



PILOT ONE OF THE TNFD FRAMEWORK

LEAP methodology
Yariguí-Cantagallo Field
Ecopetrol' s Central region

SUSTAINABILITY AND
DECARBONIZATION MANAGEMENT
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This document is based on the results of the consultancy with Deloitte¹ and own analysis of the Biodiversity and Ecosystem services team of the Sustainability and Decarbonization Management of Ecopetrol.

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¹ This work performed by Deloitte is solely for the purposes agreed in the contract between Ecopetrol and Deloitte; and is solely accountable to Ecopetrol as defined in that contract.

CONTEXT

Ecopetrol (ECP) has positioned itself at the forefront of new environmental management frameworks to become a pioneer in the oil & gas sector in Colombia. As part of this commitment, the company is actively aligning with international commitments such as the Global Biodiversity Framework Kunming-Montreal. In this sense, it is crucial for Ecopetrol to strengthen the management of risks and opportunities associated with natural capital, which will enable the company to define and implement positive nature guidelines. These efforts are particularly significant considering Colombia's status as a megadiverse country. Additionally, it is essential to establish synergies between the Task Force on Nature-related Financial Disclosures (TNFD) and the Task Force on Climate-related Financial Disclosures (TCFD) reports to identify and socialize relations between climate and nature.

In 2021, Ecopetrol published its first TCFD report, which helped identify gaps in its environmental reporting practices. Building upon this experience, the company launched its second TCFD report in 2022. Furthermore, Ecopetrol became a member of TNFD in 2021 and was entrusted with leading group No. 6 for the Energy sector in 2022. As part of its commitment to TNFD, Ecopetrol initiated the design of the first pilot of the LEAP methodology proposed by TNFD in 2022. The company has also actively provided feedback on all versions of the beta framework during public consultations.

To implement the TNFD framework effectively, Ecopetrol conducted two LEAP pilots. The pilot one focused on a specific production area, while the pilot two concentrated on applying the socio-ecological resilience tool in the core area of the Magdalena Medio valley. This document presents information from the Pilot one, conducted in collaboration with Deloitte, which prioritized the Yariguí-Cantagallo production area in the Middle Magdalena Valley.

A desktop test was designed to apply version 0.3 of the TNFD framework to activities within this area. Through this pilot, Ecopetrol, along with Deloitte identified and prioritized the most relevant dependencies and impacts according to the ENCORE framework. The analysis also included an assessment of risks and opportunities, which incorporated an evaluation of the company's current risk management practices.

The results of the pilot illustrate the applicability of the LEAP framework and highlight the relationship between the oil and gas sector and ecosystem services associated with water. However, it was identified that is necessary to complement the analyses with specific tools adapted to business contexts. These additional tools will allow a more detailed analysis of Ecopetrol's operational areas and facilitate the identification of risk and opportunity management actions aligned with the company's specific areas of work.

LEAP pilot Yariguí- Cantagallo

Objective

Obtain recommendations for the implementation of the LEAP framework, as well as an understanding of the information generated by Ecopetrol that can be use within the framework.

1. Description of the Yariguí- Cantagallo, Central Region of the Middle Magdalena Valley

1.1 Central Region operations of the Middle Magdalena Valley

The Central Regional of Ecopetrol is a business unit in charge of the exploration, production, and commercialization of hydrocarbons in the central region of Colombia. This region includes 6 departments (Cesar, Santander, Norte de Santander, Antioquia, Bolivar, and Boyacá) (**Figure 1**), where 30 operative fields and 1 refinery are located. This region is home to a voluntary project called “Proyecto Vida silvestre²”, which seeks to address the conservation challenge at Ecopetrol’s operation landscapes, with the goal of achieving the long-term conservation of biodiversity, focused on populations of threatened species. In addition, La Doncella Ecoreserve³ contributes to 1t. org trees pledge, including a Biodiversity Information System.

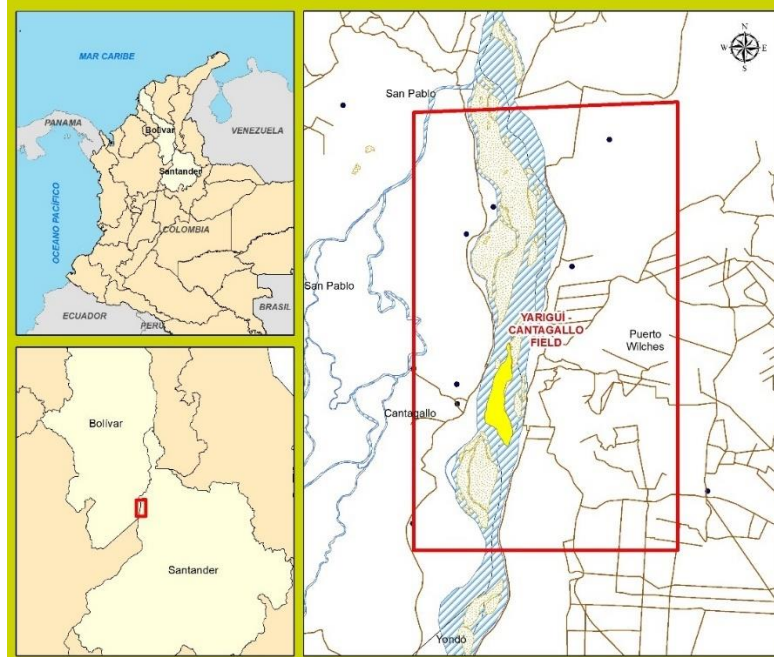


Figure 1. General location of Yariguí – Cantagallo field, Central Region, Middle Magdalena Valley- Colombia.

² Proyecto Vida Silvestre - PVS

³ Ecoreserve: Geographically delimited area owned by Ecopetrol Group, which is voluntarily destined in part or completely to the conservation of biodiversity and the supply of ecosystem services, without limiting its productive and exploratory vocation.

1.2 Yariguí-Cantagallo Field

The Yariguí- Cantagallo field is in the central region of the Middle Magdalena Valley, in Colombia. It has an extension of approximately 16.777 ha and is located between the municipalities of Cantagallo, in the department of Bolivar, and Yarigués, in the department of Santander.

This area has significant geological and natural diversity, with a variety of ecosystems, including forests, wetlands, and rivers. Is characterized by its complex terrain, with various elevations and steep slopes, which poses a challenge for exploration and production activities.

The Yariguí-Cantagallo field has significant oil and gas reserves, which was discovered in 1943, in 1974 and 1975 within the San Pablo and Cantagallo concessions which were passed to Ecopetrol. Nowadays this has an average production of 17 kboe per day, the overall assets are: 124 active producing wells, 40 active injector wells, 80 abandoned wells, 27 inactive wells and one Ecoreserve called La Doncella (197 ha).

The following map shows the land coverage of the Yariguí- Cantagallo field, Central Region, Middle Magdalena Valley- Colombia (**Figure 2**).

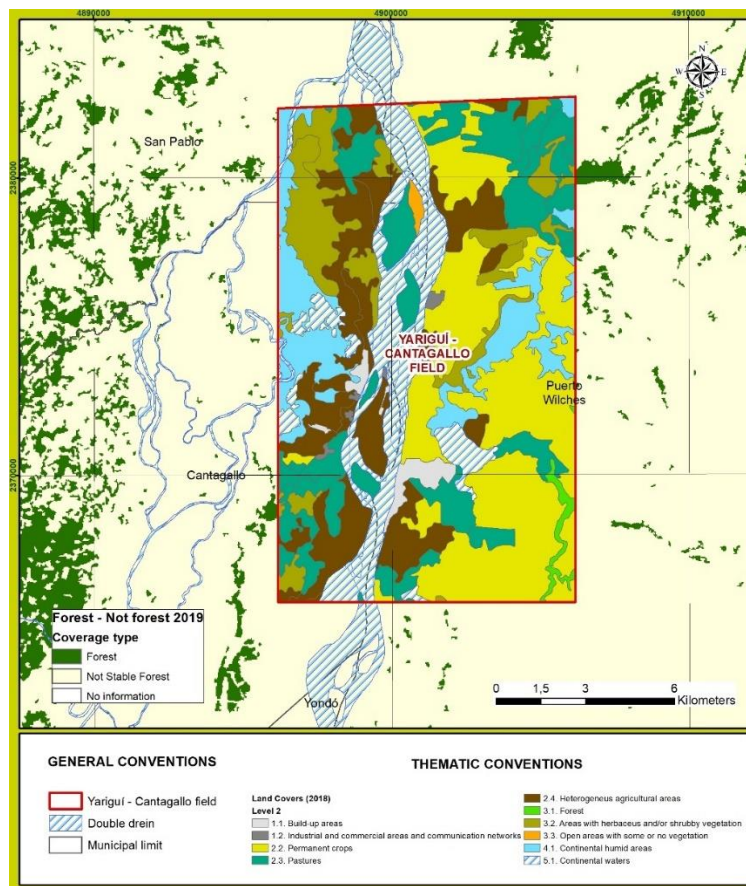


Figure 2. Map with coverages of Yariguí – Cantagallo field, Central Region, Middle Magdalena Valley- Colombia.

2. Scope of the LEAP Pilot

Ecopetrol was seeking to implement a pilot program to explore the application of the LEAP framework in their organizational context and the TNFD promotes the participation of companies in pilot testing of the LEAP framework. Pilots ranging from a combination of geographies, sectors, sub-sectors, and kingdoms will create greater awareness among TNFD supporters about the aims of TNFD, what is currently possible, and what the challenges framework is facing prior the launched to the market.

The following types of pilot testing are:

- **Desktop testing:** Analysis exercise of how the framework could be applied, based on comparison with current and experience. This could take the form of an internal consultation process and/or reviewing output work through the beta framework and assessing the company's current understanding of the available data and analysis to address the components of the LEAP approach and the draft disclosure recommendations.
- **Exhaustive testing:** Execution of the LEAP approach and disclosure recommendations gradually to assess the organization's current ability to assess, manage, and report on nature-related risks and opportunities.

The pilot design for the Yariguí- Cantagallo field, in the Middle Magdalena Valley region, is aligned with a type one pilot (**desktop test**), to review how the framework could be applied, as well as the available data and analysis to address the components of the LEAP approach. It is expected that the results of this will help determine the scope of an exhaustive testing exercise. It follows the TNFD principles for the application of the pilot project.

Similarly, **the business operations** to be considered were defined by the analysis of Ecopetrol sites with respect to the criteria and a work session with the site managers to conduct a preliminary analysis of available and relevant information were carried out. In addition, **the nature aspects** to be considered were defined by a work session with the site managers to identify kingdoms, biomes, nature assets and relevant ecosystem services, and identifying relevant aspects and data using ENCORE, IBAT and Ecopetrol information. From there, according to the LEAP framework, the stages to be implemented in the pilot include actions from localization to risk and opportunity analysis (**Figure 3**).



Figure 3. LEAP – the risk and opportunity assessment approach.

3. Methodology, results, and conclusions for each stage of LEAP

3.1 Locate (The interface with nature)

- **L1: Business footprint**

To identify the operations and assets in the Yariguí- Cantagallo field, the following sources of information were used: Interviews with responsible staff from the Central Environmental Department, review of the Environmental Management Plan (EMP) of the site, and consultation of site-specific geographic information available in internal tools (geographic coverages) and external sources (Global Forest Watch, Water Risk Filter, IBAT) **(see section 1)**.

- **L2: Nature Interface**

Once the business footprint is identified, the interface with nature can be identified at various levels (country, region, operation). The results were used to answer the following questions: Which biomes and ecosystems do these activities interact with, what is the current integrity and importance of the ecosystems in each location, which biomes and ecosystems do these activities interact with. In this case, the information on the ecosystems with which the site interacts and its integrity in Ecopetrol's was reviewed through the information available in the Environmental Management Plan (EMP), IUCN, ENCORE, WWF Risk Filter, and Global Forest Watch**.

The main biomass of the Yariguí-Cantagallo field was identified as *lowland rainforest* according to IUCN⁴ and *tropical rainforest* according to EMP. Likewise, the environmental sensitivity of the following ecosystems with which the Yariguí-Cantagallo field interacts was identified and classified (**Table 1**).

Table 1. Ecosystems that interact with the Yariguí-Cantagallo field and their environmental sensitivity

Main coverages/ Ecosystems	Environmental sensitivity
Open floodable undergrowth forest	Upper middle
Low secondary vegetation	Upper middle
Swampy areas	High
Rivers	High
Lagoons, lakes, natural swamps	High

On the other hand, a mapping was carried out to identify *the estimated occurrence of floods* (**Figure 4A**), as the region is known for having high water availability, which can also represent risks (e.g., flood risk). A comparison was made between regions in Colombia using IDEAM⁵ data, where the WWF Risk Filter tool compiles this and other data to analyse water risk at the regional level. “El Niño” and “La Niña” phenomenon have a huge influence on extreme hydrological events in Colombia. The indicator represents anomalies in river flows for La Niña years.

The ENCORE tool compiles data on the depletion of water, soil, biodiversity, and atmosphere to present a *natural capital depletion* indicator (**Figure 4B**). With this, areas with human activities will be associated with higher risks of loss or degradation of ecosystem services, albeit with a low level of granularity. It allows for comparison of regions where Ecopetrol operates.

In the regional mapping, *biodiversity integrity* (2019) was identified (**Figure 5A**). This layer quantifies the effect that human beings have had on the integrity of species communities, focusing on the impact of forest change. The maximum value indicates that there is no human impact. This index is calculated by the Natural History Museum and can be accessed on Global Forest Watch.

⁴ IUCN Typology

** WWF Risk Filter and Global Forest Watch integrate national-level data collected by the Institute of Hydrology, Meteorology and Environmental Studies (IDEAM) and can function as an initial filter on priority regions where Ecopetrol S.A. has operations.

⁵ IDEAM: Institute of Hydrology, Meteorology and Environmental Studies

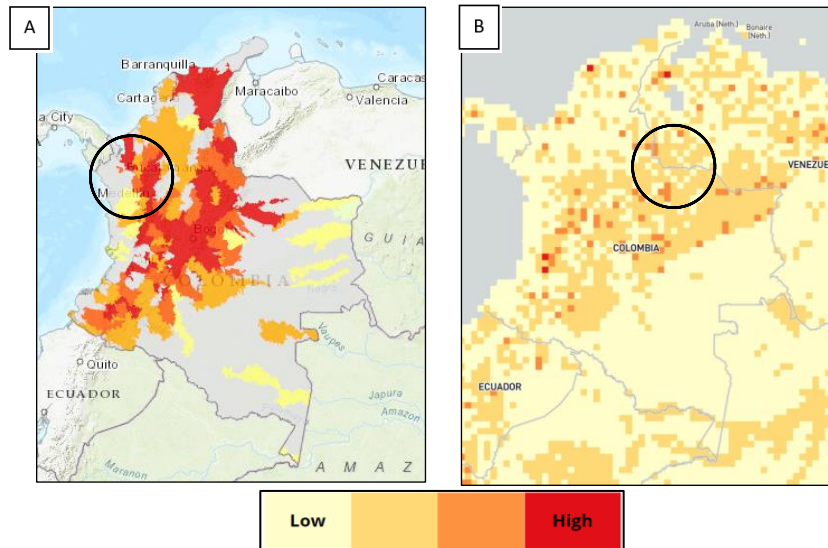


Figure 4. Highlights of mapping. A) Estimated flood occurrence; B) Natural capital depletion.

The environmental diagnosis was carried out at each site in which Ecopetrol identifies *biotic sensitivity* (**Figure 5B**). To determine this map, a quantitative evaluation of the biotic environment was carried out, based on the identified coverages, and assigning a degree of sensitivity to each one. Bodies of water are assigned the highest degree of biotic sensitivity. The largest percentage of the Yariguí-Cantagallo field (50.10%) shows a moderate biotic sensitivity, considering that most of the area is intervened, especially by oil palm crops.

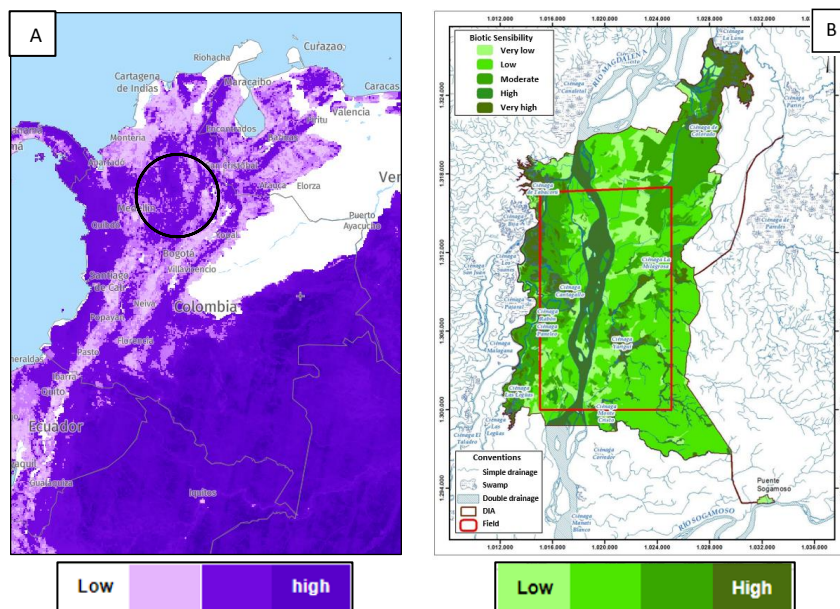


Figure 5. A) Regional Mapping Highlights⁶ - Biodiversity integrity (2019); B) Site Mapping Highlights (Environmental Management Plan)- Yariguí Cantagallo- Biotic sensitivity (2021). 1:25.000 scale.

⁶ Review of information: March 2023

• **L3: Priority localization identification**

According to the TNFD methodology, the identification of the prioritized zone should be done through spatial information of the entire economy of the zone and the specific data of the sector. For the definition of high-risk ecosystems, the following criteria were used: ecosystem integrity, importance for biodiversity and the level of water stress in the area. In the assessment of ecosystem integrity in the study area, it was determined that the location is characterized by degradation or loss of ecosystem assets or ecosystem services.

About biodiversity significance, the location is legally protected, in accordance with local, national and/or international laws and conventions. The location includes critical habitats as defined in the International Finance Corporation's Performance Standard 6. The location is recognized as a priority/threatened ecosystem at the local, national and/or international level (e.g., is on the IUCN Red List of Ecosystems, is identified as a Key Biodiversity Area and/or World Heritage Site). Furthermore, ecosystems/habitats within the site are unique or highly localized. The location includes threatened species (Critically Endangered or Endangered species on the IUCN Red List of Threatened Species) and has been identified as having a high risk of extinction. The ecosystem plays a significant cultural or economic role for the stakeholders. Finally, it is identified that the location is a water stressed area.

The prioritization of sites was done using company information such as listed species and the sensitivity of the ecosystems with which it interacts. IBAT was used to obtain geographic information on global biodiversity using data from the IUCN Red List of Threatened Species, which can be compared and complemented with the information obtained from EMP (figure 6). TNFD recommends using this information in site prioritization, however, companies may take and adapt them according to their context.

Species assessed on the IUCN Red List			Flora species example from Environmental management plan			
Species potentially found within 50 km of this site.			Flora species assessed in the IUCN Red List		Flora species assessed in the Instituto Humboldt List	
Species		1508	Species	10	Especies	12
Critically Endangered	9		Critically Endangered	0	Critically Endangered	0
Endangered	16		Endangered	2	Endangered	6
Vulnerable	28		Vulnerable	2	Vulnerable	1
Near Threatened	33		Near Threatened	1	Near Threatened	1
Least Concern	1387		Least Concern	5	Least Concern	4
Insufficient data	35		Insufficient data	0	Insufficient data	0



Figure 6. Analysis of threatened species derived from IBAT tool and the Environmental Management Plan of Yariguí-Cantagallo field.

- **L4. Sector identification**

Zoning allows to identify the most environmentally sensitive areas (exclusion zones), as well as areas suitable for intervention. The Environmental Management Zoning established the classification and identification of areas susceptible to intervention for the development strategies planned for the Yariguí – Cantagallo field (**Figure 7**).

For each of the classifications, the following were identified:

- List of areas and elements in each management unit.
- Activities allowed.
- Activities not allowed.

Preliminary risks and opportunities: Based on this zoning and the analysis of the section, the main risks and opportunities in water management are identified. The major risks of nature are related to:

- Surface water, Groundwater
- Integrity of vegetation cover

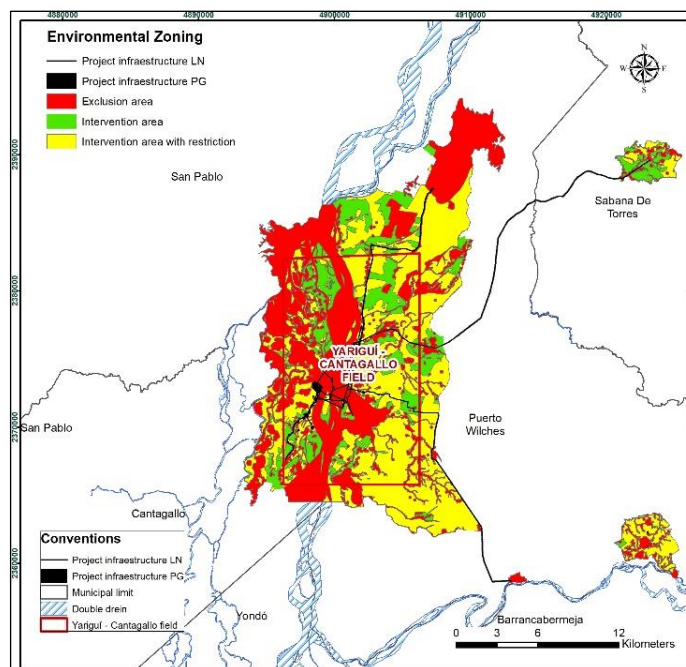


Figure 7. Environmental Zoning of the Yariguí- Cantagallo field (2013) ⁷

- **Conclusions and Recommendations for L phase (Locate):**

From this phase it can be concluded that being part of a highly regulated sector, we have access to a significant amount of nature data. This information can be complemented by voluntary projects. There is additional information available for analysis at the site level, the Integrated Environmental Management Plan has been analyzing biotic and abiotic factors as well as impacts like water use since

⁷ EMP: Environmental Management Plan for the Yariguí- Cantagallo and surrounding areas.
Review of information: March 2023.

2013 and it could be useful to have additional criteria to prioritize and compare regions where companies operate.

3.2 Evaluate (Dependencies and impact)

- **E1: ID of environmental assets and ecosystem services and E2: ID of dependencies and impacts**

The process for the definition of natural assets, ecosystem services, impacts, and dependencies for the Yariguí – Cantagallo field was carried out through 1) the review of ENCORE information for the Oil & Gas sector and the exploration and production subsector and compilation with the sectoral analysis of the WWF Risk Filter. 2) Three interviews and a working session with the heads of the Central Environmental Department of Ecopetrol to validate which are the most relevant assets, ecosystem services, dependencies, and impacts. 3) Review of the site’s Environmental Management Plan (EMP), with an emphasis on the impact assessment and the section: resource use. 4) The assets, ecosystem services, impacts and dependencies identified were grouped according to Annex 2.2 of TNFD V0.3. The following actions contribute to different stages of the mitigation hierarchy as shown in the **Figure 8**.

La Doncella Ecoreserve	A R
1% investment for water use	O
Environmental Management Program	A M R O

Figure 8. Actions that contribute to different stages of the mitigation hierarchy. A: Avoid; M: Minimize; R: Restore and O: Off-set.

Impact drivers in the Yariguí- Cantagallo field include:

Change in freshwater use: Groundwater and surface water are withdrawn for activities (522.421 m³/year). The variation in availability in the aquifer is related to the use of resources that can be used by other users; however, there are no signs of aquifer depletion.

Change land use: Change in vegetation cover resulting from project development.

Emission of air pollutants (GHGs and other pollutants): Emissions are generated by occasional gas flaring, as well as by power generation facilities and heaters.

Solid waste: Industrial waste (hazardous and non-hazardous) is generated.

Dependencies determined from in alignment with TNFD, include:

Supply services

- Freshwater from underground sources is essential for operational activities, but consumption reduction targets are in place.
- Surface water is used exclusively for domestic purposes.
- Hydrocarbons are extracted.

Regulatory and maintenance services

- Flood protection.

• E3: Dependency analysis

Based on the dependencies identified, an analysis was made of the metrics available to Ecopetrol for the two ecosystem services in which it has dependencies, obtaining the following results ⁸:

Ecosystem service	Freshwater (Ground, Surface)	Ecosystem service	Flood protection
Role played	Production process	Role played	Physical environment regulation
Impact on the site		Description	
<ul style="list-style-type: none"> • Interruption of production due to the potential limitation of water supply or discharge. 		Reduction in the extent, duration and frequency of floods.	
Materiality		Impact on the site	
MB B M A MA <ul style="list-style-type: none"> • MB: Lower • B: Low • M: Medium • A: High • MA: Higher 		<ul style="list-style-type: none"> • The hydrological baseline shows that 75,79% of the area is susceptible to flooding. • The system of the swamps can support the increases in the Magdalena river. 	
State-of- nature metrics (1)		Materiality	
<ul style="list-style-type: none"> • Vulnerability of water resources (scarcity) • Fresh water supply • Water quality 		MB B M A MA <ul style="list-style-type: none"> • MB: Lower • B: Low • M: Medium • A: High • MA: Higher 	
		State-of- nature metrics (1)	
		<ul style="list-style-type: none"> • Water retention • Water storage capacity of wetlands • Drainage patterns • Susceptibility to flooding • Water regulation 	

Notes:

* Materiality assigned considering ENCORE sectorial materiality, interview results, and the content of the Environmental Management Plan.

The main challenges identified at this stage were related to the need to define and build metrics to characterize ecosystem services and the changes generated by the projects. It has been identified that the development of internal tools, such as the socio-ecological resilience tool (Pilot Two), contributes to the identification of impacts, dependencies, and scenario analysis.

• E4: Direct impact analysis

Likewise, an evaluation of two example impacts identified in the E2 step of the Yariguí- Cantagallo field was carried out, in accordance with the LEAP framework⁹.

⁸ Relevant metrics found in the Environmental Compliance Report and Impact Assessment

⁹ Environmental Compliance Report - Economic impact assessment

Impact driver: Water use						
Description						
Change in resource availability and water supply due to water withdrawal discharge, transport and use.						
Impact on site						
<ul style="list-style-type: none"> The impact of water use is most significant in the pre-operational and operational stages (drilling of wells). Positive: Implementation of a water neutrality strategy with a target to 2045: Reduce 66% of freshwater withdrawal, zero discharges to surface water bodies, and compensate for 34% of the remaining water consumption. 						
Materiality:	Impact drivers metrics					
<table border="1"> <tr> <td>MB</td> <td>B</td> <td>M</td> <td>A</td> <td>MA</td> </tr> </table> <ul style="list-style-type: none"> MB: Lower B: Low M:Medium A: High MA: Higher 	MB	B	M	A	MA	<ul style="list-style-type: none"> Water withdrawal by source Percentage of water re-injected Water scarcity footprint Degradation footprint Quantity and quality of water discharges.
MB	B	M	A	MA		
	State of nature metrics (1)					
	<ul style="list-style-type: none"> Water supply 					

Impact driver: Change of land use and modification of vegetation coverage						
Description						
The change can be negative when the new activity exceeds the potential of the land or is not aligned to the use defined in the zoning.						
Impact on site						
Medium negative impacts: Pre-operational stage High impacts: In the operational stage due to the construction of roads and locations. Positive impacts: Ecoreservas, where conservation activities are carried out.						
Materiality:	Impact drivers metrics					
<table border="1"> <tr> <td>MB</td> <td>B</td> <td>M</td> <td>A</td> <td>MA</td> </tr> </table> <ul style="list-style-type: none"> MB: Lower B: Low M:Medium A: High MA: Higher 	MB	B	M	A	MA	<ul style="list-style-type: none"> Volume of wood harvested Hectares: preserved, conserved and restored Transformed areas Land use change Impacts on red list species
MB	B	M	A	MA		
	State of nature metrics (1)					
	<ul style="list-style-type: none"> Land use change (baseline 2013) Forest inventory Biodiversity 					

Notes:

*Materiality assigned considering ENCORE sectorial materiality, the results of the interviews and the content of the Environmental Management Plan.

** Metrics proposed to be included in the analysis that are not part of the EMP.

The impact of procurement was not included.

The challenges identified are related to determining standardized metrics with TNFD by scope for all operations and establishing criteria and impact analysis of local suppliers. Considering the new TNFD sector metrics document, it is expected to be able to define the metrics to be used.

• Conclusions and Recommendations for E phase (Evaluate):

From this phase it can be concluded that ENCORE, IBAT and WWF's risk filter are useful tools for evaluating impacts and dependencies. However, it would be also important to consider more granular available national and corporate information.

Aggregate databases of impacts and dependencies are necessary to gain an overview of the significance of ecosystem services, prioritize the main dependencies and impacts, and guide the development of scenarios for associated risks and opportunities.

EIAs lead to a collection of a wide range of data on impacts, but not on dependencies. This requires adjustments to current processes on EIAs.

3.3 Assess (Material risk and opportunities)

• A1: Risk and opportunity ID

Risks and opportunities related to nature arise from an organization's dependencies and impacts on nature. As a result of the analysis of impacts and dependencies, two risks and one opportunity were considered for evaluation. The first risk identified was flooding. This risk entails the disruptions in Ecopetrol's operations due to flooding resulting from changes in ecosystem conditions (vegetation cover and regulating water bodies), resulting in physical

damage to assets. This risk is linked to the dependency on the ecosystem service of flood and storm regulation. In addition, conflict over water use was identified; increased conflicts due to competition for resources and/or the quality of water sources by third parties, resulting in reputational damage for Ecopetrol. The above is associated with the impact of water use.

On the other hand, the opportunity for restoration and conservation in La Doncella Ecoreserve was identified. Ecoreserves are areas owned by Ecopetrol, designated for the protection of strategic ecosystems, without limiting their productive uses. Therefore, there is a relationship with the positive impact on the maintenance of vegetation cover, erosion control and runoff management.

- **A2. Existing risk mitigation and risk and opportunity**

Ecopetrol has an integrated risk management system (IRS). This system is led by the Corporate Vice-Presidency of Compliance through the Corporate Management of Integrated Risk Management and is supervised by the Board of Directors through the Audit and Risk Committee of the Board of Directors. Risks in the company are managed at the strategic, tactical, and operational levels. In addition, the identification of emerging risks, which are risks that could have a long-term impact on the company (3-5 or more years).

The company currently has two risks related to nature: the risk of inadequate management of climate change and water (strategic), the risk of environmental disruption (operational) and the non-use of technology that enabled Natural Capital Solutions (emerging).

For the integration of risks and opportunities related to nature in existing processes, TNFD establishes five principles. Currently, Ecopetrol already performs activities that comply with these principles:

- **Site:** Ecopetrol already performs an assessment of risks and opportunities by operation site during environmental licensing and environmental studies.
- **Interconnections:** At the corporate level there is a predetermined management responsibility for identifying, assessing, and responding to risks and opportunities.
- **Temporary orientation:** Ecopetrol analyse risks with temporary climatic factors and scenarios by site.
- **Proportionality:** Ecopetrol performs and prioritizes its risks according to the materiality of its site and corporate operations.
- **Consistency:** At site level, Ecopetrol has a process defined by site for the evaluation and identification of risks and opportunities.

- **A3. Additional risk mitigation and risk and opportunity management**

The flood risk mentioned above belongs to the category of acute physical risk posed by TNFD, since it would eventually generate an increase in costs due to

natural disasters. Ecopetrol has identified this risk in its operational risk category, specifically in incidents of operational interruption due to environmental causes.

The water use conflict risk belongs to the reputational transition category according to TNFD, whose financial impact is the decrease in market valuation due to social conflicts. In Ecopetrol this is a strategic risk and is incorporated through the inadequate management of climate change and water risk.

The Ecoreserve Restoration and Conservation opportunity is aligned with the resilience and reputation categories according to TNFD. Respectively it has the financial impact of increased resilience to natural disasters and improved reputation among stakeholders. At the national level, it is aligned with the green taxonomy proposed by the Ministry of Finance.

• **A4. Risk and opportunity materiality assessment**

To disclose identified risks, opportunities, exposure, and magnitude the metrics must be established to determine their financial implications (**Figure 9**).

Risk	Risk categories	Exposure indicators	Magnitude indicators
Conflict over water use	Reputation (transition) risk	<ul style="list-style-type: none"> Amount and concentration of pollutants. Change in the median of species in water bodies. Increased socioenvironmental conflicts 	<ul style="list-style-type: none"> Cost associated with relocation of assets. Reduced revenue due to disruption of operations. Reduction in market valuation due to reputational impacts
Opportunity	Risk categories	Exposure indicators	Magnitude indicators
Restoration and conservation in La Doncella Ecoreserva	Resilience	<ul style="list-style-type: none"> Degraded area for restoration. Improvement of ecosystem conditions. decrease in socio-environmental conflicts 	<ul style="list-style-type: none"> Enhanced resilience to natural disasters. Market valuation boost. Better stakeholder engagement. Climate adaptation.
	Reputation		

Figure 9. Exposure and magnitude indicators for risk and opportunity.

• **Conclusions and Recommendations for A phase (Assess):**

From this phase it can be concluded that understanding how to better analyse variables and trends over time could improve the measurement of risk and opportunities, which currently presents metrics as static. For scenario analysis it is important to go beyond global scenarios and adjust them to national or local scenarios to better manage the impacts and dependencies identified in previous phases. Likewise, the incorporation of risk analysis with metrics and exposure is a necessary challenge to complement the company's analysis.

4. General conclusions and challenges

- The LEAP Frame questions are useful to address the pilot and characterizing the selected site.
- There is enough information to generate impact and risk analyses. However, more information and analysis are needed on dependencies and opportunities.
- It is strongly recommended that a comparison be made between the global and sectoral metrics proposed by TNFD and those used internally.
- Integration of proprietary tools with available platforms such as IBAT, WWF water and biodiversity risks, etc., is advised.
- More clarity is needed in the metrics suggested for the construction of risk management scenarios.
- A prioritization of the assets, segments, and supply categories in which TNFD will be applied must be made.
- The main challenges related to implementing the methodology include prioritizing and scaling up pilot exercises, prioritizing and integrating supply chains, aligning information requirements across different standards and frameworks, and conducting economic valuation of identified dependencies, impacts, risks, and opportunities.
- As businesses navigate the implementation of the TNFD framework, it is vital to ensure that reporting metrics capture not only negative impacts, but also positive actions and outcomes related to the nature management. This will provide a more comprehensive view of a company's environmental performance and its contributions to nature conservation.

5. Revised documents and utilized tools.

- TNFD Beta framework and annexes.
- Environmental management plan for the Yariguí-Cantagallo field.
- IBAT (Integrated Biodiversity Assessment Tool).
- ENCORE (Ecosystems and Communities Overviews and Risk Evaluation).
- Final products of Deloitte consultancy.
- Biodiversity enhancement Plan of La Doncella's Ecoreserve.



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