the amount of 595.67 MUSD. 42% of these benefits are reflected in income, mainly from incremental production –5.06 Mbbl, avoided deferrals, reduction of costs and expenses, reduction of CAPEX, and optimization of midstream inventories. The income from the licensing of technologies to third parties is also worth highlighting, with important technologies such as EGOs, which helps reduce the theft of fuels in hydrocarbon transportation infrastructure; Codilution, a system that injects LPG as a codiluent for crude,

reducing the requirement for naphtha and other high-value inputs; and Jupiter Additive, which improves the mobility of heavy crude, thus reducing naphtha requirements in production operations; and the income generated from the provision of support and technological development services to Group companies and third parties.

The CT+I initiatives contributed to the operating efficiency, the generation of TSEG value and the competitive advantage of the businesses, through the automation of processes and the implementation of cutting-edge technologies.

Figure 63. | Profit Distribution



Source: Vice Presidency of Science, Technology, and Innovation





The digital agenda highlights the value deriving from the implementation of cutting-edge technologies to systematically scale up smart, safe, and sustainable products and processes for the Group. The implementation of the energy optimization project stands out, which generated benefits due to the reduced gas consumption in the operation of the Barrancabermeja and Cartagena refineries, and also contributed to the reduction of 14,578 tons of CO_{2eq} emissions. Similarly, the implementation of the digital programmer in the operating supply chain contributed to maximizing the crude oil margin and reducing the cost of financing the stock.

With regard to the business technology agenda, the certified benefits are worth highlighting thanks to the performance of the FCC catalysts in the Barrancabermeja refinery, which allowed higher production and improved quality of valuable products

(gasoline and diesel). The use of the Jupiter technology in the Chichimene field also led to higher revenues due to the mitigation of **1,673 Kbls** of deferred production. With the implementation of the Codilution technology, the Group's operating margin improved by optimizing dilution costs, substituting part of the imported naphtha for the dilution of Castilla, Chichimene, and CPO9 crudes, using LPG from the Apiay, Cusiana, and/or Cupiagua plants.

The CT+I strategy represents a value promise of **2.5 TRILLION USD** in cumulative EBITDA between 2018 and 2023. To date, the value generated amounts to **2.5 TRILLION USD** (100% of the promise), of which **1.86 TRILLION USD** are certified and **638 MUSD** are written off.

(WEF 20)

Table 166. | CT+I Investments (MUSD)

427

	Digital Transformation Investments	R+D+i investments and expenses
2019	51.70	33.6
2020	65.10	22.03
2021	53.30	41.41
2022	60.37	44.68

Source: Vice Presidency of Science, Technology, and Innovation

* Note: Includes only figures for R+D+i investments and expenses in business technology. The creation of the Vice Presidency of CT+I and the Innovation and Technology Center - ICP in 2022 consolidates and leads the execution of the digital transformation and business technology portfolio.



2022 CT+I Balance

Energy Transition

CCUS: development of the methodology, protected as a Copyright Registry for evaluating the effectiveness of Roca-Sello. This methodology is applicable to the evaluation of conventional prospects and is of great relevance in the evaluation of Roca-Sello for the geological storage of CO₂, which was used successfully to analyze the pre-feasibility of CO₂ storage in the Castilla, Chichimene, and Llanito fields (mugrosa formation).

A surface monitoring methodology for CO₂ emissions was implemented using remote sensors, which established a recommended workflow to monitor vegetation anomalies due to the presence of CO₂. The work was implemented in the Putumayo basin (San Gabriel block), and the methodology is scalable for the generation of the necessary baselines in the areas intended for CO₂ geological storage projects.

High enthalpy geothermal areas: identification of geothermal potential in the Colombian subsoil, specifically in the deposits of Cordillera (P50: 152 MW) and the Llanos basin (P50: 59 MW), as well as the identification of technologies and possible strategic partners for development and use.

Together with the Vice Presidency of Low Emission Solutions, a request was filed with the Ministry of Mines and Energy (MME) for polygons under a transitory regime, geothermal exploration projects in areas located in Llanos (Manacacias-Almagros) and the Rubiales and Caño Sur fields. The corresponding exploratory permits were requested for these polygons, in order to conduct studies that contribute to the geological, geophysical, and geochemical understanding of the areas and their respective high enthalpy geothermal reservoir. Based on the MME's response on exploratory polygons requested by Ecopetrol, high enthalpy geothermal projects in Llanos will focus on Rubiales and Caño Sur, where thermal gradients greater than 50°C/Km were identified.

A subsurface geological model of the Valle de Nereidas area was produced, including the discrete fracture network (DFN), in order to locate the best drilling prospects in this high enthalpy geothermal area.



Offshore power generation: the theoretical power generation potential of each source (marine/ocean currents, offshore wind, tidal, floating solar, thermal gradient, and saline gradient) in the Colombian maritime territory was determined, with offshore wind potential being the most prominent at present in the northern Caribbean region. A methodology based on SIG3 was similarly generated to identify unrestricted areas, coming from aspects such as underwater facilities, marine ecological conservation zones, fishing activities, among others. Finally, the best technologies applicable to Colombia for the generation of offshore renewable energy were appraised and selected, establishing their degree of technological advancement and adaptability to the conditions of the Colombian maritime territory, which is critical information to leverage the Ecopetrol Group's energy and decarbonization transition plans.



Green hydrogen production pilot test: this took place between April and August at the Cartagena refinery, with a production of 775.53 kg of high-purity (99.997%) H₂, which was incorporated into the refinery's operation. The test validated the performance of the PEM technology (proton exchange membrane cells). This green hydrogen reduces CO₂ emissions by 9.7 Kg for each kg of H₂ generated, compared to gray hydrogen.



Decarbonization



1 **Natural carbon sinks:** carbon quantification and monitoring methods were formulated in five (5) strategic ecosystems (wetlands, rain forests, Andean forest, moorlands, and Caribbean mangroves) due to their decarbonization potential for the country.



2 The design of the spatial, environmental, and ecological data infrastructure began, together with Microsoft, with standards, procedures, and technological resources for the management of Nature-Based Solutions, including multiple technological tools for decision-making in decarbonization matters, management of environmental obligations, environmental incidents, and socio-environmental investment, which served as an innovative digital information management model for the Company and its Group, as well as for the territories and for global analyses.

3

A CT+I partnership between IDEAM, Fundación Natura, and ICP is working on a structure that generates value for the country by updating the national cartographic information on land cover to revitalize the processing, interpretation, and analysis of data on changes in coverage, and co-formulating the quantification and monitoring protocols for strategic ecosystems that expand the portfolio of decarbonization alternatives for Ecopetrol and its Group.

TESG and Circular Economy



1 The first versions of the water management platform, developed jointly with Accenture and AWS, were deployed focusing on the optimization of water catchment, use, and discharge processes at the Barrancabermeja refinery, in the conventional (Ocelot de Hocol field) and unconventional (Permian) upstream. This platform represents a key effort towards the goal of being a water neutral Company by 2045.



2

Technological and business model innovations were made in circularity and in the use of water as an Ecopetrol Group asset. In 2022, sustainable production was enabled using water and hydrocarbon separation, and domestic and industrial wastewater polishing technologies. Progress was similarly made in obtaining nanofertilizers and microbial consortia for agroforestry irrigation, enabling a new alternative for water evacuation and advancing in the implementation of the water neutrality strategy, by ensuring the reduction of catchment and discharges.



2 Progress was made together with Esentia in the chemical recycling initiative, with the evaluation of two (2) pyrolysis oils from Spain and Brazil. This evaluation evinced that it is possible to obtain propylene yields of at least **10%**. Also, plastic samples from the Manzales landfill (Colombia) were characterized.

3

In terms of hydrocarbon circularity, technological developments were generated to allow the production of new materials from heavy refining bottoms such as Demex and PetCoque.

Resilient Assets and Business Technology Services:



780,000 incremental barrels of oil added to the production goal with the use of:

- Enhanced recovery technologies: air injection, foam injection for steam recovery, and chemical injection for the conformance of water injection processes.
- Well stimulation technologies: Nano Water Wetter, NanoRPM, and EcoRPM.



Carbon-intensity was reduced by **55.4%** in the cyclical steam injection process, and the energy efficiency of the process increased by **54.88%** with the implementation of preformed foam technologies, which led to an incremental oil production of **12,000 barrels**.

430



The injection wells in the Casabe field were optimized with the use of conformance and broken pipe sealing gels at high-concentration formulations, which recorded an incremental production of 28,000 barrels of oil.



The biostratigraphic support (identification of the target horizon using microfossil analysis) contributed to the successful drilling of the discovery well in the Uchuva - 1 discovery, by specifying the correct position in depth of the gas reservoir.



The implementation of the codilution technology in Cusiana reduced up to **63%** in the use of conventional diluent (naphtha diluent) per barrel of LPG injected (1.7 BLS of conventional diluent / barrel of LPG injected).



1.7 MBLS of deferred production were mitigated thanks to the application of the Europa additive in two wells in the Suria field (T2 formation) and in areas of the Chichimene field where no diluent was available to transport production fluids from the clusters to Chichimene station.



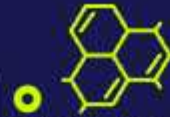
Transformation of laboratories and pilot plants of the Innovation and Technology Center (ICP):

- Improvements were made to the Laboratory Management System in 2022 by ensuring good quality practices in compliance with the NTC ISO/IEC 17025 standard, thus increasing the quality and efficiency of the experimental activity by simplifying procedures and requirements.
- Progress was made in the technological transformation of the laboratories and the maintenance area of the ICP, in line with the implementation of digital information management tools and the automation of statistical analysis processes and the interpretation of results.

Industrial Revolution 5.0



The energy transition advanced with the implementation of the Visual Mesa digital tool, which allows real-time optimization of the power generation systems at the refineries using digital twins of the gas, steam, electricity, and water power systems. This increases process efficiency and reduces operating costs and CO2 emissions at the refineries. An emission reduction of more than **35,000 tons/year** is expected by 2023.



A digital solution was designed and implemented to support the scheduling decisions of the crude supply chain by developing a genetic algorithm that simulates and optimizes crude flow scenarios from the well to the export or refining site.

ROMSS4, a system to manage inventories, movements, and balances, was implemented in the Cartagena and Barrancabermeja refineries, facilitating and expediting decision-making in volumetric processes with a direct impact on the refining margin.

In partnership with Accenture, Claro, and Microsoft, the first 5G pilot test for industrial use was conducted in maintenance operations at the Barrancabermeja refinery, with the use of secure devices for real-time remote assistance, which reduced three (3) days of maintenance and generated optimizations in the activity amounting to more than **1 MUSD**.

431

In 2022, Campo D (digital field), a set of digital factories focused on developing products using agile frameworks, stood out in Accenture's Business Agility measurement as top performer in agile maturity, exceeding the benchmark by **26 points** when compared to more than **4,600 teams** around the world, including Fortune 500 companies. The most relevant results were: (i) development of more than 700 accumulated digital products for the business, including robots, chatbots, analytical models, software developments, datamarts, integrations, and master data, (ii) **286,000** man-hours released, leading to a cumulative productivity of **606,000** man-hours, (iii) more than **5.3 million** successful transactions, (iv) more than **200 robots** operating, and (v) more than 50 products for subsidiaries such as Esenttia and Genit.

Ecosystems

An agreement was entered into with the State of Bavaria, Germany, to exchange knowledge in sustainable development models, energy transition, methodologies and best practices, and in leveraging technological developments. This agreement has allowed Ecopetrol to actively present its technological challenges to different German companies, in order to hear alternative innovative solutions from the different companies and seek potential paths of collaboration to solve these challenges.

The Company is working together with Finland to learn about their experience developing ecosystems thanks to the efforts deployed by their government. The main information exchanges for 2022 include the presentation of ECO3, a specific decarbonization and biogas ecosystem.

[SFC 7.4.1.1.1.V] **Intellectual Property**

Figure 64. | Valid Granted Patents

GRANTED IN FORCE

+ 2 in Brazil, Indonesia, Peru, Russia, Venezuela
1 in Nigeria, Malaysia, India, Ecuador, and Argentina

○ Ecopetrol has consolidated itself as the leading company in the development of technology in the country, with the highest number of patent applications and patents granted.

○ As of December 2022, Ecopetrol holds 124 valid patents, 16 of them granted in 2022 (13 in Colombia, 2 in Venezuela, and 1 in the United States).

○ Some of the benefits of these innovations include: (i) separation of fluids during the crude oil extraction process to start the treatment of the water produced in the well, (ii) use of nanotechnology to control microorganisms in production water and pipeline deterioration in the oil fields, (iii) cost reduction in the first phase of the crude production process, (iv) reduction of the carbon footprint, and (v) development of environmental studies in sea and ocean ecosystems using an underwater glider.

Table 167. | Inventory of Intellectual Property Associated with Technological Products

Intellectual Property Registry	2017	2018	2019	2020	2021	2022
Granted patents	5	15	8	8	8	16
Newly filed patent applications	12	17	19	17	24	17
Copyright registrations obtained	39	25	41	46	31	37

Furthermore, as of December 2022, Ecopetrol registers seventeen (17) accumulated industrial secrets, seven (7) industrial designs, and (23) licensing contracts that monetize part of Ecopetrol's technology portfolio.

Risks Associated with Intellectual Property and Controls

Ecopetrol has identified three (3) risks associated with intellectual property, for which it has established a series of controls whose effectiveness is periodically monitored by the Company.

- Lack of technical rigor in the structuring of technology assessments and business cases for the commercial exploitation of solutions. To mitigate this risk, the business cases presented to the Business Opportunities Committee are approved upon being submitted to the expert judgment of the ICP managers and other members of the Committee.
- Inadequate capture of the economic and strategic value of licensed technologies. To mitigate this risk, improvement actions are monitored, controlled, and incorporated into the marketing plans and licensing contracts for each of the licensed technologies by reviewing the commitments acquired.
- Leakage or loss of highly classified technical-scientific information and failures in the implementation of intellectual property protection strategies for technological solutions developed by Ecopetrol. To avoid the materialization of this risk, the technological products developed are approved, with the definition of the intellectual property protection strategy and the complementary protection thereof in the Scientific Technical Committee of the ICP.

Innovación

- More than **100 challenges** captured in all segments of the Ecopetrol Group.
- Roughly **350 startups** contacted during the exploration phase.
- **24 challenges** launched into national and international ecosystems.
- **21 pilots** started and **14 pilots** completed to date as a result of the open innovation process.
- More than **80 direct jobs** created.
- Around **1.5 MUSD** executed in the deployment of pilots.

Some of the outstanding results include:

- Drilling schedule, in order to reduce operating costs by optimizing the drilling schedule.
- Office Hotelling, which provides a solution for the optimization and assignment of jobs in the new normal.
- Remote monitoring, allowing an **80%** reduction of CAPEX in the model and mitigating the risk of seizure and the likelihood affecting the integrity of the infrastructure.
- Prediction of occupational diseases, to warn of the risk of diseases, improve the work environment, and increase productivity. This initiative is implemented by the Ministry of Health of Colombia.

Econova

Proprietary brand for the Ecopetrol Group's Science, Technology, and Innovation strategy

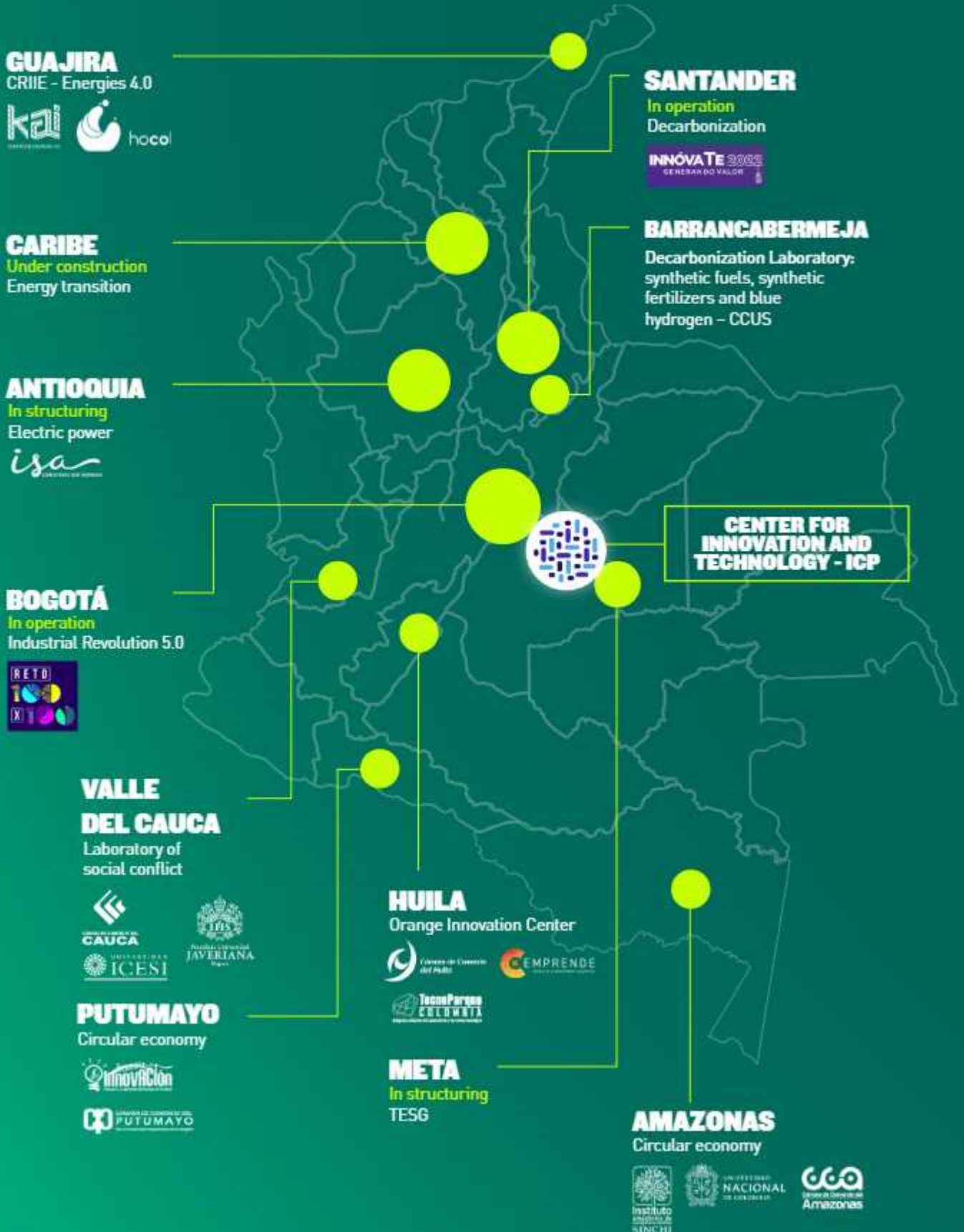
The new CT+I vision is built around the Science and Technology Campus - ICP in Piedecuesta (Santander). This technological development center has been leading industry research in the country for more than 35 years, with highly specialized talent and technological and scientific infrastructure, generating invaluable knowledge for the country.

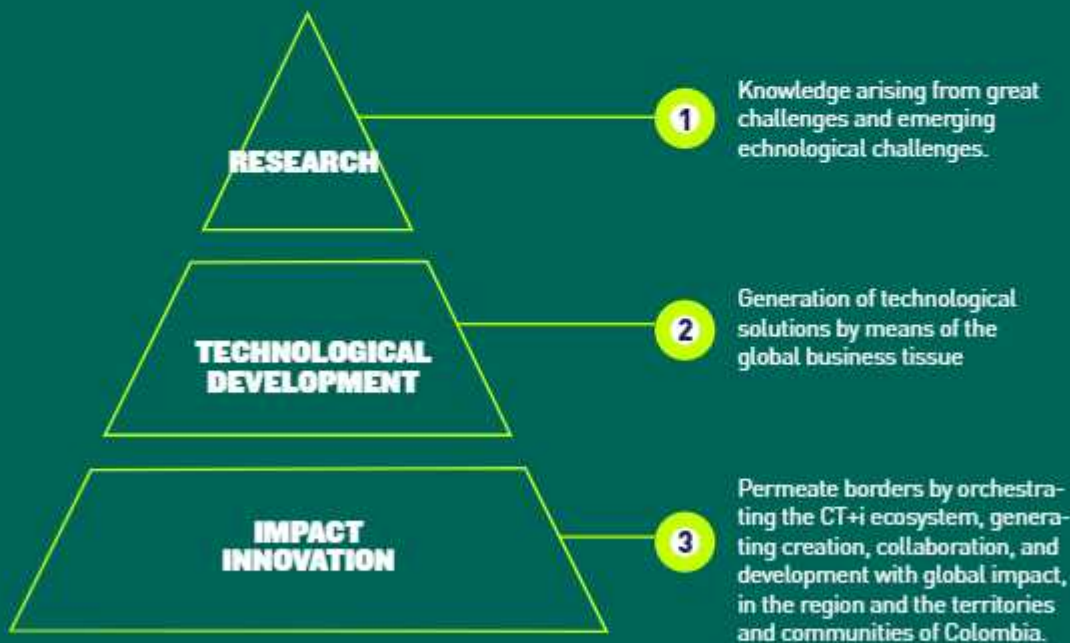
The Econova Innovation and Orchestration Network seeks to consolidate an Energy Human Tech ecosystem focused on solving challenges and cross-cutting missions of the industry, through regional open innovation centers, as shown in the image below:

Figure 65. | Energy Human Tech Ecosystem

FIRST ENERGY HUMAN TECH ECOSYSTEM

At the service of the industry, the country, and latin america





Source: Vice Presidency of Science, Technology, and Innovation



Open network of safe spaces to innovate and experiment through the articulation of a world-class ENERGY-HUMAN TECH ECOSYSTEM dedicated to solving global challenges with a focus on the 6 CT+I clusters.



The strategy currently contemplates the creation of five (5) interconnected regional nodes: Caribe, Antioquia, Meta, Bogotá, and Santander. The purpose of this ecosystem is to orchestrate knowledge and strengthen the country's innovation network by connecting with external innovation laboratories and capacities.

The Innovation Center in the Caribbean was deployed in 2022, with the following remarkable achievements:



Agreements with the Caribbean Chamber of Commerce for the articulation of the ecosystem and the operation of the center, with the National Learning Service (SENA) operating the technopark and the Cartagena refinery operating the mobility park.



The incorporation of a virtual layer through the metaverse of the Innovation Center, which has been visited by close to **500** people, including Colombian businesspeople, government officials, and entrepreneurs, who have toured the green hydrogen generation system, the micro-LNG pilot, and the integrated water management platform, in order to disseminate awareness about these projects.



Within the framework of the International Mission of Wise Men, the Ministry of Science, Technology, and Innovation, the Ministry of Mines and Energy, and Ecopetrol entered into a third cooperation agreement aimed at scaling up manufacturing processes, constructing ecosystems and capacities for the energy transition, and strengthening regional innovation centers in pursuit of turning Colombia into a productive, sustainable, and equitable knowledge society. Ecopetrol contributed **10 million USD** to this end and will focus on issues such as non-conventional energies, bioindustry, water circularity, and CCUS.

437



THE ECONOVA INNOVATION AND ORCHESTRATION NETWORK SEEKS TO CONSOLIDATE AN ENERGY HUMAN TECH ECOSYSTEM FOCUSED ON SOLVING CHALLENGES AND CROSS-CUTTING MISSIONS OF THE INDUSTRY, THROUGH REGIONAL OPEN INNOVATION CENTERS.

RELEVANT CORPORATE RESPONSIBILITY ISSUES

438





The Ecopetrol Group is committed to adopting responsible business conduct, avoiding and addressing the negative consequences of its operations, while contributing to the sustainable development of its territories and countries of operation. In this sense, the Company acts with due diligence to identify, prevent, mitigate, and remedy, if applicable, the current and potential negative impacts generated by its operations.

Below are, therefore, a series of cases that have required special attention for the proper management thereof, in order to identify, prevent, and mitigate any negative impacts, while monitoring the implementation of action plans and their results, and reporting on how these negative impacts were addressed.

Lisama 158 contingency

Progress in environmental recovery

Ecopetrol continues with the execution of the environmental recovery activities established due to the contingency presented in the Lisama 158 well in March 2018, following the actions described in the Environmental Recovery Plan - PRA, which integrated the guidelines and management measures set forth in the Comprehensive Environmental Management Plan Applicable to Seas, the recommendations issued by the Alexander von Humboldt Institute (IAvH), the guidelines generated by the UN, and the advice of partner expert consultants, the Geotechnology company, and Universidad Industrial de Santander - UIS.

The PRA considers the biotic, abiotic, and social components, as illustrated below:

INTERVENTION STRATEGIES BY COMPONENT



The following actions were adopted as part of the comprehensive management of biodiversity for the ecosystemic recovery of the area:

Comprehensive biodiversity management - Measures for ecosystem recovery - Lisama 158 Contingency			
Water-Soil	Fauna	Flora	Environmental monitoring
Cleaning of bodies of water	Construction of land habitats and water microhabitats	Cleaning of impregnated small trees	Follow-up on the vegetation in the category of small trees, sapling, pole stages
Removal of impregnated soil	Reincorporation of wild fauna	Rehabilitation of 103 Ha (Flora) - Conservation agreements	Follow-up and monitoring of land and tree fauna adaptation, abundance of fish stocks and semi-aquatic and reinserted species
Dismantling and structuring of contention works, transfer pools, and geodren planar point of control.	Monitoring using camera traps	Rehabilitation of 4.13 Ha Zones zero and one - property purchases	Monitoring of water nutrients and sediments and their incidence in hydrobiological communities
Compensation			

Cross-cutting monitoring of the condition and tendency of the Ecosystem - Alexander von Humboldt Research Institute and Ecopetrol S.A.

Monitoring using camera traps

Follow-up measures using camera traps in the riparian forest in the Lisama gully and La Muerte spout.

The cameras used around the gallery forest of La Muerte. Obtaining audiovisual and photographic material, capturing 26 species, some of them living in areas with limited disturbance such as the *Leopardus pardalis*.



Image 1: Tayra.



Image 2: Anteater.

Follow-up measures using camera traps in Zones zero and one.

Two camera traps were installed to identify the presence of some fauna species (Díaz & Payán, 2012), recording the following: for the reptiles biological group, 2 orders, 2 families, 2 genres, 2 species, and **5 records**; for the birds biological group, 9 orders, 10 families, 11 genres, 11 species, and **245 records**; and for the mammals biological group, 4 orders, 11 families, 13 genres, 11 species, and **457 records**



Image 3: Dog-fox recorded in the Santo Tomás II Farm.



Image 4: Ocelot recorded in the Santo Tomás II Farm.

442



Image 5: Jaguarundi recorded in the Santo Tomás II Farm.



Image 6: Anteater recorded in the Santo Tomás II Farm.



Image 7: Macaw recorded in the Santo Tomás II Farm.



Image 8: Agouti recorded in the Santo Tomás II Farm.



Water

- Cleaning of **27,226 m** on the La Muerte spout and Lizama Creek
- Development of **18** water, sediment and hydrobiological monitoring campaigns



Flora-zone zero and one

- **0.12 ha** Revegetated with ground zero grasses
- **8,277** seedlings planted in zone one
- Compensation of **30 trees** on the Santo Tomás II property



Flora-riparian forest

- **53.78 ha** under rehabilitation
- **54,651** seedlings established



Fauna

- **2,400** individuals reinstated
- **135** habitats and **34** microhabitats constructed
- **18** monitoring campaigns



Monitoring

- **5,745** samples analyzed (water, soil, air, sediments, hydrobiological)
- **6** flora-plot campaigns
- **9** Campaigns of Flora - Fustales
- **4** monitoring of water and sediment nutrients and their impact on the hydrobiological communities



Biodiversity

- **1** Ecological environmental assessment
- **4** Monitoring campaigns for biodiversity and ecosystem services

These activities are subject to monitoring and control by Environmental Authorities such as ANLA, with the participation of the CAS and municipal environmental secretariats (Barrancabermeja and San Vicente de Chucurí), producing reports on a quarterly basis. The 17th quarterly report on the progress of activities was presented in November 2022, with a progress of **93.7%**.

By means of Record 195 of April 27, 2022, the National Authority of Environmental Licenses (ANLA) concluded the monitoring of nine (9) data sheets established in the PRA, and nine (9) out of the 18 data sheets established in the PRA pertaining to the following topics continue to be valid:



1 Vegetation restoration



2 Production of plant material



3 Information and training to communities



4 Monitoring of the soil component, and of biodiversity and ecosystem services.



Social Advancements

444

As part of the strategy for the advancement of environmental recovery, engagement sessions were held with communities, authorities, and institutions, including spaces for tripartite dialogue and systematic meetings with artisanal fishermen. These spaces led to the establishment of a two-way communication channel with stakeholders, presenting the progress made on the PRA and the complementary measures adopted with the communities of influence.

As part of compliance with the PRA, training and education programs were to the communities, including topics such as open-water rescue, customer service, community tourism, entrepreneurial behavior, and agricultural and ecological production for food sovereignty taught by SENA, and training in the collection of fishing information taught by Universidad del Magdalena. Complementary training was offered in environmental and ecological issues, with the guide of the professionals from the social and environmental team of the Central Regional unit, and in articulation with the academia to strengthen the knowledge of students in robotics and programming subjects.

Focused on contributing to the well-being and community growth of the populations located in the sectors of influence, 19 voluntary investment projects were executed, including the improvement of infrastructure and the equipping of nine (9) **educational institutions**, one (1) **health post**, one (1) **multifunctional event hall**, two (2) **sports centers**, two (2) **community halls**, road improvements, provision of robotics kits for two (2) **educational institutions** and implements and clothing for dance groups, and last but not least, the rural gasification in La Lizama and La Fortuna. In addition to the above, several projects have been executed to contribute to environmental recovery and the revitalization of fishing, such as river sentinels, rehabilitation of riparian corridors, monitoring of fishing activities, and the diploma course in capacity building as an integration strategy in the ecological rehabilitation and monitoring projects taught by UNIPAZ.

More than six (6) tree planting days have been held in different areas in the municipalities of Barrancabermeja, Cantagallo, and Sabana de Torres, in order to foster the protection and

conservation of nature. Also, volunteer activities have been held with the support of Fundación Grupo Ecopetrol (Fundación Ge), which strengthened food security for the fishing families in the village of El Llanito de Barrancabermeja and in the municipality of Cantagallo through the implementation of home orchards, which encouraged the adoption of healthy lifestyle habits and benefited the family basket.

The Company also contributed to the bans on striped catfish in the region by handing out posters and deploying a dissemination campaign. Attention and support were similarly paid to the follow-up visits conducted by the ANLA to monitor compliance with the requirements established in the PRA, thus benefitting **2,000 people** in the municipalities of San Vicente de Chucurí, Puerto Wilches, and the district of Barrancabermeja.

Community Dissemination and Socialization Strategy

The measures and results obtained in the execution of the Environmental Recovery Plan are disseminated using different strategies, including social media, public announcements, participatory workshops, Tripartite Committees, and others, as illustrated below:



Lisama: facts, heart, and future



Chapter 1: **Ecopetrol presents**



Chapter 2: **Dialogue that builds**



Chapter 3: **The recovery**



Chapter 4: **Lisama: facts, heart, and future**



Dialogue with the U'wa People

Thanks to Ecopetrol's participation in the Discussion Table between the National Government and the U'wa People⁴² in 2017, communication between Ecopetrol and Asou'wa has strengthened through intercultural workspaces aimed at reinforcing trust and mutual understanding. In these spaces, Ecopetrol has had the opportunity to become acquainted with the U'wa people, and the participants have been able to listen to their concerns and answer questions about Ecopetrol's activities.

Since 2018, an engagement plan began between Ecopetrol and Asou'wa (Association gathering the 17 communities of the United U'wa Reserve in Santander, Norte de Santander, and Boyacá) for the construction of a joint vision for the territory based on three (3) pillars: direct and permanent dialogue, mutual understanding, and the strengthening of trust. The plan has allowed communities to shift away from confrontation and resistance to being willing to establish dialogue, mutual understanding, and to exchange knowledge. Moreover, the engagement plan focuses on delving into environmental protection strategies and on determining how to avoid or mitigate the impacts arising from the deployment of extractive activities.

In 2022, Ecopetrol took on the challenge of solidifying trust with the new Asou'wa Board of Directors for the period of 2022 - 2025, in order to continue the intercultural dialogue and the social investment proposals planned for the benefit of the U'wa People.

The "Construction of the Joint Vision for the Territory" strategy, which is part of the Engagement plan, allowed mutual understanding between the community and the Company for the generation of trust. To this end, knowledge exchange activities were organized with an intercultural approach in order to understand why there are needs and concerns associated with the preservation of the U'wa People in the midst of industrial activities.

Agreements were reached in 2022 on the contents of some community benefit projects for the U'wa people, pertaining to food security and health, planned jointly with the authorities of the U'wa people, bearing in mind that the

cultural conditions specific to the U'wa must be a priority to ensure an effective approach and a successful project, as well as the improvement of ancestral roads for an easier and safer mobility of the community within their reserve.

With regard to infrastructure such as meeting spaces for the communities, the structuring of the Center for Intercultural Reflection of the U'wa indigenous community in the municipality of Cubará (Boyacá) was completed in 2021, and the agreement for construction was signed in 2022, also with a protocol ceremony of placing the first stone for the start of the project, which will benefit more than **7,500 people**. After several years of disengagement, today, there is a stable and permanent line of communication with Asou'wa.

On the other hand, healthcare days were held in the Catatumbo region, with the support of Fundación Operación Sonrisa and Profamilia, benefiting 3,500 children and mothers of the U'wa indigenous community.



Source: Vice Presidency of Sustainable Development

Temporary Suspension of Discharges into the Guayuriba River (Colombia)

Ecopetrol currently holds a permit to discharge treated production water into the Guayuriba River⁴² arising from the production activities conducted in the Castilla field, located in the municipality of Acacias in the Department of Meta.

On December 14, 2020, the Cormacarena Environmental Authority imposed a preventive measure to suspend discharges due to apparent contamination detected in the water source, according to the visits made by the Authority in the months of March and October that year, and also due to an alleged breach of the provisions set forth in Follow-up Order PS-GJ.1.2.64.20.0329 of 2020⁴³.

Ecopetrol submitted several requests to the environmental authority to lift this measure, arguing that the discharge conditions fully complied with the provisions of Resolution 631 of 2015 and with local regulations on water quality objectives. Furthermore, an action plan was presented for the improvement of the river's water conditions, including short, medium, and long-term measures to mitigate the effects caused by the natural clogging of the river, enhance dilution, and improve the quality of the discharge. This action plan was approved by the environmental authority.

Considering the above, Cormacarena ordered the provisional lifting of the preventive measure on June 11, 2021, subject to verification of the actions initiated by Ecopetrol. The permanent lifting of the preventive measure was

requested on November 24, 2021, given the Company's compliance with the parameters set forth in current national and local regulations. On December 15, 2022, the permanent lifting of the preventive measure was once again requested.

It is worth noting that, due to the events that led to the imposed preventive measure, Cormacarena initiated a sanctioning process on February 11, 2021, and a statement of objections was issued against Ecopetrol on December 17, 2021, which was notified on January 6, 2022. The evidentiary stage initiated in September 2022. As a result of the sanctioning process, a sanction could be imposed on Ecopetrol.

Ecopetrol continues to comply with the measures recommended in the administrative proceedings issued by the environmental authority and continues to submit periodic reports on the execution of dredging activities⁴⁵ at the point of discharge, as well as reports on the channeling process in the Guayuriba River and the progress made towards the medium and long-term actions proposed in the discharge system improvement plan.

42 The Intercultural Discussion Table with the U'wa People is the opportunity for dialogue between the National Government and the U'wa People, formalized by means of Resolution 0473 of 2017 of the Ministry of the Interior. The regulations of this Discussion Table provide for three annual meetings to follow up on the agreements reached in 2014, 2016, and 2017. In said instance, by express request of the U'wa People, delegates of the Social Organizations are accepted as invited guests. Some of the issues addressed are sanitation of the U'wa United Reserve [National Land Agency], Via de la Soberanía [Inviás], and the Arauca-Sarare gasification projects [Ecopetrol]. The last meeting took place on September 3, 2021 in Saravena [Arauca].

43 Granted by Cormacarena, by means of Resolution 0904 of 2007 and extended for five [5] years by means of Resolution PS.GJ.1.2.6.1012 of August 5, 2016.

44 By means of which Cormacarena raised the following requirements, among others: a) Total removal from the riverbed of any material with hydrocarbon remnants or waste from treated industrial discharges, or stone material from the bottom of the watercourse; b) Physicochemical monitoring of the valve points on km22 of the discharge transfer line from the Acacias Station to the Guayuriba River; c) Submitting a detailed report on the activation of the Risk Management Plan for Discharge Management (PGRMV) and its corresponding contingency plan - PDC, including the hydrocarbon iridescence and remnants on the stone material of the riverbed in the discharge strip.

45 Action of removing sediment deposits from the water source at the point of discharge.

Cartagena Refinery Case – Reficar

The Cartagena Refinery expansion and modernization project has been audited and investigated by the Office of the Inspector General of the Nation (PGN, as per its Spanish acronym) and the Office of the Comptroller General of the Republic of Colombia (CGR, as per its Spanish acronym), and there are currently ongoing proceedings under criminal jurisdiction against former Cartagena Refinery workers or contractors. None of the proceedings

is underway or has been underway against the Cartagena Refinery or Ecopetrol, neither in Colombia, nor in the US, nor in any other country.

The administrative authorities (Office of the Inspector General and Office of the Comptroller General) have issued different decisions. The facts under investigation, in relation to which these control entities have already ruled on, correspond to:



The budget increase for the execution of the project by means of five (5) change controls with regard to the initial budget.



Late entry into operation of the refinery.



Signing and implementation of billing procedures.



Structuring and implementation of the incentives plan.

None of these investigations concluded that bribery, fraud, or corruption had taken place.

Decisions Issued by the Office of the Inspector General

The Office of the Inspector General has issued three **(3) decisions** in favor of former employees and former members of the Board of Directors of the Cartagena Refinery, as well as former members of Ecopetrol's Board of Directors.

The PGN concluded that its conduct was not irregular, since the additions to the project's budget were necessary. The cost estimates and the schedule presented by the contractor were proven to be wrong and underestimated.

For the Office of the Inspector General, the change controls were adopted in response to an erroneous budget projection by the contractor, which precluded the continuation of the work if the initial budget increase was not authorized, and they were the most convenient solution to continue the project.

The Office of the Inspector General concluded that there was clarity in the structuring process, the implementation, and the results of the incentives plan, and that the milestones set for their corresponding payments were met.

Decisions Uttered by the Office of the Comptroller General

Since 2018, the Office of the Comptroller General, within the framework of fiscal responsibility proceeding PRF-005-2017, decided to drop the case and dismiss any connection of all parties involved (former managers, former employees, contractors, Ecopetrol insurers) with the approval of change controls 1 and 5 for not constituting property damage, and of all former members of Ecopetrol's Board of Directors with change controls 2, 3, and 4, considering that they made timely decisions to secure the financing of the project and that they acted with diligence and prudence within the framework of their roles.

The decision issued on April 26, 2021, confirmed by the Office of the Comptroller General on July 6 that year, determined five former employees of the Cartagena Refinery, seven former members of its Board of Directors, four **(4) contractors**, and three **(3) insurance** companies to be the tax managers. However, their conduct is not related to acts of corruption, bribery, or fraud.

For the Office of the Comptroller General, the fiscal damage caused in the Project was the result of the decisions that led to the loss of value of the largest investments, when approving the additions of excess CAPEX resources above the levels consistent with the remuneration of the capital contributed to the Project, at its opportunity cost, in change controls 2 and 3.

The CGR considered the fiscal damage as the sum of the portions of each addition to the Project's CAPEX, which affected the profitability and value promise, materialized in the impact on the net present value (VPN) and the internal rate of return (IRR) of the Project.

This is an administrative decision and the legality thereof has not been overseen by a judge of the Republic. The parties identified as tax managers were able to file a claim against the administrative act by means of the legal proceedings provided for in the Colombian legal system.

On the other hand, with regard to the late entry into operation of the refinery, the Office of the Comptroller General dropped the proceeding on February 3, 2022, as it found no proven damage or injury to public property, among other reasons, arising from the forced changes to the project schedule given the adverse flow of the asset. This, due to the winter wave and labor abnormalities during execution, among other aspects. On March 1, 2022, the Fiscal Judgment and Penalty Chamber of the Office of the Comptroller General confirmed the filing order.

Criminal Proceedings

No current Cartagena Refinery or Ecopetrol employees are involved in criminal proceedings underway for issues associated with the Project, and these two companies have been recognized as victims⁴⁶. Furthermore, none of the crimes under investigation are related to bribery or fraud.

A conviction was uttered in the lower court against two **(2) former legal representatives** of the Cartagena Refinery, which may be subject to legal remedies, which is why there is no final criminal conviction to date for the events under investigation.



⁴⁶ Law 906/2005. Article 132: "Victims are understood, for the purposes of this code, as natural or legal persons and other subjects of rights who individually or collectively have suffered some kind of direct damage as a consequence of injustice. The status of victim remains regardless of whether the perpetrator of the injustice is identified, apprehended, prosecuted, or sentenced, and regardless of whether there is a family relationship with him/her."



ANNEXES

450



ATK-



6

451



01.

**EY Verification
Letter**
Pg. 454

04.

TCFD Index
Pg. 488

02.

GRI Index
Pg. 466

05.

**Annex 05. Business
Lines and Operating
Companies**
Pg. 489

03.

SASB Index
Pg. 486

06.

**Annex 06.
Ecopetrol Awards
and Recognitions**
Pg. 501



07.

**Annex 7. Glossary
and acronyms**
Pg. 505

08.

**Annex 8. Material
Judicial and
Administratives
Proceedings**
Pg. 519

09.

**Annex 9. Separate
and consolidated
Financial Statements**
Click here.

10.

**Annex 10. Special
Group Report**
Click here.

11.

**Annex 11. Report
on Article 446 of the
Code of Commerce**
Click here.

12.

**Annex 12. Associations
Memberships**
Pg. 524



Messrs,
Ecopetrol S.A.
Bogotá, D.C.

AS-6216-23
May 15, 2023

To the Management of Ecopetrol S.A.

The 2022 integrated management report of Ecopetrol S.A. as of December 31, 2022, has been prepared in accordance with the Global Reporting Initiative (GRI) standards, Sustainability Accounting Standards Board (SASB), Dow Jones Sustainability Index and company's own criteria.

Ernst & Young Audit S.A.S., acted as independent verifier of the identified sustainability information, contained in the integrated management report, and its limited assurance report was released on April 21, 2023. Our engagement was conducted in accordance with the International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE 3000').

According to your request, we have reviewed the English language translation of the integrated management report and translated our respective limited assurance report as independent auditor.

Cordially,

Firmado
digitalmente por
EDWIN RENE
VARGAS SALGADO VARGAS SALGADO
Fecha: 2023.05.15
15:20:41 -05'00'

Edwin René Vargas S.
Assurance Partner
Ernst & Young Audit S.A.S.

Ernst & Young Audit S.A.S.
Bogotá D.C.
Carrera 11 No 98 - 07
Edificio Pijao Green Office
Tercer Piso
Tel. +57 (801) 484 7000

Ernst & Young Audit S.A.S.
Medellín – Antioquia
Carrera 43A No. 3 Sur-130
Edificio Milla de Oro
Torre 1 – Piso 14
Tel: +57 (804) 389 8400

Ernst & Young Audit S.A.S.
Cali – Valle del Cauca
Avenida 4 Norte No. 8N – 61
Edificio Siglo XXI
Oficina 502-510
Tel: +57 (802) 485 6280

Ernst & Young Audit S.A.S.
Barranquilla - Atlántico
Calle 77B No 59 – 61
Edificio Centro Empresarial
Las Américas II Oficina 311
Tel: +57 (805) 385 2201



To : Ecopetrol S.A.
From : Ernst & Young Audit S.A.S.

AS-6223-23
May 15, 2023

Independent Accountant's Assurance Report

1. Scope

We have been engaged by Ecopetrol S.A. (here after referred to as "Ecopetrol" or "the company") to perform a 'limited assurance engagement', as defined by International Standards on Assurance Engagements (here after referred to as "the Engagement"), to report on the identified sustainability information (in the successive "Subject Matter") that is detailed in Appendix 1 and contained in the Integrated Management Report 2022 of Ecopetrol S.A. (hereinafter "IMR22Ecopetrol") for the period between January 1st to December 31st, 2022.

2. Criteria Applied by Ecopetrol

In preparing the Subject Matter included in IMR22Ecopetrol, the company applied the Global Reporting Initiative (GRI) standards "in accordance" with the self-declared option of GRI 1 Fundamentals 2021, the Sustainability Accounting Standards Board (SASB), Dow Jones Sustainability Index and its own criteria (the "Criteria") included in Appendix 2 of this Report.

3. Ecopetrol's Responsibilities

Ecopetrol's management is responsible for selecting the Criteria, and for presenting the Subject Matter in accordance with that Criteria, in all material respects. This responsibility includes establishing and maintaining internal controls, maintaining adequate records, and making estimates that are relevant to the preparation of the Subject Matter, such that it is free from material misstatement, whether due to fraud or error.

4. EY's Responsibilities

Our responsibility is to express a conclusion on the presentation of the Subject Matter based on the evidence we have obtained.

We conducted our engagement in accordance with the International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ('ISAE 3000'), and the terms of reference for this engagement as agreed with Ecopetrol on January 24th, 2023. Those standards require that we plan and perform our engagement to obtain limited assurance about whether, in all material respects, the Subject Matter are presented in accordance with the Criteria, and to issue a report.

Ernst & Young Audit S.A.S.
Bogotá D.C.
Carrera 11 No 98 - 07
Edificio Pijao Green Office
Tercer Piso
Tel: +57 (601) 484 7000

Ernst & Young Audit S.A.S.
Medellín - Antioquia
Carrera 43A No. 3 Sur-130
Edificio Milla de Oro
Torre 1 - Piso 14
Tel: +57 (604) 389 8400

Ernst & Young Audit S.A.S.
Cali - Valle del Cauca
Avenida 4 Norte No. 6N - 61
Edificio Siglo XXI
Oficina 502
Tel: +57 (602) 485 6280

Ernst & Young Audit S.A.S.
Barranquilla - Atlántico
Calle 77B No 59 - 61
Edificio Centro Empresarial
Las Américas II Oficina 311
Tel: +57 (605) 385 2201



Building a better
working world

Messrs. Ecopetrol S.A.

Page 2

May 15, 2023

The nature, timing, and extent of the procedures selected depend on our judgment, including an assessment of the risk of material misstatement, whether due to fraud or error.

We believe that the evidence obtained is sufficient and appropriate to provide a basis for our limited assurance conclusions.

5. Our Independence and Quality Control

We have maintained our independence and confirm that we have met the requirements of the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants and have the required competencies and experience to conduct this assurance engagement.

EY also applies International Quality Control Standard 1, Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance and Related Services Engagements, and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards, and applicable legal and regulatory requirements.

6. Description of the Procedures Performed

Procedures performed in a limited assurance engagement vary in nature and timing from and are less in extent than for reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed. Our procedures were designed to obtain a limited level of assurance on which to base our conclusion and do not provide all the evidence that would be required to provide a reasonable level of assurance.

Our assurance engagement was not designed to provide assurance on internal controls. Our procedures did not include testing controls or performing procedures relating to checking aggregation or calculation of data within IT systems.

A limited assurance engagement consists of making enquiries, primarily of persons responsible for preparing The IMR22Ecopetrol, and applying analytical and other appropriate procedures.

Our limited assurance procedures performed included, but were not limited to:

- a. Conducted interviews with Ecopetrol's personnel to understand the business and the reporting process.

- b. Conducted interviews with key personnel to understand the process for collecting, collating, and presentation of the information of the Subject Matter.
- c. Checked that the calculation criteria have been correctly applied in accordance with the methodologies outlined in the Criteria.
- d. Undertook analytical review procedures to support the reasonableness of the data.
- e. Identified and tested assumptions supporting calculations
- f. Tested, on a sampling basis, the source information to check the accuracy of the data
- g. Compare the disclosures presented in the IMR22Ecopetrol with what is established "in accordance" with the self-declared option by Ecopetrol as detailed in GRI Requirement 1 Foundations 2021 of the GRI Global Reporting Initiative Standards.

We also performed such other procedures as we considered necessary in the circumstances.

457

7. Inherent Limitations of our Assurance Engagement

Our assurance engagement was limited to the Subject Matter contained in the IMR22Ecopetrol for the period between January 1st and December 31st, 2022, and consequently it does not cover information from prior years included in the IMR22Ecopetrol or related to forecasts or future targets.

Nor was it intended to determine whether the technological tools used to prepare the IMR22Ecopetrol are the most appropriate and/or efficient.

8. Conclusion

Based on our procedures and the evidence obtained, we are not aware of any material modifications that should be made to the identified sustainability information (the "Subject Matter"), contained in the IMR22Ecopetrol for the period between January 1st to December 31st, 2022, for it to be in accordance with what is established in the criteria.

9. Restricted Use

This Report is intended solely for the information and use of Ecopetrol S.A. and is not intended to be and should not be used by anyone other than those specified parties.



Messrs. Ecopetrol S.A.

Page 2
May 15, 2023

Our responsibility with this assurance engagement is solely with the company Management, therefore, we do not accept or assume any responsibility for any other purpose or against any other person or organization.

10. Other Information

The notification to the Global Reporting Initiative (GRI) about the publication of the Report, following the guidelines of GRI Standard 1: Fundamentals, Requirement 3 for the preparation of reports using the GRI Standards in accordance (Notify GRI: the organization must notify GRI of the use of the GRI standards and its statement of use, by sending an email to reportregistration@globalreporting.org), is the responsibility of the Company and we have been informed that it will be done within 5 business days following the issuance of this conclusion.

Regards,

EDWIN RENE VARGAS SALGADO
Firmado digitalmente
por EDWIN RENE
VARGAS SALGADO
Fecha: 2023.05.15
17:20:52 -05'00'

Edwin R. Vargas S.
Assurance Partner
Ernst & Young Audit S.A.S.

APPENDIX 1

The identified sustainability information (the "Subject Matter") in the scope of this Statement and included in the IMR22Ecopetrol issued by Ecopetrol on its website¹ is presented in the following table²:

Relevant Subject (Material)	Indicator / Content	Criteria	Indicator
General Disclosures	2-1 / 2-30	GRI	General Disclosures of GRI 2 standard
Climate Change	305-1	GRI	Direct (Scope 1) GHG emissions
	305-2	GRI	Energy indirect (Scope 2) GHG emissions
	305-5	GRI	Reduction of GHG emissions
Integrated Water Management	303-3	GRI	Water withdrawal
	303-4	GRI	Water discharge
	303-5 EM-EP-140a.1	GRI SASB	Water consumption (1) Total fresh water withdrawn, (2) total fresh water consumed, percentage of each in regions with High or Extremely High Baseline Water Stress
	EM-EP-140a.2	SASB	Volume of produced water and flowback generated; percentage (1) discharged, (2) injected, (3) recycled; hydrocarbon content in discharged water
Local development	413-1	GRI	Operations with local community engagement, impact assessments, and development programs
Local Development (Sourcing and Supplier Management)	204-1	GRI	Proportion of spending on local suppliers

¹ The maintenance and integrity of the Company's website (<https://www.ecopetrol.com.co/wps/portal/Home/sostenibilidad/reportes-estandares/Informesgestion sostenibilidad>) repository of the IMR22Ecopetrol, is the responsibility of Ecopetrol's Management. The work carried out by EY does not include these activities and, therefore, EY does not accept any responsibility for any difference between the information presented on said website and the indicators contained in the IMR22Ecopetrol on which the Engagement was carried out and the conclusion was issued.

² Besides from what is described in the table, which establishes the scope of our work, we do not apply assurance procedures on the other information included in the IMR22Ecopetrol and, accordingly, we do not express a conclusion on said information.



Building a better
working world

Relevant Subject (Material)	Indicator / Content	Criteria	Indicator
	OG-11.8.3	GRI 11: Oil and Gas Sector	Process safety incidents (Tier 1 and Tier 2)
	ECP005	Own	Volume of oil spill
	ECP006	Own	Incident frequency rate N1 (IFSP N1)
Process Safety	EM-EP-540a.1	SASB	Process Safety Event Rates (PSE) for loss of primary containment (LOPC) of highest consequence (Tier 1).
	EM-EP-540a.2	SASB	Description of management systems used to identify and mitigate catastrophic and tail-end risks
Occupational health and safety	403-9	GRI	Work-related injuries
	403-10	GRI	Work-related ill health
	ECP002	Own	Lost time injury frequency rate (LTIFR)
	ECP003	Own	Total recordable injury frequency rate (TRIFR)
Biodiversity and ecosystem services	304-1	GRI	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas
	304-3	GRI	Habitats protected or restored
	304-4	GRI	IUCN Red List species and national conservation list species with habitats in areas affected by operations
	3.5.4. DJSI	DJSI	Type of individual performance assessment
Attraction, loyalty and retention human talent	404-3	GRI	Percentage of employees receiving regular performance and career development reviews
	405-1	GRI	Diversity of governance bodies and employees
	405-2	GRI	Ratio of basic salary and remuneration of women to men
	404-1	GRI	Average hours of training per year per employee

Relevant Subject (Material)	Indicator / Content	Criteria	Indicator
	401-1	GRI	New employee hires and employee turnover
Waste Management	306-2	GRI	Management of significant waste- related impacts
	306-3	GRI	Waste generated
Circular economy	ECP001	Own	Circularity Maturity Level
Air Quality	305-7	GRI	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions
Fuel quality	ECP029	Own	Indicator of volume of biofuels produced and purchased
Use of Energy and Alternative Sources	302-1	GRI	Energy consumption within the organization
	302-3	GRI	Energy intensity
	302-4	GRI	Reduction of energy consumption
Human Rights Evaluation	412-3	GRI	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening
Human Rights	406-1/3.3.2	GRI/ DJSI	Incidents of discrimination and corrective actions taken
	DJSI 410-1	GRI	Security personnel trained in human rights policies or procedures
Corporate governance	1.1.3	DJSI	Board diversity
	DJSI		



APPENDIX 2

1. GRI Disclosures Criteria

The assurance criteria that are applicable to the Subject Matter and to the presentation "in accordance" with self-declared conformity option are defined based on what is established in the GRI 1: Fundamentals (2021) and its thematic disclosures available on the page <https://www.globalreporting.org/how-to-use-the-gri-standards/gri-standards-spanish-translations/>

2. Own Indicator Criteria

Below are the assurance criteria that are applicable to the company own indicators, which are subject to limited assurance and are listed in the GRI content index of the IMR22Ecopetrol and this Report to make them available to stakeholders.

These assurance criteria are an integral part of our limited and independent accountant's assurance report.

462

Indicator	Criteria
ECP001 Circularity Maturity Level	<p data-bbox="557 1010 837 1044">Responsible area: VHSE</p> <p data-bbox="557 1074 732 1108">Requirements:</p> <p data-bbox="557 1138 1359 1261">Indicate the Circularity Maturity Level obtained by the Company in the reporting period according to the Colombian Technical Guide (GTC) 314:2020 - Framework for the implementation of circular economy principles in organizations.</p> <p data-bbox="557 1291 808 1325">Reporting guidelines:</p> <p data-bbox="557 1355 1078 1389">The levels defined by the Technical Guide are:</p> <ul data-bbox="557 1419 1373 1749" style="list-style-type: none"> <li data-bbox="557 1419 1373 1474">• Level 0-Immature: Characterized by limited and/or ad-hoc actions (e.g., limited legal compliance actions). <li data-bbox="557 1504 1284 1559">• Level 1-Basic: Initial setting of framework and scope - active exploration of opportunities <li data-bbox="557 1589 1359 1644">• Level 2 - Improving (Process Improvement): Ways of working that align with the principles of the Circular Economy. <li data-bbox="557 1674 1328 1749">• Level 3 - Committed: Product/ service/ process innovation, Align value proposition with Circular Economy principles.

Indicator	Criteria
ECP002 Lost Time injury Frequency Rate (LTIFR)	<ul style="list-style-type: none"> • Level 4 - Optimization: Business Model Innovation, Organizational forms of doing business and creating value fully in line with Circular Economy principles. <p>Responsible area: VHSE</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Employee lost time injury frequency rate per million hours worked for the most recent reporting year. • Contractor lost-time injury frequency rate per million hours worked for the most recent reporting year. • Data Coverage. <p>Reporting guidelines:</p> <p>Lost Time Injury Frequency Rate (LTIFR) - any work injury that results in an absence on the next workday by the employer or contractors, per million hours worked in the period.</p> <p>LTIFR = (Number of injuries resulting in absences/ Total number of hours worked in the period) x 1,000,000</p>
ECP003 Total Recordable injury Frequency Rate (TRIFR)	<p>Responsible area: VHSE</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Total employee recordable injury frequency rate per million hours worked for the most recent reporting year. • Total recordable injury frequency rate of contractors per million hours worked for the most recent reporting year. • Data Coverage <p>Reporting guidelines:</p> <p>Total recordable injury frequency rate - total number of recordable injuries per million hours worked.</p> <p>TRIFR = (Number of incidents in the reporting period/ Total hours worked in the period) x 1,000,000</p>
ECP005 Volume of oil spill	Responsible area: VHSE



Indicator	Criteria
ECP006 Incident frequency rate N1 (IFSP N1)	<p>Requirements:</p> <ul style="list-style-type: none"> • Volume of oil spilled in the reporting period (bbls) • Data coverage <p>Reporting guidelines:</p> <ul style="list-style-type: none"> • SASB and IPIEC guidelines are to report spill volumes greater than one barrel (bbl) that reach the environment. • The data reported should represent a total estimate of the total volume spilled that reached the environment. It should not be a quantity reduced by volumes recovered, evaporated, and lost. • The data should include discharges from subway and surface operations, as well as from transportation operations under the company's control. • The data should include events beyond the Company's control such as sabotage, earthquakes, or weather events. • The data should include subway and surface leaks and these should be counted once, at the time they are identified. • The data reported should exclude hydrocarbons present in water discharges or in permitted discharges.
ECP006 Incident frequency rate N1 (IFSP N1)	<p>Responsible area: VHSE</p> <p>Requirements:</p> <ul style="list-style-type: none"> • Number of N1 incidents per million hours worked in the period. • Data coverage • The Company's target for the latest reporting period in absolute terms. <p>Reporting guidelines:</p> <p>N1 incidents - are defined in API 754 and IOGP 456 and comprise unplanned or uncontrolled incidents of discharge of materials, including non-toxic and non-flammable materials resulting in one or more of the following consequences:</p> <ul style="list-style-type: none"> • Days of absence of employees, contractors or subcontractors. • Death of employees, contractors or subcontractors • Death of a third party <ul style="list-style-type: none"> • The officially declared evacuation of a community, including precautionary evacuations • Damage equal to or greater than \$100,000USD in direct costs

Indicator	Criteria
ECP029 Indicator of volume of biofuels produced and purchased	<ul style="list-style-type: none"> • A discharge to the atmosphere or downstream of manually initiated pressure of a quantity greater than or equal to the quantities defined in Table 1 of the American Petroleum Institute Guide to Reporting Process Safety Events Version 3.0 in a one-hour period • Emissions from permitted or regulated sources in quantities equal to or greater than the thresholds defined in Table 1 of the American Petroleum Institute Guide to Reporting Process Safety Events Version 1.0. • Discharge of material equal to or greater than the thresholds set forth in Table 1 of the American Petroleum Institute Guide to Reporting Process Safety Events Version in a one-hour period <p>Responsible area: VRP</p> <p>Requirements: Volume of B2 Sold Volume of Biofuel Purchased</p> <p>Reporting guidelines: Measures the total annual volume of Diesel B2 sold from Ecopetrol's refineries, and additionally measures the total volume of Biodiesel B100 purchases made annually in Ecopetrol's refineries.</p> <p>Volume of B2 Sold = Volume (Bls/year) of B2 from Cartagena Refinery + Volume (Bls/year) of B2 from Barrancabermeja Refinery.</p> <p>Volume of Biofuel Purchased = Volume (Bls/year) of B100 from Cartagena Refinery + Volume (Bls/year) of B100 from Barrancabermeja Refinery</p>

ANNEX 02.

GRI CONTENT INDEX



CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
General Disclosures								
2-1	Organizational details	20, 22					None	
2-2	Entities included in the organization's sustainability reporting	14, 18,					None	
2-3	Reporting period, frequency and contact point	17, 18,					None	
2-4	Restatements of information	192, 196, 217					None	
2-5	External assurance	18, 452					None	
2-6	Activities, value chain and other business relationships	20, 22, 67, 84, 85, 102, 103				WEF 17		
2-7	Employees	355				WEF 17	8 - Decent Work and Economic Growth	
2-8	Workers who are not employees	103				WEF 17	8 - Decent Work and Economic Growth	
2-9	Governance structure and composition	121, 122, 123, 124, 125, 126, 128, 130,				WEF 2 WEF6E	5 - Gender Equality 16 - Peace, Justice and Strong Institutions	
2-10	Nomination and selection of the highest governance body	123, 124, 125, 126, 128				WEF2 WEF 11	16 - Peace, Justice and Strong Institutions	
2-11	Chair of the highest governance body	145					16 - Peace, Justice and Strong Institutions	
2-12	Role of the highest governance body in overseeing the management of impacts	122, 131, 132				WEF 2 WEF 1E WEF 6E	16 - Peace, Justice and Strong Institutions	
2-13	Delegation of responsibility for managing impacts	103, 104, 130, 133, 426				WEF 2 WEF 17		
2-14	Role of the highest governance body in sustainability reporting	133						
2-15	Conflicts of interest	136					16 - Peace, Justice and Strong Institutions	

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
2-16	Communication of critical concerns	136					16 - Peace, Justice and Strong Institutions	
2-17	Collective knowledge of the highest governance body	138						
2-18	Evaluation of the performance of the highest governance body	140, 141					16 - Peace, Justice and Strong Institutions	
2-19	Remuneration policies	141, 145				WEF 3E		
2-20	Process to determine remuneration	141, 145, 356				WEF 18 WEF 3E	16 - Peace, Justice and Strong Institutions	
2-21	Annual total compensation ratio	147				WEF 19E		
2-22	Statement on sustainable development strategy	6						
2-23	Policy commitments	148, 150, 170, 286, 287, 297					16 - Peace, Justice and Strong Institutions	
2-24	Embedding policy commitments	132, 150, 151, 152, 288, 290, 291				WEF 22E WEF 5		
2-25	Processes to remediate negative impacts	292, 350, 351, 352				WEF 22E WEF 5	16 - Peace, Justice and Strong Institutions	
2-26	Mechanisms for seeking advice and raising concerns	151, 350, 351				WEF 5	16 - Peace, Justice and Strong Institutions	
2-27	Compliance with laws and regulations	380, Annex 8				WEF2 WEF 5E WEF 11 WEF 17	16 - Peace, Justice and Strong Institutions	
2-28	Membership associations	Annex 12						
2-29	Approach to stakeholder engagement	108						
2-30	Collective bargaining agreements	382, 391, 392				WEF21E	8 - Decent Work and Economic Growth	

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
Material topics								
3-1	Process to determine material topics	16, 114, 116, 117				WEF 3		
3-2	List of material topics	115				WEF 3		
3-3	Management of material topics	180, 181, 182, 183, 190, 191, 201, 202, 203, 204, 205, 207, 209, 210, 211, 220, 221, 222, 223, 228, 230, 231, 236, 237, 238, 239, 240, 246, 249, 250, 251, 252, 256, 257, 259, 260, 261, 262, 264, 265, 266, 267, 268, 320, 321, 322, 323, 324, 325, 328, 365, 366, 368, 372, 393, 395, 396, 398, 400				WEF 7 WEF 7E WEF 11E WEF 12E WEF 13E WEF 15 WEF 25E	3 - Good Health and Well-being 6 - Clean Water and Sanitation 7 - Affordable and Clean Energy 8 - Decent Work and Economic Growth 12 - Responsible Consumption and Production 13 - Climate Action 15 - Life on Land 16 - Peace, Justice and Strong Institutions	
General Disclosures 2016								
102-19	Delegating authority	130				WEF 2		

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
Economic Performance								
201-1	Direct economic value generated and distributed	36, 41, 43				WEF 18 WEF 21 WEF 32 WEF 32E	8 - Decent Work and Economic Growth	
201-2	Financial implications and other risks and opportunities due to climate change	188						
201-3	Defined benefit plan obligations and other retirement plans	363				WEF 18		
201-4	Financial assistance received from government	36, 41, 50				WEF 18		
Market Presence								
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	356, 381				WEF 12		
202-2	Proportion of senior management hired from the local community	N.A	X	Not a material issue for the Company				
Indirect Economic Impacts								
203-1	Infrastructure investments and services supported	334, 335, 336; 341				WEF 19		
203-2	Significant indirect economic impacts	337				WEF 19		
Procurement Practices								
204-1	Proportion of spending on local suppliers	106 b. Definition of Local used for this indicator: timely, suitable and competitive procurement and/or supply of goods and services with suppliers and/or contractors domiciled in the municipality, department or region where ECOPEPETROL operates. c. Definition of locations with significant operations used for this indicator: Ecopetrol's operations in Colombia.				WEF 18	8 - Decent Work and Economic Growth	X
Anti-corruption								
205-1	Operations assessed for risks related to corruption	158				WEF 4	16 - Peace, Justice and Strong Institutions	
205-2	Communication and training about anti-corruption policies and procedures	154, 158				WEF 4	16 - Peace, Justice and Strong Institutions	
205-3	Confirmed incidents of corruption and actions taken	159				WEF 4	16 - Peace, Justice and Strong Institutions	

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
Anti-competitive Behavior								
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	159				WEF 4	16 - Peace, Justice and Strong Institutions	
Tax								
207-1	Approach to tax	52						
207-2	Tax governance, control, and risk management	N.A	X	Not a material issue for the Company				
207-3	Stakeholder engagement and management of concerns related to tax	N.A	X	Not a material issue for the Company				
207-4	Country-by-country reporting	N.A	X	Not a material issue for the Company				
Materials								
301-1	Materials used by weight or volume	N.A	X	Not a material issue for the Company				
301-2	Recycled input materials used	N.A	X	Not a material issue for the Company				
301-3	Reclaimed products and their packaging materials	N.A	X	Not a material issue for the Company				
Energy								
302-1	Energy consumption within the organization	253, 254, 255 *The electricity consumption reported corresponds to the consumption of the Business Group, taking into account the consumption of the subsidiaries. *Due to the fact that only electricity consumption is included, no conversion factor was used, the electricity consumption record in SAP is in KWh and according to the units requested in the MERO questions it was divided into 1,000 to obtain MWh or 1,000,000 for GWh.					7 - Affordable and Clean Energy 12 - Responsible Consumption and Production	X
302-2	Energy consumption outside of the organization	255					7 - Affordable and Clean Energy	
302-3	Energy intensity	255 The calculated energy corresponds to the electrical energy consumed within the organization					7 - Affordable and Clean Energy	X

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
302-4	Reduction of energy consumption	255 *The amount of energy reduced in joules is: 529,336,144,375,559 J *The calculation was made in accordance with ISO 50001 where it is specified that baselines must be built for each of the ESUs (Significant Energy Uses) per year; the reduction percentage is calculated by adding the reduction of each of the energy efficiency initiatives (where each of them has its own baseline) that is 147 GWh for 2022, dividing on the actual demand for each year (7232.74 GWh not including surplus generation for 2022). Note: the reported result of 5.5% is the sum of the reduction percentages from 2018 to 2022.				7 - Affordable and Clean Energy 12 - Responsible Consumption and Production	X	
Water and Effluents								
303-1	Interactions with water as a shared resource	206, 208				WEF 11E 6 - Clean Water and Sanitation		
303-2	Management of water discharge-related impacts	208				WEF 11E 6 - Clean Water and Sanitation 12 - Responsible Consumption and Production		
303-3	Water withdrawal	213, 214				WEF 10 6 - Clean Water and Sanitation 12 - Responsible Consumption and Production	X	
303-4	Water discharge	215, 216				6 - Clean Water and Sanitation 12 - Responsible Consumption and Production	X	
303-5	Water consumption	219				6 - Clean Water and Sanitation 12 - Responsible Consumption and Production	X	
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	232				WEF 9 15 - Life on Land	X	
304-2	Significant impacts of activities, products and services on biodiversity	226				WEF 9 15 - Life on Land		

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
304-3	Habitats protected or restored	232,234					15 - Life on Land	X
		<p>The protected or restored areas have been approved by independent external professionals as follows: actions of compliance with environmental obligations involving hectares in conservation, restoration or reforestation are submitted to the competent environmental authority (ANLA or Regional Autonomous Corporations). Voluntary actions are carried out with external allies that may be local or international NGOs, for example Wildlife Conservation Society, Fundación Natura, The Nature Conservancy, among others.</p> <p>Ecopetrol has strategic alliances with external organizations, with which it carries out actions for the protection and restoration of habitats, working together with local communities, generating sustainable lifestyles and awareness around the conservation of biodiversity and ecosystem services. Some of the allies are TNC, WCS, Fondo Acción, Fundación Natura and Cataruben. From the obligatory point of view, the actions carried out are framed in the environmental compensation plans, management sheets, the 1% investment, among other environmental instruments.</p>						
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	235					15 - Life on Land	X
			Emissions					
305-1	Direct (Scope 1) GHG emissions	192, 193				WEF 7 WEF 7E	13 - Climate Action	X

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
305-2	Energy indirect (Scope 2) GHG emissions	193				WEF 7 WEF 7E	13 - Climate Action	X
		<p>Scope 2 emissions in Ecopetrol are reported by the market-based method, which includes emissions generated by energy purchased from the National Interconnected System-SIN (estimated with emission factor published by UPME Resolution 320 of 2022 -126 Kg/Mwh) and emissions generated by local generation centers (emission factors estimated with the energy generated and fuel consumption). Although Ecopetrol calculates Scope 2 emissions by the location-based method, which is estimated using the SIN emission factor for all energy purchased, it was decided to report by the market-based method, due to the behavior of the Colombian energy basket, which is mostly composed of hydroelectric energy and therefore generates less emissions than local suppliers; thus, the market-based method is the one that offers a higher result and better describes the operational reality.</p> <p>It should be emphasized that the purchase of electricity from local suppliers is favored by causes such as: location of facilities in areas with deficient national electrification, low reliability of the system or in some cases by the use of gas within the framework of the decarbonization plan.</p>						
305-3	Other indirect (Scope 3) GHG emissions	193				WEF 7 WEF 7E	13 - Climate Action	
305-4	GHG emissions intensity	196					13 - Climate Action	

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
305-5	Reduction of GHG emissions	196				WEF 7 WEF 7E	12 - Responsible Consumption and Production 13 - Climate Action	X
		<p>*For this report, projects of the same type were grouped into 4 major programs defined in the climate change roadmap (energy efficiency, fugitive emissions and venting, optimization of flaring and renewable energies). *The reductions reported in each of the years for the four programs were estimated using the immediately preceding year as the reference year.*For energy efficiency projects, fugitive emissions and venting, optimization of flaring are scope 1 reductions and for renewable energy are scope 2 reductions.</p>						
305-6	Emissions of ozone-depleting substances (ODS)	271					13 - Climate Action	
305-7	Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	269				WEF 7E WEF 8E	3 - Good Health and Well-being 13 - Climate Action	X
Waste								
306-1	Waste generation and significant waste-related impacts	272				WEF 17E	12- Responsible Consumption and Production	
306-2	Management of significant waste-related impacts	274, 275, 276					12- Responsible Consumption and Production	X
306-3	Waste generated	277				WEF 17E	12- Responsible Consumption and Production	X
306-4	Waste diverted from disposal	277, 278				WEF 17E	12- Responsible Consumption and Production	
306-5	Waste directed to disposal	279, 280, 281, 282				WEF 17E	12- Responsible Consumption and Production	
Supplier Environmental Assessment								
308-1	New suppliers that were screened using environmental criteria	108					12- Responsible Consumption and Production	
308-2	Negative environmental impacts in the supply chain and actions taken	108				WEF 10 WEF 17	12- Responsible Consumption and Production	
Employment								
401-1	New employee hires and employee turnover	364, 374, 386, 387, 388				WEF 16 WEF 17	8 - Decent Work and Economic Growth	X

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	356, 360				WEF 18		
401-3	Parental leave	361						
Labor/Management Relations								
402-1	Minimum notice periods regarding operational changes	392					8 - Decent Work and Economic Growth 16 - Peace, Justice and Strong Institutions	
Occupational Health and Safety								
403-1	Occupational health and safety management system	405					8 - Decent Work and Economic Growth	
403-2	Hazard identification, risk assessment, and incident investigation	393, 395, 405, 406, 410, 411				WEF 15 WEF 25E	8 - Decent Work and Economic Growth	
403-3	Occupational health services	407, 416				WEF 15	8 - Decent Work and Economic Growth	
403-4	Worker participation, consultation, and communication on occupational health and safety	404						
403-5	Worker training on occupational health and safety	407, 413						
403-6	Promotion of worker health	396						
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	404						
403-8	Workers covered by an occupational health and safety management system	405, 409						
403-9	Work-related injuries	393, 407, 408, 409 *In the tables (147 and 148) the rates have been calculated per 1 000 000 hours worked. * It is clarified that workers are not excluded.				WEF 15 WEF 25E	8 - Decent Work and Economic Growth	X
403-10	Work-related ill health	409 *Results do not include injuries to non-worker/non-employee personnel. *Results include 100% of direct workers.				WEF 15 WEF 25E	8 - Decent Work and Economic Growth	X
Training and Education								
404-1	Average hours of training per year per employee	375						X
404-2	Programs for upgrading employee skills and transition assistance programs	373, 374, 389				WEF 16	4 - Quality Education	

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
404-3	Percentage of employees receiving regular performance and career development reviews	384 The performance evaluation was applied to 100% of employees who met the criteria to be evaluated during 2022 (9122 employees).						X
Diversity and Equal Opportunity								
405-1	Diversity of governance bodies and employees	123, 159, 379, 380 It is clarified that in terms of diversity in governing bodies, we have: i. Gender: Jan-Oct 11% women and 89% men. Oct-Dec 22% women and 78% men ii. Age group: Jan-Oct under 30 years old 0%, between 30 and 50 years old 11%, over 50 years old 89%. Oct-Dec under 30 years 0%, between 30 and 50 years 11%, over 50 years 89%. iii. Other diversity indicators, Not applicable.				WEF 2 WEF 11 WEF 17	5 - Gender Equality	X
405-2	Ratio of basic salary and remuneration of women to men	381, 382 This indicator corresponds to Ecopetrol S.A., which has been defined as a location with significant operations in Colombia in line with Table 115 GRI 2-7 Page 355.				WEF 11 WEF12 WEF 19E	5 - Gender Equality	X
Non-discrimination								
406-1	Incidents of discrimination and corrective actions taken	305				WEF 20E	5 - Gender Equality	X
Freedom of Association and Collective Bargaining								
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	382, 389, 391				WEF 21E	16 - Peace, Justice and Strong Institutions	
Child Labor								
408-1	Operations and suppliers at significant risk for incidents of child labor	292				WEF 14 WEF 22E	8 - Decent Work and Economic Growth	
Forced or Compulsory Labor								
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	292				WEF 14 WEF 22E	8 - Decent Work and Economic Growth	
Security Practices								
410-1	Security personnel trained in human rights policies or procedures	317, 318					16 - Peace, Justice and Strong Institutions	X
Rights of Indigenous Peoples								
411-1	Incidents of violations involving rights of indigenous peoples	291, 292, 308				WEF 22E		
Human Rights								
412-1	Operations that have been subject to human rights reviews or impact assessments	291				WEF 22E		

CODE	Indicator	Location in the Report (pg)	Omissions			Stakeholder Metrics (SM) Code	SDGs	Verified
			Omission	Reason	Explanation			
412-2	Employee training on human rights policies or procedures	105, 318				WEF 17		
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	319						X
Local Communities								
413-1	Operations with local community engagement, impact assessments, and development programs	104, 305, 325, 342, 344				WEF 17 WEF 21E	8 - Decent Work and Economic Growth	X
413-2	Operations with significant actual and potential negative impacts on local communities	314, 345				WEF 28E	8 - Decent Work and Economic Growth	
Supplier Social Assessment								
414-1	New suppliers that were screened using social criteria	108					12 - Responsible Consumption and Production	
414-2	Negative social impacts in the supply chain and actions taken	108				WEF 10 WEF 17	12 - Responsible Consumption and Production	
Public Policy								
415-1	Political contributions	453						
Customer Health and Safety								
416-1	Assessment of the health and safety impacts of product and service categories	N.A	X	Not a material issue for the Company				
DJSI 3.5.4	Type of individual performance assesment	384						X
DJSI 1.1.3	Board Diversity	123; 124; 125;128;						X
06-11.8.3	Process Safety Incidents (Tier 1 and Tier 2)	418;419;420;422						X

Table of indicators Financial Superintendence of Colombia (SFC)

Indicator SFC	Location in the Report (pg)	GRI
7.1.III	47	
7.4.1	23, Annex 5	
7.4.1.1.1	54	
7.4.1.1.1.I	30	
7.4.1.1.1.II	84, 86	2-6
7.4.1.1.1.III	32	
7.4.1.1.1.IV	91, 92, 93	
7.4.1.1.1.V	432, 433	
7.4.1.1.1.VII	355	2-7
7.4.1.1.2	Annex 8	2-27
7.4.1.2.1	43	
7.4.1.2.2	44	
7.4.1.2.3	41	*201-1 201-4*
7.4.1.2.4	41	*201-1 201-4*
7.4.1.3.1.I	136, 141	* 2-15 2-19 2-20*
7.4.1.3.1.IV	128, 130	2-9
7.4.1.3.1.IX	138	
7.4.1.3.1.V	130	* 2-9 102-19 2-13*
7.4.1.3.1.VII	384, 386	404-3
7.4.1.3.1.XII	48	
7.4.1.3.I	145	2-19

Indicator SFC	Location in the Report (pg)	GRI
7.4.1.3.II	121, 122, 123, 124, 125, 126, 128	* 2-9 2-10 2-12*
7.4.1.3.IV	142, 143, 144	
7.4.1.3.VI	163	
7.4.1.3.X	148, 153	2-23
7.4.1.3.XII	156	
7.4.1.3.XVII	148	
IX	136	2-15
V	125	2-9
VI	126	2-9
VII	126, 170	* 2-9 2-10 2-23*
VIII	140, 141	2-18
X	110, 136	
XII	136	2-15
XIII	44, 116, 351	* 3-1 2-26*
XV	180, 181, 186, 187, 188, 196, 199	* 3-3 11-1-1 11-2-2 201-1 305-5 11-2-2 11-1-7*
XVI	217, 218, 227, 270, 285, 411, 412, 413, 414, 422	
XVII	131, 132, 133, 170, 181, 290, 308, 310, 322, 345, 346, 353, 423	* 2-12 2-13 2-24 3-3 413-2 11-15-3*

Own Indicators

Indicator	Indicator name	Location in the Report (pg)	Area Responsible	Detailed description of the indicator	Definitions, Notes and Assumptions	Elements and sources of information	Variables for calculation	Formula	Unit of measure	Trend	Verified
ECP001	Circularity Maturity Level	Pg 248	WSE	Indicates the Circularity Maturity Level obtained by the Company in the reporting period based on -the Colombian Technical Guide (GTC) 314:2020 - Framework for the implementation of the principles (6) of the circular economy in organizations.	<p>"Taking into account the Circularity Metrics line of action defined in the Roadmap 2050 for the implementation of the Circular Economy Model within the framework of the Ecopetrol Group's Sostechology strategy, the qualitative measurement of circularity was defined from 2021, based on the Colombian Technical Guide GTC: 314:2020.</p> <ul style="list-style-type: none"> In this sense and taking into account the flexibility of the guide, a review and adjustment was made to the questions posed in that document to be applied to a target population divided into two levels: <ul style="list-style-type: none"> Level 1: professionals who have completed the basic virtual course on Circular Economy, which is active on the platform of the Ecopetrol University. The list of professionals who have completed the course is provided by Ecopetrol University directly. Level 2: professionals with special designation in circular economy issues or with whom work on the implementation of the circular economy model of the organization. <p>According to the above, two questionnaires were prepared in Excel, the first one was built in forms for level 1 and the other one was left in Excel to conduct the interviews to the level 2 population. These questionnaires were in charge of the professionals who lead and work in the implementation of the circular economy model of the Sustainability and Decarbonization Management of the HSE Vice-Presidency.</p> <p>The request to fill out the questionnaire in Level 1 was made by e-mail sent directly from the HSE Vice-Presidency mailbox.</p> <p>For level 2, spaces were coordinated to carry out the questionnaire through interviews with the professionals defined for this level; these interviews were carried out by the professionals who lead and work in the implementation of the circular economy model of the Sustainability and Decarbonization Management of the HSE Vice-Presidency.</p> <p>Once the information was consolidated and tabulated, the level of circularity proposed by GTC 314:2020 was identified.</p> <p>The circularity maturity levels defined by Technical Guide 314:2020 are:</p> <ul style="list-style-type: none"> Level 0-Mature: Characterized by limited and/or ad-hoc actions (e.g., limited legal compliance actions); Level 1-Basic: Initial establishment of framework and scope - active exploration of opportunities; Level 2 - Improving (Process Improvement): Ways of working that align with Circular Economy principles; Level 3 - Engaged: Product/service/process innovation, Aligning value proposition with Circular Economy principles; Level 4 - Optimization: Business Model Innovation, Organizational ways of doing business and creating value in full alignment with Circular Economy principles; Level 4 - Optimization: Business Model Innovation, Organizational ways of doing business and creating value in full alignment with Circular Economy principles." 	<p>Selection of the sample by levels:</p> <p>Level 1: professionals who have completed the Circular Economy virtual basic course, which is active on the Ecopetrol University platform. The list of professionals who have completed the course is provided directly by Ecopetrol University.</p> <p>Level 2: professionals with special designation in circular economy topics or with whom work on the implementation of the circular economy model of the organization.</p>	Level 1 and Level 2	<p>Through a process of data consolidation, the level is defined:</p> <ul style="list-style-type: none"> Level 0-Immature: characterized by limited and/or ad-hoc actions (e.g., limited legal compliance actions); Level 1-Basic: Initial establishment of framework and scope - active exploration of opportunities; Level 2 - Improving (Process Improvement): Ways of working that align with Circular Economy principles; Level 3 - Engaged: Product/service/process innovation, Aligning value proposition with Circular Economy principles; Level 4 - Optimization: Business Model Innovation, Organizational ways of doing business and creating value in full alignment with Circular Economy principles; Level 4 - Optimization: Business Model Innovation, Organizational ways of doing business and creating value in full alignment with Circular Economy principles. 	Levels	Positive	X

Indicator	Indicator name	Location in the Report (pg)	Area Responsible	Detailed description of the indicator	Definitions, Notes and Assumptions	Elements and sources of information	Variables for calculation	Formula	Unit of measure	Trend	Verified
ECP002	Lost Time Injury Frequency Rate (LTIFR)	Pg 410	VHSE	Documented in the HSE-H-003 indicator resume.	Documented in the HSE-H-003 indicator resume.	Documented in the HSE-H-003 indicator resume.	Documented in the HSE-H-003 indicator resume.	Documented in the HSE-H-003 indicator resume.	Documented in the HSE-H-003 indicator resume.	Documented in the HSE-H-003 indicator resume.	X
ECP003	Total Recordable Injury Frequency Rate (TRIFR)	Pg 411	VHSE	Measures the number of recordable injuries arising out of or in connection with the work of direct personnel, contractors and subcontractors, and apprentices, including: (i) fatality, (ii) medical incapacity, (iii) restricted work, or (iv) medical treatment, per million hours worked	Documented in the HSE-H-003 indicator resume.	<p>1. Ecopetrol S.A.</p> <p>a. Recordable injuries: HSE tool in the Salesforce platform or the IT tool that replaces it as a repository of HSE information officialized by the HSE Vice-Presidency.</p> <p>b. Hours worked Ecopetrol S.A.:</p> <ul style="list-style-type: none"> • For direct workers: information provided by the Coordination of Documentary Management and Master Data of the Shared Services Management. • For contractor and subcontractor workers: information provided and uploaded in the computer tool defined or replacing it as HSE information repository officialized by the HSE Vice-Presidency. This information will be provided directly by contractors and subcontractors with the validation of Ecopetrol's contract administrators and auditors. 	Documented in the HSE-H-003 indicator resume.	Frequency of Total Recordable Injuries = (Number of: Fatalities + disabling injuries + restricted work + medical treatment) X 10 ^ 6 / E (hours worked).	Documented in the HSE-H-003 indicator resume.	Negative	X
ECP005	Volume of oil spill	Pg 285	VHSE	Measures the volume of oil spilled in the reporting period (bbls) and Coverage of data	<ul style="list-style-type: none"> • SASB and IPIECA guidelines are to report oil spill volumes greater than one barrel (bbl) that have an impact on the environment. • The data reported should represent a total estimate of the volume of spills that have an impact on the environment. It should not be a quantity reduced by recovered, evaporated and lost volumes. Therefore, the number of barrels of oil spilled will be a simple summation of the barrels reported in the Salesforce tool for each of the incidents with quantities greater than 1 barrel that have affected the environment. • The data must include discharges from subway and surface operations; it does not include transportation operations that are not under the control of the company; currently the subsidiary CENIT is in charge of the hydrocarbon transportation operation. • The data should include events by third parties that are beyond the Company's control such as sabotage, earthquakes or weather events. • The data should include subway and surface leaks and these should be counted once at the time they are identified. • The reported data should exclude hydrocarbons present in permitted water discharges. Example permitted discharges, if excluded. 	Indicator registration in Salesforce	The number of barrels of spilled oil greater than 1 barrel	The number of barrels of oil spilled will be a simple addition of the barrels reported in the Salesforce tool in each of the incidents with quantities greater than 1 barrel.	Barrels	Negative	X

Indicator	Indicator name	Location in the Report (pg)	Area Responsible	Detailed description of the indicator	Definitions, Notes and Assumptions	Elements and sources of information	Variables for calculation	Formula	Unit of measure	Trend	Verified
ECP006	Incident Frequency Rate N1 (IFSP N1)	Pg 421	VHSE	<p>Measures the number of incidents involving an unplanned or uncontrolled loss of containment of any material (including non-toxic or non-flammable substances such as steam, hot condensate, nitrogen, compressed CO2 or compressed air) that have the consequences defined in the current edition of API 754 to be classified as Tier 1 ("Tier 1"), per million man-hours worked that occur in all Ecopetrol S.A. facilities (See definitions, notes and assumptions).</p> <p>Note: The indicator includes internal fires and explosions that cause an unplanned or uncontrolled loss of containment in the process. In other words, the loss of containment event may occur after or as a consequence of the aforementioned fire or explosion.</p>	<p>It is clarified that the information reported in this indicator has scope to the events of the Group.</p> <p>Those contained in the file sheet of indicator HSE-H-004.</p>	<p>1. Ecopetrol S.A. a. Incidents: HSE tool as a repository of HSE information officialized by the HSE Management. b. Hours worked Ecopetrol S.A.:</p> <ul style="list-style-type: none"> • For direct workers and apprentices: information provided by the Coordination of Documentary Management and Master Data of the Shared Services Management. • For contractor and subcontractor workers: information provided and loaded in the HSE tool as a repository of HSE information officialized by the HSE Management. This information will be provided directly by contractors and subcontractors with the validation of Ecopetrol's contract administrators and auditors. <p>2. Databases provided by Ecopetrol Group companies.</p>	Contained in the HSE-H-004 indicator resume.	$\text{Process Safety Incident Frequency Level 1} = \frac{\sum (\text{Process Safety Incidents per API -754 Level 1} + \text{Process Safety Incidents in pipelines (ducts and flow lines Level 1)}) \times 10^6}{\sum (\text{total man hours worked})}$	Contained in the HSE-H-004 indicator resume.	Negative	X
ECP029	Indicator of volume of biofuels produced and purchased	Pg 263 - Table 79	VRP	Measures the total annual volume of Diesel B2 sold from Ecopetrol's refineries, and also measures the total volume of Biodiesel B100 purchased annually at Ecopetrol's refineries.	B2: Diesel	Information provided by the Hydrocarbon Measurement Coordinations of each Refinery which is extracted from official SAP records	<p>Volume (Bls/year) of B2 from Cartagena Refinery.</p> <p>Volume (Bls/year) of B2 from Barrancabermeja Refinery.</p> <p>Volume (Bls/year) of B100 from Cartagena Refinery.</p> <p>Volume (Bls/year) of B100 from Barrancabermeja Refinery.</p>	$\text{Volume of B2 Sold} = \text{Volume (Bls/year) of B2 from Cartagena Refinery} + \text{Volume (Bls/year) of B2 from Barrancabermeja Refinery} + \text{Volume (Bls/year) of B2 from Barrancabermeja Refinery} - \text{Volume (Bls/year) of B100 from Cartagena Refinery} + \text{Volume (Bls/year) of B100 from Barrancabermeja Refinery}$	Barrels (bls)	Increase annually	X

ANNEX 03.

SASB CONTENT INDEX

Chapter	Topic	Metrics (SASB EM-EP)	Description of metrics (Metric Summary)	Sector - Subsector		Location in the Report (pg)	Verified	
				Segment	EM-EP			EM-RM
					Exploration and production			Refining
Upstream	Downstream							
Environment	Greenhouse gas emissions	110a.1	Gross global scope 1 greenhouse gas emissions	X	X	193, 194, 195		
		110a.2	* Emissions by type of hydrocarbon (EM-EP)	X	X	195		
		110a.3	*GHG emissions associated with energy supplies (FI-EU) * Strategy for emission's reduction	X		181		
	Air quality	120a.1	Air emissions of the following pollutants: (1) NOx (excluding N2O), (2) SOx, (3) volatile organic compounds (VOCs), and (4) particulate matter (PM10)	X	X	270		
Water management		140a.1	(1) Total water withdrawn (2) total water consumed 2.1 Percentage of water withdrawn 2.2 Percentage of water consumed in regions with high or extremely high initial water stress 2.3 Percentage recycled	X	X	217	X	
		140a.2	*Volume of water withdrawn and returned *Percentage discharged, injected and recycled *Hydrocarbon content discharged (EM-EP) *Number of non-compliance incidents related to water quality permits, standards and regulations (RT-CH)(IF-EU) *Description of water management risks and analysis of strategies and practices to mitigate them(RR-BI)	X	X	218	X	
		140a.4	Percentage of hydraulic fracturing sites where ground or surface water quality deteriorated compared to a baseline	X		218		
		160a.2	* (1) Number (2) aggregated volume of oil spills (3) volume in the Arctic (4) volume impacting shorelines with an environmental sensitivity index ESI 8-10 (5) volume recovered (EM-EP) * (1) Percentage of land owned, leased, or operated within areas with protected conservation status or endangered species habitats (EM-MD) *Analysis of processes for assessing and managing environmental risks associated with project design, siting, and construction (IF-EN)	X		285		
Biodiversity impacts		160a.3	*Percentage of (1) proven and (2) probable reserves in or near sites with protected conservation status or habitats of endangered species (MS-EP) * (1) Area of land disturbed, (2) percentage of affected area recovered (EM-MD)	X		227		

Chapter	Topic	Metrics (SASB EM-EP)	Description of metrics (Metric Summary)	Sector - Subsector		Location in the Report (pg)	Verified	
				Segment	EM-EP			EM-RM
					Exploration and production			Refining
				Upstream	Downstream			
Social Capital	Security, human rights and rights of indigenous people	210a.1	Percentage of proved and probable reserves in or near areas of conflict	X		353		
		210a.2	Percentage of proved and probable reserves in or near indigenous land	X		307, 353		
		210a.3	Analysis of participatory processes and due diligence practices with respect to human rights, indigenous rights and operations in conflict zones	X		290, 305, 308, 310, 317, 318, 352, 353		
	Community relations	210b.1	Analysis of the process for managing risks and opportunities related to community rights and interests (EM-EP and RT-CH 210a.1)	X		322, 345, 346		
		210b.2	(1) Number and (2) duration of non-technical delays	X		353		
Human Capital	Workforce health and safety	320a.1	(1) Total recordable incident rate (TRIR), (2) fatality rate, (3) near miss frequency rate (NMFR), and (4) average hours of health, safety and emergency response training for (a) full-time employees, (b) contract employees and (c) short-term employees	X	X	411, 412, 413, 414	487	
		320a.2	Analysis of management systems used to integrate a safety culture throughout the exploration and production life cycle	X	X	414		
Leadership and governance	Business ethics and transparency	510a.1	Percentage of proven and probable reserves (ME-PE), number of active projects and order backlog (IF-EN) in countries ranked in the bottom 20 of Transparency International's Corruption Perceptions Index	X		159		
		510a.2	* Description of the management system (EM-EP)/ policies and practices (IF-EN) for the prevention of corruption, bribery and unfair competition practices. * Total amount of monetary losses and unfair competition practices (IF-EN)	X		148, 154		
	Risk management and critical incidents	540a.1	Process Safety Event Rates (PSE) for loss of primary containment (LOPC) of highest consequence (Tier 1)	X	X	422	X	
		540a.2	Description of the management systems used to identify and mitigate catastrophic and tail-end risks	X	X	423	X	
	Activity metrics		000.A	Activity metrics	X	X	61	
		000.B	Activity metrics	X	X	66		
		000.C	Activity metrics	X		66		

ANNEX 04.

TCFD CONTENT INDEX

488

Chapter	Subchapter	Nomenclature	Question (ENG)	Location in the Report (pg)
Governance	Board oversight of climate-related risks and opportunities.	TCFD G -1.1	What is the role of the Board of Directors in managing the risks and opportunities associated with climate change?	132
		TCFD G -1.2	What is the experience and profile of the members of the Board of Directors in climate change?	131
		TCFD G -1.3	What is the role of the BoD committees in managing risks and opportunities related to climate change and energy transition?	132
	Management's role in assessing and managing climate-related risks and opportunities.	TCFD G - 2.1	Describe the role of management in assessing and managing climate-related risks and opportunities.	184
		TCFD G - 2.2	Describe the organizational structure associated with climate change and energy transition issues.	185
		TCFD G 2.3	Variable compensation and incentive structure responsive to climate-related objectives	145
	Others	TCFD G 3	Training on climate change issues (Include number of employees trained on climate change and energy transition issues)	375
Strategy	Describe the climate-related risks and opportunities the company has identified in the short, medium and long term.	TCFD E-1.2	Describe the climate-related risks identified by the organization in the short, medium and long term.	186
	Describe the impact of climate-related risks and opportunities on the organization's business, strategy and financial planning.	TCFD E-1.3	Describe the impact of climate-related risks on the organization's business, strategy and financial planning.	186 and 187
Risk management	Describe the organization's processes for identifying, assessing and managing climate-related risks.	TCFD GR - 1.1	Describe the organization's processes for identifying and assessing climate-related risks.	188
		TCFD GR - 1.2	Describe the organization's processes for managing climate-related risks.	189
		TCFD GR -1.3	Describe how the processes for identifying, assessing and managing climate-related risks are integrated into the organization's overall risk management.	189
		TCFD GR -1.4	Alignment of business risks with ESG issues.	168
Metrics and objectives	Metrics	TCFD M - 1.1	Disclose the metrics used by the organization to assess climate-related risks and opportunities in accordance with its strategy and risk management process.	206, 208, 215, 216, 217, 218, 219, 253, 254 and 255
	GHG	TCFD M - 1.2	Disclose Scope 1, Scope 2 and, if applicable, Scope 3 greenhouse gas (GHG) emissions and related risks.	181, 192, 193, 196, 197, 198, 213, 214, 215, 254, 269, 270, 271, 277, 278 and 280

ANNEX 05. BUSINESS LINES AND OPERATING COMPANIES

[SFC 7.4.1]

BUSINESS LINES AND OPERATING COMPANIES

In order to respond to the challenges of the 2040 Strategy in terms of business diversification, maximizing the value of investments, and guaranteeing strategic alignment, the Ecopetrol Group evolved its management, to be developed by three **(3) business lines**: hydrocarbons, low emission solutions, and transmission and toll roads.

HYDROCARBON BUSINESS LINE

a. UPSTREAM SEGMENT

Ecopetrol S.A.

Ecopetrol's corporate purpose is the undertaking of industrial and commercial activities, in Colombia or abroad, corresponding or related to the exploration, exploitation, refining, transportation, storage, distribution, and trade of hydrocarbons and their derivatives and products.

Ecopetrol conducts exploration and exploitation activities in the areas or oil fields assigned to it by the National Hydrocarbons Agency - ANH-, or the entity acting on its behalf, through direct operations or in partnership with other companies. Also, hydrocarbon exploration and exploitation activities abroad, either directly or by entering into contracts with third parties.



HOCOL S.A.

Ecopetrol's stake: 100% indirect stake through Hocol Petroleum Limited in Bermuda.

Profile and business activity: this company, acquired in 2009, engaged in the search, production, and transportation of hydrocarbons in different regions of Colombia. Hocol has currently set up operations in different areas around Colombia: Northern Colombia (Valle Inferior del Magdalena, Sinú San Jacinto, and Guajira), Llanos, Huila, and Tolima (Valle Superior del Magdalena). The areas of interest for Hocol cover exploration and production blocks. The company's production mainly arises from the fields of Ocelote, Chuchupa y Ballena, Bonga-Mamey, Bullerengue, and La Cañada, located in the departments of Meta, Guajira, Valle, Magdalena, and Huila.



EQUION ENERGÍA LIMITED

Ecopetrol's stake: 51% direct stake owned by Ecopetrol S.A.

Profile and business activity: Ecopetrol acquired 51% of this company in 2011. Equion is an oil production company with presence in Piedemonte Llanero; its investments have focused on the development of contract reserves from Piedemonte.



ECOPETROL AMERICA LLC

Ecopetrol's stake: 100% indirect stake through Ecopetrol USA Inc.

Profile and business activity: this company was incorporated in 2007 to establish presence in the US Gulf of Mexico, one of the most prospective areas in the world, in order to develop a long-term strategy to increase reserves and expand the investment portfolio.



ECOPETROL PERMIAN LLC

Ecopetrol's stake: 100% indirect stake through Ecopetrol USA Inc., which in turn has an indirect stake, mainly through Ecopetrol Global Energy S.L.U.

Profile and business activity: this company was incorporated in 2019 to establish presence in the Permian basin in the United States, one of the most prolific areas and the one of greatest global interest to date, in order to develop a long-term strategy to increase reserves, expand the investment portfolio to short-cycle assets, light crude oil and gas, and alto to acquire more expertise in the development of unconventional deposits.



ECOPETROL OLEO E GAS DO BRASIL LTDA

Ecopetrol's stake: 100% indirect stake through Ecopetrol Global Energy S.L.U. and Ecopetrol America LLC.

Profile and business activity: company established in 2006, as part of the upstream internationalization strategy. It develops and engages, both in Brazil and abroad, in industrial or commercial activities related to the exploration, production, refining, transportation, storage, distribution, and trade of hydrocarbons and their products or derivatives, and in the development and trade of conventional and alternative energy sources.



ECOPETROL HIDROCARBUROS MEXICO S.A. DE C.V.

Ecopetrol's stake: 100% indirect stake through Ecopetrol Global Energy S.L.U. (99.99%) – Ecopetrol America LLC. (0.01%).

Profile and business activity: established in 2017, its exclusive purpose is the exploration and extraction of hydrocarbons in Mexican territory.



ECOPETROL COSTA AFUERA S.A.S.

Ecopetrol's stake: 100% indirect stake through Hocol Petroleum Limited in Bermuda.

Profile and business activity: incorporated in 2016, its purpose is the development, either exclusively in or from one or several offshore free zones, as an industrial user, of goods or services of the activities of the oil and gas industry, especially the exploration, exploitation, production, transportation, distribution, export, sale, and trading of oil, gas, and any other hydrocarbon or its derivatives and products, as well as any other activity related to the offshore hydrocarbon sector, including the exploration and exploitation of the areas or oil fields assigned to it by the National Hydrocarbons Agency - ANH, or those ceded by third parties, prior authorization from the ANH.

b. MIDSTREAM SEGMENT



CENIT TRANSPORTE Y LOGÍSTICA DE HIDROCARBUROS S.A.S.

Ecopetrol's stake: 100% direct stake owned by Ecopetrol S.A.

Profile and business activity: the company began its operations in 2013, leading the transportation and logistics segment for hydrocarbons, derivatives, and the like within the Ecopetrol Group (midstream), which is integrated by a network of transport and storage systems. The purpose of this company is the transport and/or storage and/or logistics of hydrocarbons, their derivatives, products, and the like, by means of its own transport and/or storage systems or those owned by third parties, both in Colombia or abroad.

Cenit owns **28 transportation systems** made up of a 2,969 km pipeline network and a 3,681 km polyduct network, which it uses to transport crude oil and refined products, respectively. The company similarly owns storage infrastructure with five (5) unloading facilities in: Monterrey, Arguaney, Vasconia, Banadia, and Ayacucho, and two (2) loading bays in Pozos Colorados and Tocancipá.

492



Oleoducto de los Llanos Orientales S.A.

OLEODUCTO DE LOS LLANOS S.A.

Ecopetrol percentage stake: 65% indirect stake through Cenit S.A.S.

Profile and business activity: it is a company with a nominal capacity to transport 310 KBPD¹, operating in the departments of Meta and Casanare, through a 235 km pipeline from the Rubiales (Meta) pumping station to Monterrey (Casanare) and a **25 km** bypass from El Viento (Casanare) to Cusiana (Casanare).

1 Conventions

Bpd	Barrels per day.
Kbdc	Thousands of barrels calendar day
Kbpd	Thousands of barrels of oil per day
Kbpe	Thousands of barrels of oil equivalent per day
Mbpe	Million barrels of oil equivalent



OLEODUCTO BICENTENARIO DE COLOMBIA S.A.S.

Ecopetrol's stake: 99.03% indirect stake through Cenit and 0.97% through Hocol.

Profile and business activity: created in 2010 with the main purpose of designing, building, owning, operating, maintaining, and commercially exploiting an oil pipeline for private use in Colombia, made up mainly of the Araguaney – Banadía, Banadía – Ayacucho, and Ayacucho – Coveñas routes.

OCENSA

OLEODUCTO CENTRAL S.A.

Ecopetrol's stake: 72.65% indirect stake through Cenit S.A.S.

Profile and business activity: the company has an 836 km pipeline on land (nominal capacity of 570kbpd in Segment 3) and 12 km at sea, with **10 pumping stations**, a pressure reducer, a maritime terminal, tanks to store up to 5 million barrels, and a base to coordinate maintenance activities.



Oleoducto de Colombia

OLEODUCTO DE COLOMBIA S.A.

Ecopetrol's stake: 73% indirect stake in ODC, 51.28% through Cenit S.A.S. and 21.72% through Hocol S.A.

Profile and business activity: company engaged mainly in crude oil transportation activities between the Vasconia plant and the Coveñas terminal, as well as the provision of crude oil loading services to tankers for export. The pipeline is **483 km** long, with an approximate capacity of 248 KBPD.



c. DOWNSTREAM SEGMENT

Ecopetrol S.A.

Ecopetrol's corporate purpose contemplates the undertaking, in Colombia or abroad, of industrial activities corresponding to or related to the refining of hydrocarbons and their derivatives and products.

Ecopetrol conducts refining and processing activities and any other industrial or petrochemical process pertaining to hydrocarbons, their derivatives, products, or the like, in its own facilities or in those of third parties. This activity, in particular, takes place at the Barrancabermeja refinery.

494



Refinería de Cartagena

REFINERÍA DE CARTAGENA S.A.S.

Ecopetrol's stake: 100% stake.

Profile and business activity: The Cartagena refinery is one of the most modern refineries in Latin America. It meets high international standards, processing a significant component of heavy crude oil in its diet, thus utilizing domestically produced crude oil and complementing it with international crude oil to transform them into clean fuels and high added value petrochemicals.

The company's purpose is the construction and operation of refineries; the refining of hydrocarbons; the distribution and trade of these refined products in Colombia and abroad; the trade, mixture, import, and export of "petroleum coke"; the mixture of components for the production of hydrocarbons destined for Colombia and abroad. The maximum nominal load capacity of the Cartagena refinery is 230 KBPD, with a 93% conversion capacity. The remaining 7% is transformed into sulfur and coke, products used in the steel and agrochemical industries, respectively.



ESENTTIA S.A.

Ecopetrol's stake: 100%

Profile and business activity: petrochemical company that joined the Ecopetrol Group in 2008. ESENTTIA, with its main plant located in Cartagena, Colombia, engages in the production and trading of raw materials for the plastics industry, such as polypropylene, polyethylene, and masterbatch. It has been recognized for its commitment to good sustainability practices, leading actions within the framework of responsible production and consumption, and plastic recycling. It is currently the first exporting company in the Colombian petrochemical sector.



ECODIESEL COLOMBIA S.A.

Ecopetrol's stake: 50% direct stake owned by Ecopetrol S.A.

Profile and business activity: company from the biofuels sector created in 2007, with a biodiesel production plant in the city of Barrancabermeja. Its purpose is the construction and operation of biofuel, by-product, and biochemical production plants, the production and sale of biofuels and their mixtures with fuel hydrocarbon derivatives, the sale of by-products arising from the production of biofuels and non-food oleochemicals, as well as the import and/or export of all aforementioned products.

- **COMMERCIAL SEGMENT**



ECOPETROL TRADING ASIA PTE. LTD.

ECOPETROL TRADING ASIA PTE. LTD.

Ecopetrol's stake: 100% indirect stake through Ecopetrol Singapore Pte. Ltd.

Profile and business activity: Ecopetrol Trading Asia Pte. Ltd. was set up mainly for the international trade of the Ecopetrol Group's crude oil and products in the Asian market. The company is located in Singapore, the trading epicenter of Asia, and the fastest growing market in the world. It began operations in 2022 to consolidate Ecopetrol's internationalization and commercial diversification strategy, especially in the Asian market. Currently, around 50% of the Company's crude oil sales are destined for Asia, a figure five (5) times higher than 12 years ago.



Ecopetrol US Trading LLC

Ecopetrol's stake: Ecopetrol S.A. is the indirect owner of 100% of the shareholding of Ecopetrol US Trading LLC, through its subsidiary Ecopetrol USA Inc.

Profile and business activity: company registered in Delaware, United States, whose main corporate purpose is the international trade of the refined, petrochemical, and industrial products, as well as the crude oil and natural gas of the Ecopetrol Group and of third parties.

- **LOW EMISSION SOLUTIONS BUSINESS LINE**

Ecopetrol S.A.

Ecopetrol S.A. leads the projects, initiatives, and new opportunities in Colombia and abroad concerning natural gas and LPG, from the identification of the product's potential to the trade thereof, in compliance with the law and applicable regulations.



496

INVERSIONES DE GASES DE COLOMBIA S.A.

Ecopetrol's stake: 51.88% direct stake owned by Ecopetrol S.A.

Profile and business activity: company with investments in the energy sector through its gas and LPG distribution and trading companies, transportation companies, and other businesses. Invercolisa is present throughout the Colombian territory, by means of its controlled and non-controlled companies in **19** departments around the country (mainly Huila, Tolima, Santander, and the Caribbean coast).

Ecopetrol controls the following companies through INVERCOLISA:

Alcanos De Colombia S.A. E.S.P

Combustibles Líquidos De Colombia S.A E.S.P (Clc S.A. E.S.P)

Gases Del Oriente S.A. E.S.P (Gasorient)

Metrogas De Colombia S.A. E.S.P

Promotora De Gases Del Sur S.A E.S.P (Progasur)

- TRANSMISSION AND TOLL ROAD BUSINESS LINE



INTERCONEXIÓN ELÉCTRICA S.A. ESP - ISA

Ecopetrol's stake: 51.4% direct stake owned by Ecopetrol S.A.

Profile and business activity: In 2021, Ecopetrol S.A. acquired **51.4%** of ISA's shares, marking a milestone in the advancement of the Ecopetrol Group's energy transition strategy. ISA's purpose is to provide public electrical power transmission services, in accordance with the provisions of Laws 142 and 143 of 1994; the development of telecommunications systems, activities, and services; direct or indirect participation in activities and services related to the transportation of other energy sources; the provision of technical and non-technical services in activities related to its purpose; the development of infrastructure projects and the commercial exploitation thereof.

Ecopetrol controls the following companies through ISA²:

Compañía De Transmissao De Energia Eléctrica Paulista Cteep S.A 1

Concesion Costera Cartagena Barranquilla S.A

Consortio Transmantaro S.A

Interchile S.A

Interconexión Eléctrica Isa Bolivia S.A

Interconexión Eléctrica Isa Perú S.A

Interconexiones Viales Spa

Internexa Brasil Operadora De Telecomunicaciones S.A

Internexa Chile S.A

Internexa Participacoes S.A

Internexa Perú S.A

Internexa S.A

Intervial Chile S.A

² As established in Ecopetrol S.A.'s certificate of incorporation and legal representation, Ecopetrol S.A.'s indirect control [but not as a business group] over XM Compañía de Expertos en Mercados S.A. was registered on November 30, 2021.



Intervial Colombia S.A.S

Isa Capital Do Brasil S.A

Isa Intercolombia S.A E.S.P

Isa Inversiones Chile Spa

Isa Inversiones Costera Chile Spa

Isa Inversiones Tolten Ltda

Isa Investimentos E Participacoes Do Brasil S.A

Linear Systems Re Limited

Proyectos De Infraestructura Del Perú S.A.C

Red De Energia Del Perú S.A

Ruta De La Araucania Sociedad Concesionaria S.A

Ruta De Los Ríos Sociedad Concesionaria S.A

Ruta Del Bosque Sociedad Concesionaria S.A

Ruta Del Loa Sociedad Concesionaria S.A

Ruta Del Maipo Sociedad Concesionaria S.A

Ruta Del Maule Sociedad Concesionaria S.A

Sistemas Inteligentes En Red S.A.S

Transamerican Telecomunicaciones S.A/ Internexa
Argentina (Cisa)

Transelca S.A E.S.P

Isa Inversiones Chile Vias Spa.



- INVESTMENT AND FINANCIAL VEHICLES

ECOPEPETROL SINGAPORE PTE. LTD.

Ecopetrol's stake: 100% direct stake owned by Ecopetrol S.A.

Profile and business activity: established with the purpose of consolidating its position in the Asian market by capturing new clients and destinations and strengthening commercial relations on that continent through Ecopetrol Trading Asia Pte Ltd. The company started operations in 2022.

BLACK GOLD RE LIMITED (BGRE)

Ecopetrol's stake: 100% direct stake owned by Ecopetrol S.A.

Profile and business activity: Black Gold Re Limited is the Ecopetrol Group's captive reinsurer. Established in 2006, it is responsible for enabling and optimizing the placement of Ecopetrol's corporate insurance program and that of its subsidiaries, by adjusting the levels of risk assignment or retention to guarantee the protection of its assets and operations, strengthening its bargaining power in the insurance market, and minimizing the adverse effects of market cycles. BGR designs and implements individual coverage and deductible strategies according to the requirements of each of Ecopetrol's business lines and those of its subsidiaries, capturing and controlling a part of the placement cost, and generating economic benefits for the Group.

ANDEAN CHEMICAL LTD

Ecopetrol's stake: 100% direct stake owned by Ecopetrol.

Profile and business activity: this company was incorporated in Bermuda to mainly channel the necessary resources for companies in the downstream segment of the hydrocarbon business line.

HOCOL PETROLEUM LIMITED

Ecopetrol's stake: 100% direct stake owned by Ecopetrol S.A.

Profile and business activity: investment vehicle entering the portfolio as part of the acquisition of Hocol S.A. for companies in the upstream segment with operations in Colombia (Hocol S.A. and Ecopetrol Costa Afuera Colombia).

ECOPETROL GLOBAL ENERGY S.L.U.

Ecopetrol's stake: 100% direct stake owned by Ecopetrol S.A.

Profile and business activity: investment vehicle for companies in different segments with international operations, with an emphasis on the upstream. Incorporated under the Spanish tax regime applicable to ETVE companies (companies holding foreign securities), with effective administrative headquarters in Spain.

ECOPETROL CAPITAL AG

Ecopetrol's stake: 100% direct stake owned by Ecopetrol S.A.

Profile and business activity: the company's purpose is to finance and execute financing operations for the companies under the group.

- **NON-OPERATING COMPANIES**



500

ECOPETROL PERÚ – IN LIQUIDATION

Ecopetrol's stake: 100% indirect stake, mainly through Ecopetrol Global Energy S.L.U.

Profile and business activity: established in 2007, Ecopetrol Perú currently has a 30% stake in Block 101, which is in the process of environmental remediation after being returned to Perupetrol, through the block operator (Repsol), to continue with the dissolution of the company, estimated for 2023, once the respective environmental procedures are completed.



ECOPETROL ENERGIA S.A.S. E.S.P.

Ecopetrol's stake: 99% direct stake owned by Ecopetrol S.A. and 1% indirect stake through Andean Chemicals LTD.

Profile and business activity: this company was incorporated in March 2018 and began operations in December that year with the purpose of trading the electrical energy required by the Ecopetrol Group. However, upon purchasing 51.4% of ISA's shares, the company was required to cease its trading activities due to contractual and regulatory reasons and it will subsequently enter into early dissolution and liquidation.

ANNEX 06. ECOPETROL AWARDS AND RECOGNITIONS

- Ecopetrol was commended by the market and the various analysts for its expansion and internationalization process, entering new markets and exporting new products to international markets.
- IR (Investor Relations) recognition from the BVC for the adoption of best practices in information disclosure and investor relations.
- 100 points (highest score) in Business Ethics and 90 points in Risk and Crisis Management according to the DJSI.
- Ecopetrol's anti-corruption policies and procedures rated 100% according to the United Nations Global Compact.
- 100% in all the self-assessment criteria defined in the integrity and compliance program under the Business Integrity Route of the Presidency of the Republic's Transparency Secretariat.
- Highest level in the Business Management of Corruption Risks measurement initiative led by Transparencia por Colombia.
- 100 points in ethics and compliance according to the preliminary results produced by Sustanalytics.
- Top score on MSCI's measurement of issues related to the Robust Peer Policy Recognition and Compliance Program.
- ANDESCO Sustainability Award - LARGE COMPANIES.
- "VI IBEROAMÉRICA INCLUYE AWARD IN 2022" granted by the Ibero-American Network of Inclusive Companies and the Ibero-American Social Security Organization - OISS.
- Best open innovation company in the Oil & Gas category according to Connect Bogotá's 2022 Open Innovation ranking.
- ICONTEC's good practices and innovation seals for the 100 x 100 challenge initiative.
- Plug & Play Corporate Innovation Award.
- International Award for the Nuevo Normal Project granted by SSON.
- Centennial Order granted by the Barrancabermeja District Mayor's Office in recognition of the work and contribution to the growth and development of the city.

- Second most sustainable chain in the industry worldwide - 2022 DJSI.
- Business Merit Award granted by Universidad Simón Bolívar for the Social Gas Project in Barranquilla.
- Recognition by the Chamber of Commerce of Huila for business leadership and sustainability in the 28 years of operating activities, local hiring, and promotion of local suppliers in the territory, and for contributing to the social and environmental development of the department.
- Finalist in the Sustainability Award granted by Andesco to the implementation of Peace Lectureship in Catatumbo (Tibú, Toledo, and Cubará).
- Finalist in Good SDG Practices awarded by the Global Compact Network Colombia to the Massification of the Gas Service in the municipalities of Tame and Saravena.
- Recognition by the City Hall of Cartagena for the contributions to the educational community.
- 2022 Best Refinery of the Year in Latin America awarded by the World Refining Association to the Barrancabermeja Refinery.
- Recognition "Barrancabermeja, 100 years to a very PRO partner. Thank you for contributing to the development of the region" granted by PRO.
- Recognition for transforming, building, and contributing to Colombia, 100 years of the Barrancabermeja refinery, granted by CAMPETROL on February 18, 2022.
- 8th version of the Andesco Award for energy efficiency, in the category of industry, commerce, and services, recognizing the commitment to the rational use of energy with the initiative "Operational Control of energy performance in the Upstream, Midstream (CENIT), and Downstream processes of the Ecopetrol Group."
- First place in the oral modality of the IX Edition, SUMMER SCHOOL - Converging technologies in Energy Transition of Universidad Nacional de Colombia, with the initiative "Successful Nanotechnology Field Application to Mitigate Formation Damage in Water Injector Wells and Reduce Energy Consumption and the CO2 Footprint.
- Business Merit Award granted by Universidad Simón Bolívar in the Social Responsibility and Shared Value category, for the implementation of the Social Gas program in Barranquilla.

- 2021 and 2022 Iberoamérica Incluye Award to the Disability pillar under the Diversity and Inclusion Program.
- ADIPEC 2022 finalist in the category of Diversity Oil & Gas Company of the Year, among 1,000+ applications from companies from more than 64 countries.
- 3rd place in 2022 in the ranking of LGBTI Inclusive Companies granted by the National Consulting Center, in partnership with the Chamber of LGBTI Merchants of Colombia.
- First place in the 2022 general ranking of companies that attract and retain talent in Colombia.
- Brandon Hall Group Award granted to the Ecopetrol University.



- Equipares silver seal awarded to Hocol.
- Hocol, finalist in the 2022 Portafolio Awards for its contribution to the community.
- Hocol's publication in the Colombia empresarial inclusiva report prepared by the Global Compact.
- Hocol, company with the best Targeting performance in the 2021 Private Social Investment Index.
- Hocol ranked 11th in the Private Social Investment Index in the classification of companies with the best private social investment practices in Colombia in 2021.
- Hocol, the company with the best performance in Sinapsis in the 2021 Private Social Investment Index.
- Recognition granted for the Ecoreserves by the UN-Global Compact Network Colombia – SDG 15 Best Practices
- Second place in the SSON awards, (world's largest shared services network), in the Human Resources category for the Nuevo Normal project.
- In meetings with the National Agency for State Judicial Defense, Ecopetrol S.A.'s judicial management has been recognized as one of the most efficient and successful within the public sector.

- The most innovative company in the Bogotá-Cundinamarca region and the fifth in Colombia, according to ANDI and Dinero's innovation ranking. Three Group companies ranked amongst the top 15: Ecopetrol (5), Esenttia (10), and ISA (15).
- Business digital transformation award granted by CINTEL and PwC within the framework of the ANDICOM 2022 ICT Congress.
- Distinction for innovative vision in energy granted by Microsoft, supported by Puesto Digital and Nuevo Normal – Journey to Cloud, leading projects in the region with significant impact on operational efficiency.
- Ecopetrol was recognized as a leading company in open innovation by 100 Open Startups, in partnership with Connect.
- Corporate Friendly Biz Seal granted by the Colombian Chamber of LGBT Merchants and audited by Future Builder to companies committed to respecting and including the LGBT+ community.
- Ecopetrol joined the 30% Club, an initiative that promotes greater participation of women on boards of directors.
- Participation in the Valuable 500 global alliance of the 500 most influential companies driving the disability agenda.
- IPG Member (leadership taskforce under the Colombia Gender Parity Initiative) – Alliance pushed by every country with the co-leadership of the National Government and the Ministry of Labor.
- Co-creator of the Colombian Diversity and Inclusion Ecosystem developed with the Colombian Chamber of Diversity, a partnership involving more than 350 companies in Colombia to promote diversity, equity, and inclusion.
- Member of gender equality alliances and committees by trade unions: ANDI, OCIER, Ministry of Mines and Energy, Naturgas, Society of Petroleum Engineers and Women in Oil & Gas.

Diversity and inclusion achievements and recognitions

- Global Diversity and Inclusion benchmark in the Oil & Gas sector, chosen as 1 of the 3 best companies in the 2022 ADIPEC AWARDS (most prominent global meeting event for the energy industry) among 1,000+ applications from 62 countries.
- 2022 Iberoamérica Incluye Award to the Disability pillar under the D&I Program.
- Recognition to President Felipe Bayón for an entire professional career working in favor of gender equality granted by She Is Foundation.
- Third place, with a score of 88%, in the Ranking of Inclusive Companies (LGBTI emphasis) awarded by the National Consulting Center in partnership with the Chamber of LGBT Merchants of Colombia.
- 2nd place, with 81 points, in the Par Ranking of companies with more than 5,000 employees in Colombia.

ANNEX 7. GLOSSARY AND ACRONYMS

01.

GLOSSARY

- **ADR:** American Depositary Receipts – Physical title endorsing the deposit of company shares in a US bank.
- **AP42:** Compendium of Atmospheric Emission Factors. Compilation by the United States Environmental Protection Agency establishing chapters associated with industrial activities and their emission factors for primary pollutants.
- **API degrees:** measure of density established by American Petroleum Institute that specifies how heavy or light oil is.
- **Bottom up:** bottom-up technique.
- **Brent:** a type of Brent oil extracted mainly from the North Sea off the coast of Scotland.
- **Capex:** capital expenditure
- **Category Y9:** mixtures and emulsions of waste oil and water or hydrocarbons and water.
- **CEO Water Mandate:** public-private initiative led by the United Nations Global Compact, mobilizing different players (business leaders, civil society, governments, among others) around the topics of water, sanitation, and the Sustainable Development Goals.
- **COKER unit:** coking unit. Oil refinery process used to recover valuables such as petroleum coke.
- **COLCAP:** capitalization index that reflects the price variations of the most liquid shares on the Colombian Stock Exchange.
- **Commodities:** basic goods in great demand worldwide that serve as inputs to produce others, such as oil, ethanol, coal, and natural gas.
- **Compliance Material Element:** issues or matters whose management is relevant to the organization and which are framed within regulatory compliance.
- **Cracking:** chemical process to produce simpler compounds by breaking down the molecules of a compound.
- **Cracks:** term used in energy markets to represent the differences between crude oil and petroleum product prices.
- **Cybersecurity:** IT security
- **Decarbonization:** process of reducing GHG emissions into the atmosphere.

- **Differentiated Material Elements:** issues or matters that set Ecopetrol apart from other companies with state participation at a global level.
- **Downstream:** segment, stage, and activities related to the refining and petrochemical process of fossil fuels.
- **ECO Zones:** experience centers that promote citizen participation processes to understand the operations and work of the Company by teaching with expertise and incorporating ICTs, thus creating a one-of-a-kind relationship experience.
- **Ecoreserves:** geographically delimited areas, owned by Ecopetrol Group companies, which are voluntarily allocated in part or in whole to the conservation of biodiversity and the offer of ecosystem services, without limiting their productive and exploratory vocation.
- **Energy Human Tech:** ecosystem associated with the CT+I strategy, aimed at solving the challenges and cross-cutting missions of the industry by means of regional open innovation centers.
- **Energy transition:** process of changing energy systems in order to gradually mitigate the impacts of the climate and environmental crisis. This, by deploying short-, medium-, and long-term actions that generate an adaptation of traditional energy sources and their technologies until their final transformation and/or substitution.
- **Exceptional Material Elements:** issues or matters for which Ecopetrol wishes to be recognized as a leader and highlighted for its good practices.
- **Flaring:** burning of hydrocarbons.
- **Flowback:** return flow.
- **Fuel blending:** mixing of the refined products with additives and components to obtain final products.
- **Geothermal energy:** renewable energy source obtained from the use of the internal thermal phenomena of the Earth (internal heat of the Earth), by means of geothermal power plants that transform the internal energy of the Earth into electrical energy.
- **High performance cells:** a team of experts created temporarily to solve a company need.
- **In-house:** within the company
- **Masterbatch:** color mix or concentrate used to pigment plastics.
- **Materiality:** process of determining relevant issues (material elements) for the stakeholder groups of a company that give rise to a list of elements that the business activity must be routed on. It is therefore a highly important exercise for the sustainability of companies and business groups.
- **Mero:** ConTREEbute's software implemented for the management and disclosure of sustainability information in a practical and efficient way.
- **Midstream:** segment, stage, and activities related to the transportation of fossil fuels.
- **Naphtha:** a range of distillates lighter than kerosene used as a filler for the production of motor gasoline and for the chemical industry (e.g., for ethylene production). /// Generic term applied to a fraction of petroleum that boils in the approximate range of 122-400°F.
- **Notable Material Elements:** issues or matters for which Ecopetrol must focus on by adopting global best practices to ensure the competitiveness thereof.
- **Offshore:** offshore oil and gas exploration and production.
- **Onshore:** onshore oil and gas exploration and production.

- **Opex:** operational expenditures
- **ORRI:** Overriding Royalty Interest - Undivided interest in a mineral lease that grants the right to receive a proportional part of the proceeds from the sale of oil and gas produced.
- **Payout:** percentage of benefits from dividend payments.
- **Percentage of carry:** percentage of the investment covered according to the evolution of the price of a barrel of oil and the drilling activity.
- **Petroleum coke:** carbonaceous solid material produced in the oil refinery process.
- **Pipeline:** pipeline or network transporting crude oil.
- **Play:** petroleum system (or play) is used to designate families of genetically related reservoirs that share similar characteristics in terms of geological continent and that give rise to hydrocarbons with similar characteristics.
- **PM10:** small solid or liquid particles dispersed in the atmosphere, whose aerodynamic diameter is less than 10 µm.
- **Polyduct:** pipeline or network transporting a variety of processed fuels.
- **Ratio:** proportion or relationship between two quantities or magnitudes.
- **Regasification:** it is the opposite process to liquefaction, where the Liquefied Natural Gas goes from liquid state to gaseous state.
- **Reskilling:** acquisition of new skills.
- **Retooling:** re-equipping with new capacities through reskilling and upskilling.
- **Scouting:** verification to collect primary information to define the areas of influence of the projects.
- **Senior Management:** High-ranking members who make up and undertake the management of an organization, such as the CEO and/or the people who report directly to him/her or to the highest governance body.
- **Showrooms:** exhibition halls.
- **Solar energy:** renewable energy source obtained from the use of the sun's radiation, by means of collectors or photovoltaic panels that transform the sun's energy into electrical energy.
- **Start-up Company:** young or recently created company characterized by its great capacity for growth, generally through the development of products and/or services using technology and innovation.
- **Startup:** commissioning.
- **Streaming:** broadcasting to view and listen to content transmitted via the Internet or another network without having to previously download the data to the device from which the file is viewed and heard.
- **Sustainalytics:** leading independent Environmental, Social, Governance (ESG) and corporate governance research, rating and analysis firm that assists investors around the world with the development and implementation of responsible investment strategies.

- **TESG (SosTECnibilidad®):** this is one of the four pillars of Ecopetrol's corporate strategy. It consists of a redefinition of sustainability by using technology as a tool for the development of innovative solutions to current and future challenges.
- **Tier:** level.
- **Tone at the Top:** leadership in ethics and compliance matters imparted from the highest level.
- **Top down:** top-down technique.
- **Trading:** purchase and sale of listed assets with considerable market liquidity (stocks, currencies, and futures).
- **Transmix:** portion of the interface or product from the relay tanks that cannot be mixed with any of the products transported by the system, without generating a deviation from the regulated quality specifications, or contractually agreed upon in the case of products whose quality is not regulated.
- **Turbofuel or jet fuel:** fuel used for aircraft or helicopter turbines, whose octane number is higher than that of gasoline. This fuel is a petroleum derivative, usually used in turbo-prop planes and jets.
- **Upskilling:** this involves developing the necessary skills in current workers.
- **Upstream:** segment, stage, and activities related to the exploration and production of fossil fuels.
- **Water basin:** territory whose waters all flow into the same river, lake, or sea.
- **Water neutrality:** this is a pillar of Ecopetrol's environmental strategy. It is based on integrated water management, efficient management, company sustainability, reduction of environmental impacts and conflicts associated with water and water security in the environment.
- **Webinar:** web conference or seminar.
- **White products:** gasoline, naphtha, kerosene, and diesel; that is, products from the high end of the distillation process.
- **Wind power:** renewable energy source obtained from the use of the wind, by means of wind turbines that transform wind energy into electrical energy.
- **Yammer:** Microsoft application that allows you to connect and communicate across an organization, share updates, and collaborate with others.

02. ACRONYMS

ACL	Andean Chemicals Ltd.
ACP*	Colombian Petroleum Association
ACPM*	Motor fuel oil
AE	Accumulated Exceedance
AFR	Accident Frequency Rate
ANDESCO*	National Association of Public Utility and Communications Companies
ANDI*	National Association of Industrialists
ANH*	National Hydrocarbons Agency
ANLA*	National Environmental Licensing Authority
ANP	Agência Nacional do Petróleo, Gás Natural e Biocombustíveis
API	American Petroleum Institute
ARPEL*	Regional Association of Oil and Natural Gas Companies in Latin America and the Caribbean
Asocarbono*	Colombian Association of Carbon Market Actors
AWS	Amazon Web Services
bbls	Barrels
bbp	Butylbenzyl phthalate
BCOP	Billions of Colombian pesos
BE SAS	Bioenergy S.A.S
BE ZF SAS	Bioenergy Zona Franca SAS
BGRe	Black Gold Re Limited
bl	Barrel
BOE	Barrels of oil equivalent
BPD	Barrels per day
BTU	British Thermal Unit
BUSD	Billions of US dollars
BVC*	Colombian Stock Exchange
CAGR	Compound Annual Growth Rate
CAR*	Regional Autonomous Corporations
CAS*	Autonomous Corporation of Santander
CBD	Convention on Biological Diversity
CCAC	Climate and Clean Air Coalition
CCITE*	Certificate of Clearance from Technical Narcotics Reports
CCT*	Collective Labor Agreement
CCUS	Carbon Capture, Use and Storage
CDM	Clean Development Mechanisms
CDP	Carbon Disclosure Project

CDTECH	Community Development Technologies
CEO	Chief Executive Officer
CFC	Chlorofluorocarbons
CFO	Corporate Vice President of Finance
CGR*	Office of the Comptroller General of the Republic of Colombia
CH ₄	Methane
CNH	National Hydrocarbons Commission
CNOOC	China National Offshore Oil Corporation
CO ₂	Carbon dioxide
COGS	Cost of goods sold
COLOSOS*	Local Occupational Health Committees
CONPES*	National Council for Economic and Social Policy
COO*	Executive Vice President of Operations
COP	Colombian peso
COP26 / COP27	United Nations Conference on Climate Change (26th / 27th)
COPASOS	Joint Occupational Health Committees
CORINAIR	Core Inventory air emissions
Cormacarena*	Corporation for the Sustainable Development of the Special Management Area La Macarena
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CRC*	Shared Risk Contract
CREE	Income tax for equity
CREG*	Energy and Gas Regulation Commission
CT+I*	Science, technology, and innovation
CTU _e	Comparative toxic unit for aquatic ecotoxicity impacts
CTU _h	Comparative toxic unit for human toxicity impacts
DANCP	Directorate of the National Prior Consultation Authority of the Ministry of the Interior
DART	Days Away, Restricted or Job Transfer Rate
DGPE	Dirección General de Participaciones Estatales
DIAN*	National Tax and Customs Authority
DJSI	Dow Jones Sustainability Index
DOJ	Department of Justice
DRMI*	Regional Integrated Management District
E&P*	Exploration and production
Ebitda	Earnings before interest, taxes, depreciation and amortization
EC	Environmental Compliance
ECA	Export Credit Agencies

ECP	Ecopetrol
EEA	European Environmental Agency
EIA	Environmental impact assessments
EIIP	Emissions Inventory Improvement Program
EMEP	European Monitoring and Evaluation Programme
ENEC	European Norms Electrical Certification
ENR*	Non-regulated energy
EOR	Enhanced Oil Recovery
EPA	Environmental Protection Agency
ERM	Enterprise Risk Management
ESP*	Public utilities company
ESG	Environment, Social and Governance
ExCo	Executive Committee
EY	Ernst & Young
FAME	Fatty acid methyl ester
FCPA	Foreign Corrupt Practice Act
FECOC*	Colombian fuel emission factors
FENOGE*	Fund for Non-Conventional Energies and Efficient Energy Management
FEPC	Fuel Price Stabilization Fund
FIBO*	Integral Basic Operator Training
FINDETER*	Financiera de Desarrollo Territorial S.A.
FIP*	Fundación Ideas para la Paz
FNCER*	Non-conventional renewable energy sources
FPADM*	Financing of the proliferation of weapons of mass destruction
FSRU	Floating storage regasification unit
FT	Financing of terrorism
FTE	Full-time Employees
g/L	Gram per liter
GBIF	Global Biodiversity Information Facility
GBTUD	Giga BTU per day unit
GDP	Gross domestic product
GE*	Ecopetrol Group
GHG	Greenhouse Gas
GI*	Stakeholder Groups
GRB	Barrancabermeja Refinery Management
GRC	Cartagena Refinery Management
GRI	Global Reporting Initiative

GSV	Gross Standard Volume
GTC*	Colombian Technical Guide
GW	Gigawatt
GWh	Gigawatt hours
GWP	Global warming potential
H2	Hydrogen
ha	Hectares
HAP	Hazardous Air Pollutants
HCFC	Hydrochlorofluorocarbons
HFC	Hydrofluorocarbon
HR	Human Resources
HRA	Health risk assessment
HSE	Health, Security and Environment
IAvH	Alexander Von Humboldt Institute
ICA*	Environmental Compliance Reports
ICONTEC*	Colombian Institute of Technical Standards and Certification
ICP*	Innovation and Technology Center
ICT	Information and communication technologies
IDB	Inter-American Development Bank
IDEAM*	Institute of Hydrology, Meteorology, and Environmental Studies
IFC	International Finance Corporation
IFP*	French Petroleum Institute
IFRS	International Financial Reporting Standard
IFSP	Process Safety Frequency Index
ILO	International Labour Organization
ILP*	Long Term Incentives
Inc	Incorporated
INSQUI*	National Inventory of Chemical Substances for Industrial Use
Invercolsa	Inversiones de Gases de Colombia S.A.
Invias*	National Roads Institute
IPCC	Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental and Conservation Association
IR	Investor Relations. Award granted by the BVC
IRR	Internal rate of return
ISA	Interconexión Eléctrica S.A. E.S.P.
ISO	International Organization for Standardization
IT	Information technology

ITA*	Information Transparency Index
JAC*	Community Action Board
JDA	Joint Development Agreement
JOA	Joint Operating Agreement
JV – Joint Venture	Join Venture
KBD / KBDP	Thousand barrels per day
Kbed / Kbped	Thousand barrels of oil equivalent per day
KBPD	Average daily crude oil production
KBWPD	Thousand barrels of water per day
Kg	Kilogram
KgCO2e	Kilograms of carbon dioxide equivalent
Klb*	Kilopounds
km	Kilometers
KPI	Key Performance Indicator
KRI	Key risk indicator
Kt	Kiloton
KTA*	kilotonnes per year
kTon	Thousands of tons
KV	Kilovolts
kWh	Kilowatt hour
Lb*	Pound
LC	Minor Concern
LDAR	Leak Detection and Repair
LEAP	Locate, Evaluate, Advise, Prepare
LGBTQI+	Lesbian, Gay, Bisexual, Trans, Intersex, and Queer
LLC	Limited Liability Company
LNG	Liquified Natural Gas
LOPC	Losses of Primary Containment
LPG	Liquefied petroleum gas
LTD / Ltd	Limited
LTDA*	Limited
LTIFR	Lost-Time Injury Frequency Rate
LWR	Lost Work Rate
LXP	Learning eXperience Platform
m3	Cubic meters
MADS*	Ministry of Environment and Sustainable Development
MASC*	Alternative Dispute Resolution Mechanisms

Mbls / mbbls	Thousands of barrels
Mbtu	1,000 BTUs
MCOP*	Thousands of Colombian pesos
MFS*	Value Maximization Flow in Subsidiaries and Assets with Partners
mg/L	Milligrams per liter
MHCP*	Ministry of Finance and Public Credit
MILA*	Integrated Latin American Market
ML	Money Laundering
MM	Major maintenance
mM*	Billion
Mm3	Cubic millimeter
Mmbd*	Millions of barrels per day
MME*	Ministry of Mines and Energy
MPCED*	Millions of standard cubic feet per day
MSCI	Morgan Stanley Capital International
MSMEs	Micro, small and medium enterprises
Mt	Metric ton
MtCO2	Metric ton of carbon dioxide equivalent
Mton	Millions of tons
Mtpa	Millions of tons per year
MUSD	Millions of US dollars
MVA	Megavoltamper
MW	Megawatt
N/A	Not applicable
N2O	Nitrous oxide
NATECH	Events of natural origin that cause technological accidents
NF3	Nitrogen trifluoride
NH3	Ammonia
No.	Number
NOx	Nitrogen oxides
NPS	Net Promote Score
NSV	Net Standard Volume
OAS	Organization of American States
OCENSA*	Oleoducto Central S.A. (Pipeline)
ODC*	Oleoducto de Colombia (Pipeline)
ODL*	Oleoducto de los Llanos Orientales (Pipeline)
ODS	Ozone Depleting Substances

OECD	Organisation for Economic Co-operation and Development
OFAC	Office Foreign Asset Control
OG / O&G	Oil & Gas
OGMP	Oil and Gas Methane Partnership
OHS	Occupational Health and Safety
OP 4-12	World Bank Operational Policy 4-12
OP-710	World Bank Operational Policy 710
OPC	Citizen Participation Office
OPEC	Organization of the Petroleum Exporting Countries
ORRI	Overriding Royalty Interest
OTA	Orito – Tumaco Pipeline
Oxy	Occidental Petroleum
PANA*	Open Area Nomination Process
PCH*	Small hydroelectric plant
PDC*	Contingency plan
PEC*	Emergency and Contingency Plan
PFC	Perfluorocarbon
PGN*	Office of the Inspector General of the Nation
PGR*	Refinery grade propylene
PGRMV*	Risk Management Plan for Discharge Management
PIV	Increased Value Practices
PM	Particles
PMAI*	Integrated environmental management plan
POP	Persistent organic pollutants
PPG*	Pozos Colorados Polyduct
PPII*	Integral Research Pilot Projects
ppm	Parts per million
PQRS*	Petitions, complaints, claims, and requests
PRA*	Environmental Recovery Plan
PRTLGV*	Clean Technology Reconversion and Wastewater Management Project
PSE*	Process Safety Event
PTAP*	Drinking Water Treatment Facility
PUEAA*	Efficient Use and Water Saving Programs
PVHA*	Plan, Do, Check and Perform
PVS*	Wildlife Project
PVSDH*	Voluntary Principles on Security and Human Rights
R+D	Research and development

RAM	Risk Assessment Matrix
RCC*	Human talent re-tooling with cutting-edge expertise and the necessary skills
RCD*	Construction and demolition waste
Reskilling	Re-learning to face new challenges
RESPEL*	Waste and Hazardous Waste Generator Register
RIGS*	Integrated Sustainable Management Report
ROACE	Return on Average Capital Employed
SA*	Public limited company
SAP	Systems, applications and products in data processing
SAS*	Simplified Joint Stock Company
SASB	Sustainability Accounting Standards Board
SBN*	Nature-based solutions
SCI*	Internal Control System
SCM	Stakeholder Capitalism Metrics
SDGs	United Nations Sustainable Development Goals
SEC	Securities and Exchange Commission
SENA*	National Learning Service
SF6	Sulfur hexafluoride
SFC*	Financial Superintendence of Colombia
SGSSS*	General System of Social Security in Health
SIB*	Biodiversity Information System
SICOM*	Information system of the MME for the distribution chain of petroleum-derived liquid fuels
SIGAR*	Tool for tracking the quantities generated by each waste stream
SIGEA*	Atmospheric Emissions Management System
SIPROE*	Ecopetrol Supplier Information System
SITM*	Comprehensive Mass Transportation Systems
SITP*	Bogotá's Integrated Public Transportation System
SMLV*	Current legal monthly minimum wage
SNC*	Develop Natural Climate Solution
SOx	Sulfur oxides
SOX	Sarbanes Oxley Act
SPE*	Public employment system
SRI*	Comprehensive Risk Management System
SRM	Supplier Relationship Management
SSON	Shared Services & Outsourcing Network
STEM	Science, Technology, Engineering and Mathematics
SUS	Performance Portal for Ecopetrol's Contractors

SYC*	Society and Community
TBG*	Balanced management board
TCFD	Task Force on Climate-related Financial Disclosures
TCO ₂ e / tCO ₂ eq / TonCO ₂ e /TonCO ₂ eq	Tons of carbon dioxide equivalents
TESG	Technology, Environment, Social and Governance
TMI*	Minimum Impact Technologies
TNC	The Nature Conservancy
TNFD	Taskforce on Nature-related Financial Disclosures
TonM	Metric ton
TRIFR	Total recordable injury frequency rate
TRIR	Total recordable incident rate
TTF	Title Transfer Facility
UIAF*	Financial Information and Analysis Unit
IUCN	International Union for Conservation of Nature
UIS*	Universidad Industrial de Santander - Industrial University of Santander
UNESCO*	United Nations Educational, Scientific and Cultural Organization
UNGP	UN Guiding Principles on Business and Human Rights
UPME*	Mining-Energy Planning Unit
US GoM	U.S. Gulf of Mexico
usd/bl	Dollars per barrel
USEtox	Model for assessing toxic impacts of chemical releases
USO*	Oil Industry Workers' Union
VAB*	Vice Presidency of Procurement and Services
VAT	Value Added Tax
VCF*	Corporate Vice Presidency of Finance
VCM*	Vice Presidency of Sales and Marketing
VCU*	Corporate Vice Presidency of Compliance
VDP*	Vice Presidency of Development and Production (now Upstream)
VDS*	Vice Presidency of Sustainable Development
VEX*	Vice Presidency of de Exploración
VHSE*	Vice Presidency of HSE
HIV	Human immunodeficiency virus
VOC*	Values Subject to Conservation
VOCs	Volatile Organic Compounds
Vol	Volume
VP	Vice Presidency

VPN*	Net Present Value
VPU*	Upstream Vice Presidency
VRP*	Vice Presidency of Refining and Industrial Processes
VTI*	Vice Presidency of Science, Technology, and Innovation
VU	Vulnerable species
WBCSD	World Business Council for Sustainable Development
WCS	Wildlife Conservation Society
WEC	World Energy Council
WEF	World Economic Forum
WEP	Women's Empowerment Principles
WFN	Water Footprint Network
WHO	World Health Organization
WIMS	Well Integrity Management System
WTI	West Texas Intermediate
XM	Company specialized in the management of real-time systems, wholesale energy market management and the development of energy and information solutions and services
ZOMAC*	Zones most affected by the armed conflict

*[as per its Spanish acronym]

(GRI 2-27)
(SFC 7.4.1.1.2)
(WEF 5E)
(ODS-16)

ANNEX 8

MATERIAL JUDICIAL AND ADMINISTRATIVE PROCEEDINGS FOR ECOPETROL

LO Consecutive Number: CONS-2021-501

File: 81001233100020130000100

Case Status: Ongoing

Plaintiff: LUIS ENRIQUE OLIVERA PETRO

Type of litigation: POPULAR ACTION

Summary of the facts:

1. The Cravo Norte partnership contract signed on June 11, 1980 between ECOPETROL on behalf of the Colombian State and Occidental de Colombia Inc., over an area of 1,003,744 hectares, led to the discovery of crude oil, which was declared commercial in 1983.
2. Over the course of the contract, the fields of Caño Limón, La Yuca, Caño Yamural, Matanegra, Redondo, Caño Verde, Redondo Este, La Yuca Este, Tonina, Remana, and Jiba were discovered in the Llanos Orientales basin.
3. Production is stable and is close to 100,000 barrels per day.
4. With the discovery of Caño Limón, Colombia recovered its oil self-sufficiency and became an exporter of crude oil since 1986, with the Department of Arauca benefiting from three trillion pesos as of December 31, 2008.
5. The cost of producing a barrel in Caño Limón is USD 3.
6. According to the contract, the reversal of the contract to the State would take place as of January 1, 2009.
7. The Colombian State, in the period of 2004-2007, acted contrary to the social rule of law, in violation of paragraph one of Article 360 of the Procedural Code, and Articles 1, 2, 3, 4, 5, 6, 8, 13, 101, 332, 333, and 334, in addition to the rights to administrative morality, free competition, and public property, by signing the extension of the Cravo Norte contract up to the economic limit of the fields in the contract.
8. The extension of the contract has generated an economic detriment to the Department of Arauca and the State, calculated in the claimed amount.

Summary of claims:

1. That the collective rights and interests of administrative morality, the defense of public property, and free economic competition enshrined in Article 4 of Law 472 of 1998 be protected.

2. That the Cravo Norte partnership contract, up to its economic limit, entered into between the National Hydrocarbons Agency and Occidental de Colombia, be declared in disregard of the aforementioned constitutional rights.
3. That things be restored to their state prior to the signing of the extension contract of the Cravo Norte partnership contract, and that all damages caused to the Colombian State be paid.
4. That ECOPETROL be ordered to revert the Cravo Norte partnership contract, which should have been in force since January 1, 2009, and as such, that ECOPETROL be declared the authentic operator and that the department of Arauca and its four producing municipalities receive the 12% additional royalty fees provided for in Article 39 of Law 756 of 2002.
5. That 12% royalty fees enshrined in Article 39 of Law 756 of 2002 be paid to the department of Arauca as of the admission of the claim
6. That the payment of the incentive be ordered.

Amount: 8,050,549,500,000

Ecopetrol's Defense:

It is not true that Ecopetrol did not have the authority to sign the addendum to the Cravo Norte partnership contract, since it was then a public company subject to the regime established for state commercial and industrial companies, with powers to explore and exploit oil areas, and said extension was also approved by the ANH.

It is not true that Article 360 of the Constitution has been breached since the addendum to the Cravo Norte partnership contract was signed in accordance with current legal provisions on the matter and the collective rights to administrative morality have not been ignored.

It is not true that the rights related to the defense of public property have been violated with the omission of the authorities that signed the addendum, since no detriment has been caused to public property given that the partner and Ecopetrol have knowledge of the fields to be exploited and they are the best qualified to do so, as stated in Conpes document dated April 23, 2004.

It is not true that the right to free competition has been breached since that happens when the competition of suppliers and consumers in the market is unjustifiably restricted, and this situation has nothing to do the allegations related to the reversal of the addendum submitted by the plaintiff; therefore, there is no congruence of concepts.

Popular Action is not the mechanism to declare the nullity of contracts entered into by the State.

Risk rating: Possible decision against the Company

Current state of the proceeding: Favorable first instance judgment on appeal before the Council of State.

LO Consecutive Number: CONS-2021-5476

File: 70001233300020140023400

Case Status: Ongoing

Plaintiff: FAIDY TERESA NIETO CUBILLOS Y OTROS

Type of litigation: GROUP ACTION

Summary of the facts:

The merchants and hoteliers from Santiago de Tolú and Coveñas claim unlawful damages, beginning with the first oil spill in the pipeline managed by OCENSA S.A. in the Gulf of Morrosquillo on July 20, 2014, after an accident during loading maneuvers to a tanker in the oil export port of Coveñas, Sucre.

On August 2, 2014, OCENSA S.A., by means of a letter to the general public, admitted the oil spill and stated that practically nothing had happened and that the oil spilled was too small to cause any damage to biodiversity and to the beaches.

Subsequent to this, oil-contaminated ballast water was discharged on August 21, 2014 due to problems in the structure of the ENERGY CHALLENGER vessel, during the oil loading operation at the Coveñas maritime terminal, on the TLU- 1 operated by ECOPETROL S.A.

The initial spill and the last incident forced the closure of the beaches around Golfo del Morrosquillo, specifically, the beaches of Tolú and Coveñas.

Due to the actions of the entities proceeded against, incalculable amounts of crude oil spilled into the sea, causing damages to our clients in each of their livelihood activities to sustain themselves and their families.

Summary of claims:

Material losses:

- For emerging damages: a total of \$1,714,200,000,000 (ONE TRILLION SEVEN HUNDRED AND FOURTEEN BILLION TWO HUNDRED MILLION) broken down as follows:

Damages payable to hoteliers and apartment owners in Tolú and Coveñas in the amount of \$1,241,000,000,00

Damages payable to administrators of the tourist destination: \$248,200,000,000

Damages payable to street vendors, fishermen, and others \$225,000,000,000

- For Loss of Profit: a total of \$5,367,600,000,000 (FIVE TRILLION THREE HUNDRED SIXTY-SEVEN BILLIONSIX HUNDRED MILLION) broken down as follows:

Future damages to the tourist destination \$3,723,000,000,000

Future damages to the administrators of the tourist destination \$744,600,000,000

Amount: 7,081,800,000,000.

Ecopetrol's Defense:

The following substantive exceptions were presented over the course of the proceedings: LACK OF LEGITIMATION IN THE CASE OF LIABILITY; THE INCIDENT IS NOT THE RESPONSIBILITY OF ECOPETROL

INCIDENT CAUSED BY A THIRD PARTY; VESSEL FAILURE IS THE CAUSE OF THE SPILL.

Risk rating: Possible decision against the Company.

Current state of the proceeding: Set for first instance judicial decision.

LO Consecutive Number: CIVI-2021-I3320

File: 11001310304220190003900

Case Status: Ongoing

Plaintiff: EMPLOYEES AND FORMER EMPLOYEES FUND (FONCOECO as per its Spanish acronym)

Type of litigation: GENERAL SUMMARY HEARING (General Procedural Code)

Summary of the facts

The facts presented by the complaining party are as follows:

1. Presidential Decree No. 2474 of 1948 (July 19) established the participation of workers in the profits of Companies.
2. As support of Presidential Decree No. 2474 of 1948, Decrees No. 1239 and 1259 of April 10 and 16 of that year, declared that public order had been disturbed and the entire territory of the Republic was declared in a state of siege; also, that improving the living conditions of the working class and increasing their level of income is directly related to public, economic, and social order; and in order to counter the income imbalance of the different economic groups and to establish formulations that harmonize the interests of capital and labor in the different companies, measures must be adopted to guarantee an equitable participation of workers in the profits of companies above certain limits, so that they are recognized an incentive for their greater effort and efficiency, while also receiving compensation for the higher cost of living, in proportion to the degree of their family obligations.
3. Article 1 of Decree 2474 of 1498 established as follows: "Commercial companies whose equity is or exceeds one hundred thousand pesos (\$100,000.00) and that employ more than twenty permanent workers; industries whose equity is or exceeds one hundred thousand pesos (\$100,000.00) and that employ more than thirty permanent workers; agricultural and forestry companies whose equity is or exceeds two hundred thousand pesos (\$200,000.00) and employs more than thirty permanent workers; and cattle ranchers whose equity is or exceeds two hundred thousand pesos (\$200,000.00) and who employ more than twenty permanent workers, have the obligation to distribute a part of the profits in excess of a certain rate of performance among the workers who provide personal services on a permanent basis."
4. The right to profit sharing stems from tradition under the European legislation, and has been imported into Latin American legislation. The introduction thereof is based on the idea that it corresponds to a legitimate aspiration of workers to partake in the profits earned by the employer because they contribute to the generation thereof by means of their personal effort. In turn, it constitutes a mechanism of identification between the interests of the company and the worker, to the extent that both will be directly interested in making the workplace profitable, and that the benefits will be shared as a result thereof.
5. Employee profit sharing is a benefit granted to all employees for having contributed to the profits of the company towards which they worked over the past year. The distribution of profits, like other benefits, is contemplated by law.
6. It affirms that the constitutional foundation for the labor legal figure of profit sharing rests on Article 57 above, which has a single legislative precedent, that is Decree 2474 of 1948, that has not been repealed.
7. Several scholars have tried to argue that the right to participation was extinguished or subsumed with the entry into force of the bonus as a labor law, but in the opinion of the complaining party, Decree 3871 of 1949, which set the minimum wage and created the service bonus, established that in the case of Companies required to distribute profits or benefits among their workers whose total amount of participations does not reach an amount equivalent to one month's payroll of the personnel, in accordance with Decree 2474 of 1948, shall be required, as of the year 1950, inclusive, to replace the sharing of profits or benefits with a sum corresponding to one month's salary for each worker. Accordingly, the creation of the service bonus (referred to as benefit at the time) only reinforced the legal life of Decree 2474 of 1948.
8. Ecopetrol is the largest company in Colombia ranked among the 40 largest oil companies in the world and among the top four in Latin America, with exploration and production activities in Brazil, Peru, and the United States (Gulf of Mexico).
9. Article 9 of the bylaws of Empresa Colombia de Petróleos established the distribution of a percentage of annual profits to its employees.
10. Accordingly, Ecopetrol's Board of Directors, as per Minutes No. 742 of March 30, 1962, proceeded to allocate a percentage of its annual profits to a Participation Fund for company workers, which continued in subsequent years.

Summary of claims.

The claims pleaded are as follows:

1. That the surrender of accounts be ordered.

2. That a reasonable term be established for the submission of accounts, attaching the supporting documents, receipts, and other annexes.
3. Once rendered, process said accounts in accordance with the provisions of the Civil Code.
4. Warn the defendant that if the requested accounts are not rendered, the claiming party may estimate the balance owed under oath.
5. Order the payment of costs.

Amount: 3,157,461,510,000.

Ecopetrol's Defense

Ecopetrol S.A. filed a response to the lawsuit, mainly asserting the following defense arguments:

- a. Lack of legitimacy in the cause for the Ecopetrol Employers Fund for Profit Sharing "FONCOE-CO" to request accounts from ECOPETROL.
- b. ECOPETROL has no legal or contractual obligation to render accounts to the plaintiff.
- c. There is no basis to claim accountability for 3% of ECOPETROL S.A.'s profits.
- d. Constitutional prohibition on profit sharing between workers and individuals.
- e. Lack of authorization from ECOPETROL's Board of Directors and the Shareholders' Meeting to take ownership and allocate payment of profits to workers from 1997 to 2017.
- f. Statute of limitations on the actions and rights related to ECOPETROL's alleged obligation to render accounts.
- g. Recklessness

Risk rating: Unlikely decision against the Company

Current state of the proceeding: Pending admission of the appeal filed by the plaintiff against the favorable decisions of both instances.

That said, within the framework of legal compliance, considering the management of the environment exerted by Ecopetrol and using the amount of materiality under the ESG criteria as reference, equivalent to COP 500,000,000, there are other litigations additional to those mentioned previously. Said litigations include 709 proceedings:

- 2 lawsuits brought before the arbitration jurisdiction, specifically international arbitration proceedings, with Ecopetrol acting as plaintiff.
- 21 lawsuits brought before the constitutional jurisdiction, including group actions and popular actions, with Ecopetrol acting as defendant.
- 465 lawsuits brought before the contentious-administrative jurisdiction, including actions for annulment, annulment and reinstatement, direct reparation, repetition, contractual disputes, executive proceedings, and an extraordinary appeal for review. Out of all these disputes, Ecopetrol acts as plaintiff in 143 cases and as defendant in 322.
- 40 lawsuits brought before the ordinary specialized civil jurisdiction, including both declarative and executive civil proceedings. In 21 cases Ecopetrol acts as plaintiff, and in 19 as defendant.
- 171 lawsuits brought before the ordinary specialized labor jurisdiction, including declarative labor proceedings, executive labor proceedings, and actions related to union affairs. In 39 cases Ecopetrol acts as plaintiff, and in 132 as defendant.
- 10 lawsuits brought before the ordinary specialized criminal jurisdiction. In all these criminal proceedings, Ecopetrol acts as a plaintiff.

Each of these 709 disputes range between COP 500,000,000 and COP 800,000,000,000; therefore, they are additional to the 3 listed previously. However, it should be noted that in the event of losing any of these 709 additional lawsuits that do not amount to COP 800,000,000,000, such a situation would not affect the operation or financial situation of the Company.

(GRI 2-28)

ANNEX 12.

INFORMATION ON INDUSTRY ASSOCIATIONS AND OTHER AFFILIATIONS TO NATIONAL OR INTERNATIONAL ECOPETROL ASSOCIATIONS AND ORGANIZATIONS

524

Ecopetrol is committed to the sustainable development of the sector and the country, thereby participating in different dialogue spaces at the local, regional, and international level to press forward with high-level discussions. Below are the associations and unions that the Company partakes in:

- IRENA Alliance for Industry Decarbonization.
- The Gender Equality Committees and Alliances under: ANDI, COCIER, Ministry of Mines and Energy (MME), Naturgas, Society of Petroleum Engineers and Women in Oil & Gas.
- Colombian Association of Carbon Market Players (Asocarbono).
- Colombian Natural Gas Association (Naturgas).
- Colombian Oil and Gas Association (ACP).
- Association of Oil, Gas, and Renewable Energy Companies in Latin America and the Caribbean (ARPEL).
- National Association of Industrialists (ANDI): Bolívar Section, Santander Section, Environmental Section.
- Latin American Chemical and Petrochemical Association (APLA).
- CEO Water Mandate.
- Climate Finance Leadership Initiative (CFLI).
- Water Coalition for Colombia.
- Climate and Clean Air Coalition.
- Casanare Regional Competitiveness Commission (CRCI).
- Regional Competitiveness Commission - Competitive Santander.



- Putumayo Regional Competitive-ness Commission.
- Oil Industry Committee (CINPAC).
- University/Government/Businesses inter-institutional committee.
- Mining-Energy Committee.
- LPG Operating Committee.
- Santander University Business State Committee (CUEES).
- Concentra.
- Colombian Security Council.
- National Council for the Operation of Natural Gas (CNO Gas).
- Basín Councils – Territorial Planning.
- Gas Technology Development Center (CDT de Gas).
- Network Corporation of Education, Research, and Development Institutions of Eastern Colombia (UNIRED).
- Diversity and Inclusion Ecosystem of Colombia.
- ANDI's Companies in favor of Vaccination.
- Amanecer Foundation.
- Alto Magdalena Foundation.
- El Alcaraván Foundation.
- Gente Ecopetrol (Ge Foundation).
- Foundation for the Development of Magdalena Medio (FUNDESMAG).
- Global Energy Interconnection Development and Cooperation Organization (GEIDCO).
- Hydrogen Council.
- Colombian Gender Parity Initiative (IPG).
- Extractive Industries Transparency Initiative (EITI).
- International Gas Union (IGU).
- International Petroleum Industry Environmental Conservation Association (Ipieca)
- City construction taskforces (Chamber of Commerce/Business Sector of Cartagena).

- Guajira Taskforce.
- National Center for Construction Education and Research (NCCER).
- Neomundo.
- The World Economic Forum’s One trillion trees 1.t.org.
- Decent Work Compact in Casanare.
- Agreement for Legality and Transparency in the Promotion of Local Recruitment with the chambers of commerce of the areas of influence.
- Sector Agreement for Transparency and the Fight Against Corruption, with the Colombian Chamber of Oil Goods and Services (Campetrol).
- PETROSKILSS.
- Pro Santander.
- Taskforce on Nature-related Financial Disclosures (TNFD).
- Valuable 500
- World Energy Council (WEC).
- Zero Routine Flaring Initiative.



[GRI 2-28]

Table Payments made to associations and unions in 2022.

Item	Unit of measurement	2019	2020	2021	2022
Trade associations or tax-exempt entities*	COP	721,837,190	692,839,850	513,900,251**	617,677,862

*Note: Ecopetrol, being a mixed economy company, falls under the decentralized service sector. By constitutional and legal mandate, all donations or contributions to political parties, movements, or candidates are expressly prohibited (Articles 110 and 355 of the Political Constitution of Colombia and Article 27 of Law 1475 of 2011). Ecopetrol has not made any type of donation to political parties in 2022 or in previous years.

**Note: The variation is because the affiliation to the Water Coalition for Colombia (COP 180 million) was not paid in 2021.



ecopETROL