



Restoration Barometer

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Grupo Ecopetrol

2022 Pledge Implementation Progress Report

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2022 1T.ORG PLEDGE IMPLEMENTATION PROGRESS REPORT

Grupo Ecopetrol

Meeting climate and biodiversity targets through nature-based solutions

Reporting period

January 2020 – December 2021

Pledge status

Fully on track

Intervention locations

Colombia



Progress summary

The Ecopetrol Group is committed to achieving excellence within its core business as an integrated oil & gas company and to continue its transformation process in the energy transition. Ecopetrol's 2040 Strategy includes sustainability as a key pillar and biodiversity as a critical material issue with four main components:

1. Mitigation hierarchy (avoid, minimise, restore and compensate impacts on nature)
2. Nature-based solutions
3. Knowledge generation
4. Biodiversity culture

In line with these components, Ecopetrol has been working on different tree planting initiatives – 3,117,105 trees between 2020 and 2021 – as well as the establishment of a network of eco-reserves, which are "geographically delimited areas, owned by Ecopetrol, voluntarily assigned to the conservation of biodiversity and ecosystem services", as a complementary measure to other public and private protection efforts. So far, 15 of these areas have been assigned with an extension of approximately 15,085 hectares. The Eco-reserves also attract investments in ecological restoration, aimed at both complying with mandatory offsets and to carry out other voluntary conservation efforts.

To promote nature-based solutions and knowledge generation, Ecopetrol has developed different strategic partnerships with The Nature Conservancy, Wildlife Conservation Society, Fondo Acción, Interconexión Eléctrica S.A., Fundación Natura and the Humboldt Research Institute. The purpose of these partnerships is to contribute to the company's goals on climate change and biodiversity with actions to protect, sustainably manage and restore natural or modified ecosystems, generate information for decision-making processes and address societal challenges effectively and adaptively.

Some of the results of these projects can be summarised as follows: four scientific papers, biological records reported through Colombia's Biodiversity Information System, the structuring of a socioecological resilience assessment tool to assess impacts and a system's response with regards to environmental and social variables, conservation strategies implemented for 15 endangered species of fauna and flora, and the development of wildlife corridors, among others. Additionally, Ecopetrol is one of 34 companies worldwide included in the Task Force on Nature-related Financial Disclosures, to feed back into the reporting and management frameworks for financial risks associated with nature.

Implementation method

- On-the-ground restoration through own operations or supply chains
- Financial support to: Fundación Natura, WCS-Fondo acción, The Nature Conservancy

Ecosystems and restoration interventions concerned

Farmlands and mixed-use areas

- Artificial regeneration
- Land / water protection

Forests and woodlands

- Land / water protection / conservation actions
- Site / area / habitat protection
- Planting/seeding corridors of mixed stands of native species
- Artificial regeneration, such as through planting of seedlings or seeds in mixtures
- Silviculture
- Agroforestry/Silvopastoral systems

Grasslands, shrublands and savannahs

- Artificial regeneration

Peatlands



Policies and strategies

Ecopetrol's Environmental Strategy (2021) has the purpose of devising the guidelines for the company's environmental management, including the vision, objectives and the identification of environmental pillars and levers. It is part of the HSE Management System in accordance with the guidelines of the ISO 14001 standard. One of the pillars is biodiversity and ecosystem services, which includes: prevention and mitigation of impacts and compensation of residual impacts applying the mitigation hierarchy, implementation of nature-based solutions to address the challenges associated with climate, biodiversity and water, generation of knowledge, and consolidation of the company's biodiversity culture.

In addition, Ecopetrol Group deployed a materiality exercise (2020), which identified material elements classified into four levels of prioritisation. Among these elements, the following are highlighted as key for restoration:

- **Exceptional elements:** climate change and integrated water management.
- **Outstanding elements:** circular economy, biodiversity and ecosystem services
- **Compliance elements:** Areas of conservation and environmental protection

Also, Ecopetrol has established 12 environmental criteria for the selection of contractors that seek to minimise impacts on supply chains, including, among others, the review of the origin of paper and wood, promoting the use of fibre and wood from certified sustainable forestry operations.

To generate concrete conservation actions and economic co-benefits for communities in Ecopetrol's areas of influence, the company defined the biodiversity and ecosystem services strategic pillar aligned with the sustainability strategy considering the risks and opportunities that it may represent for the company in a mega-diverse country like Colombia. Internally, quarterly reports are generated on the progress of the number of trees planted. Likewise, the company has alliances with different non-governmental organisations and research institutes to advance with these goals.

Considering the strategy, Ecopetrol has five main biodiversity-related commitments:

1. Do not operate in protected areas according to IUCN categories I to IV
2. Do not carry out activities in World Heritage areas declared by UNESCO
3. Caution / prevention principles
4. No net loss in biodiversity
5. Net gain in biodiversity

The biodiversity strategic pillar is supported by the following goals by 2030:

1. 12 million trees delivered, supported and/or planted
2. 50 eco-reserves designated within the company's properties
3. 30,000 ha in conservation and/or in the process of restoration by voluntary/mandatory actions (maintain/new) in the year
4. 2 million of tons of CO2 accumulated through natural climate solution projects (capture or reduction).

Supporting documentation

- [Source: Integrated Sustainable Management Report 2021](#)
- [Sustainable Management Report 2021](#)

Funding

2020

- Environmental investments directed to programs for forest recovery and protection – **USD: 4,000,692**
- Environmental investment in biodiversity is represented by investments in programs and projects for preserving, conserving, and rationalizing biodiversity – **USD: 2,185,543**

2021

- Recovery and protection of forest – **USD: 5,796,741**
- Biodiversity, allocated to biodiversity preservation and conservation projects – **USD: 4,048,878**

The funding was disbursed towards:

- Financing of implementing partner(s)
- Carbon finance, including for insetting and/or offsetting
- Purchases of inputs, such as seeds or saplings
- Development or purchase of planning or monitoring tools
- Capacity building, such as awareness or training activities
- Donation of materials or technology
- Policy or technical expertise
- Staff-time

Ecopetrol finances its initiatives with its own resources. The company's financial contributions focused on ecological restoration are oriented toward both the fulfilment of mandatory offsets and voluntary conservation processes focused on natural climate solutions and nature-based solutions. In most cases, the company works through agreements with partners, including non-governmental organisations and research institutes, in order to generate conservation processes and enable carbon captures, whilst generating other social and environmental co-benefits. These types of agreements involve activities related to tree planting, ecological restoration processes and monitoring through global positioning systems, clinometers, camera traps and others. Resources also enable the hiring of technical experts on ecology, water and land, bioeconomy and other fields that are essential to the planning and execution stages as well as during the process of involving communities when conserving and restoring ecosystems at a local and regional level.

Supporting documentation

- Integrated Sustainable Management Report 2020: Chapter 5 Environmental dimension (pg. 203 to-265. Environmental Investment: pg. 205)
- Integrated Sustainable Management Report 2021: Chapter Environment (pg. 174 to 261, Environmental investment pg. 177)

Technical planning

Considering the ecological complexity of the Colombian territory, specific restoration schemes are generated depending on the type of ecosystem it will be applied to, such as wetlands, forests and savannahs, among others. The planning process of the restoration efforts prioritises land where Ecopetrol operates to subsequently apply its mitigation hierarchy intended to avoid, minimise, restore and compensate impacts on nature, mainly related to construction, pollution and habitat transformation. Thanks to the cooperation agreement with The Nature Conservancy (TNC), the company identified and assessed cost-effective ways for offsetting greenhouse gas residual emissions that make up the current natural climate solutions portfolio, along with conservation and restoration projects.

Another important step in the planning and design process is the selection of the implementing party, which is sought according to experience, knowledge and technical and financial capacity.

Furthermore, Ecopetrol is developing a carbon monitoring protocol for restoration projects as a next step after planting of 250,000 native trees in the Meta and Caquetá region. Finally, it is also important to highlight that up-to-date tools and methods are being used to survey progress, in order to boost sustainability strategies in conservation and production agreements. This concept refers to a negotiation tool between actors of land use and planning of the production, conservation and management areas of private lands.

Ecopetrol carries out restoration actions as part of its mandatory actions, as well as voluntary actions, hand in hand with different partners, as mentioned throughout the survey. During the implementation of these actions, it considers, among others, the mitigation hierarchy, the precautionary principle, and non-operation in protected areas (IUCN-UNESCO). In terms of the SDGs, Ecopetrol's projects focus on goals 1, 6, 8, 12, 13, 14, 15 and 17.

For the development of mandatory actions, the company works on:

1. Signing of conservation agreements with in-kind incentives that promote the rehabilitation of areas important for biodiversity
2. Purchase of land with strategic areas for conservation
3. Protective reforestation
4. Restoration in its three approaches according to the Restoration Plan of Colombia.

It is necessary to indicate that each of these actions is previously approved by the competent Environmental Authority.

In terms of voluntary initiatives, the company seeks to fit restoration and rehabilitation initiatives within specific socio-ecological contexts, involving local communities in the process. During the planning phase, a characterisation of the territory is carried out, including historical, physical, ecological, social and cultural variables. Subsequently, certain conservation values are selected and various governance strategies, green business models, implementation and monitoring are taken into account.

Ecosystem restoration principles considered

1

Contribute to the UN Sustainable Development Goals and the goals of the Rio Conventions.

4

Aim to achieve the highest level of recovery for biodiversity, ecosystem health and integrity, and human well-being.

5

Address the direct and indirect causes of ecosystem degradation.

8

Tailor to the local ecological, cultural and socioeconomic contexts, while considering the larger landscape or seascape.

9

Include monitoring, evaluation and adaptive management throughout and beyond the lifetime of the project or programme.

Supporting documentation

- Publications and scientific articles related to the main results of the conservation and restoration work carried out by the company are available on its website: [Portal Ecopetrol](#)
- [Wiley Online Library](#)

Monitoring Process

The biodiversity monitoring component of the company's projects is based on the concept of «biodiversity for all», including three main lines of work: biodiversity surveys, camera trapping for wildlife research and participatory monitoring with direct participation of inhabitants within the areas of study.

Multi-stakeholder efforts allowed the instalment of more than 600 camera traps which were able to capture more than 315,000 images during 2021. These included 124,919 with records of fauna of which 20,332 obtained records of 232 species of birds, mammals and reptiles.

Community monitoring represents a participatory science experience as it relies solely on locals who receive training and support, at different stages of the process, from expert researchers on observation and management of tools for biodiversity recording.

Under an agreement with the Humboldt Research Institute, Ecopetrol implemented the Biomonitoring programme. In 2021, a group of eight community representatives and three intern students from local universities participated in the programme, where they acquired a commitment to monitor biodiversity and genetic information under the direction of qualified personnel.

In parallel, planting efforts with different partners, including Fundación Natura, Wildlife Conservation Society and The Nature Conservancy, also involve monitoring commitments in the medium term, which for most partnerships, ranges from two to four years.

Through its Wildlife Project, the company guided conservation actions for 15 target species in three landscapes: Llanos Orientales, Piedemonte Andino-Amazonico and Magdalena Medio. This project focused on generating conservation agreements with local communities to promote the establishment of connectivity corridors. As part of this project, the company is monitoring processes that have allowed it to collect data related to ecological and social indicators that identify the short- and medium-term effects of its restoration strategies, as well as the long-term impacts on species and/or their habitat, as well as on communities. For example, the company has been monitoring the change in the project area that is under a conservation agreement, the change in the probability of occupancy of a species in a specific landscape or the percentage of people belonging to a local community in the projects' sphere of influence. As part of the monitoring results, the company observed that all 15 species are favoured by the conservation agreements, and some are even increasing their populations in the landscapes.

Metrics monitored

Restoration intervention progress

Land cover change

Area under restoration

Effects on biodiversity

Supporting documentation

- [Proyecto Vida Silvestre](#)
- [Monitoreo: Biodiversidad entre todos](#)

Area of land

Conserved hectares and/or in the process of restoration by voluntary/mandatory actions (maintain/new): **11,140 (2021)**

Hectares of the Eco-Reserve Network: 11,906 (2020) and **15,085 (2021)**

These areas contribute to species conservation processes, serving as buffer areas for public and national protected areas. Through the conservation agreements, processes of articulation with local actors (who inhabit the territories) are generated, promoting vegetation restoration through the identification of actions that enhance the recovery of the conditions suitable for wildlife conservation, and carefully choosing the species, planting cycles and tailor-made agreements, among others. Nevertheless, ecological restoration is always approached as a long-term process that needs flexible planning and continuous monitoring and upgrade.

Species native to the area are selected according to the ecosystem's conditions and in some cases, ornamental or food species are carefully selected, such as maize, cassava, beans and cocoa; which promote wildlife friendly farming, food security and income generation, among other benefits. The list of species often used is large, within the most representative: *Trichanthera gigantea*, *Tabebuia rosea*, *Cecropia peltata*, *Jacaranda caucana*, *Jacaranda mimosifolia*, *Guadua angustifolia*, *Cedrela odorata*, *Samanea saman*, *Caesalpinia ebano*, *Weinmannia tomentosa*, *Inga edulis*, *Ceiba pentandra*, *Mauritia flexuosa* and *Enterolobium cyclocarpum*.

Supporting documentation

- [Nature-based solutions at Ecopetrol](#)



Climate

Ecopetrol has several agreements with different partners in ongoing projects that seek to enable carbon reductions. Related activities include the development of methodologies for the estimation of carbon sequestration, ecological restoration and tree planting, among others. Estimation of capture potentials for the lifespan of current projects are as follows:

- **Fundación Natura:** Capture potential (tCO₂e): 3,415, 542 in nine years
- **Wildlife Conservation Society (WCS) and Fondo Acción (tCO₂e):** Capture potential (tCO₂e): 1, 009,056 in five years
- **The Nature Conservancy (TNC):** Capture potential (tCO₂e): 48,446 in 10 years (this project is for research purposes; no carbon credits generation is intended).

Planning of additional projects is being conducted; however, most of these are at an early stage without reliable data to generate a forecast.

Due to the early stage of project development of the interventions, CO₂ sequestration's contribution to restoration is not established yet.

Estimation method

- Existing national reference levels/greenhouse gas inventory systems
- Custom -made formal measurement and monitoring systems for restoration efforts

Supporting documentation

- [Our Ambition](#) (section: Our goals and achievements 2021)



Biodiversity

Regarding restoration efforts, after rigorous consideration of variables such as the species contribution to structural ecological complexity or as food and shelter for local and migratory fauna, more than 3,117,105 trees have been planted during the 2020–2022 period. During the planting process, the removal of unwanted weeds representing invasive species was also carried out, as well as the prioritisation of ideal native forest species and the management of animal species that threaten the normal execution of reforestation initiatives, including the leafcutter ant.

It is worth highlighting that in 2022, as part of the Proyecto Vida Silvestre project, 20 conservation agreements were renewed and five more are expected to be signed with the objective of conserving 15 umbrella species. In parallel, Ecopetrol and its strategic partners promote the conservation of threatened species by involving local communities. For instance, in 2021, the "Festival por el Choibo" was celebrated for the seventh time in Bocas del Carare, Santander. This event, that collects funds to conserve one of Colombia's renowned primate species, the spider monkey, and other primates, spreads the word about how noxious habitat loss is for the species and empower community members to generate productive alternatives that lessen their dependence on activities that exploit forest resources.

Eco-reserves are in areas that have been highly transformed and are key to protect ecosystems that otherwise may be lost or transformed. Area, connectivity, and biodiversity gain are among the variables evaluated to designate an Eco-reserve and critical ecosystems within the assessed areas are prioritised.

Hectares of the Eco-Reserve Network: 11,906 ha (2020) and 15,085 ha (2021). Protected hectares declared under any conservation mechanism is 17,675 (2020), which remained unchanged in 2021.

In addition, the company has been working on the publication of data collected from the development of its conservation and restoration projects, one of which an article published in 2021, in the Restoration Ecology scientific journal: "Corridors in heavily fragmented landscapes: Reconnecting populations of Critically Endangered brown spider monkeys (*Ateles hybridus*) and sympatric terrestrial vertebrates in the lowland rainforests of Central Colombia".

The [article](#) «Corridors in heavily fragmented landscapes», which represents a contribution to science from the oil industry, is one of the many outcomes of the wildlife project developed by Ecopetrol, in partnership with Wildlife Conservation Society, Fondo Acción and local stakeholders.

Another cooperation agreement, signed with The Nature Conservancy, provides valuable insights for the design and implementation of a monitoring scheme for more than 250,000 planted trees. This scheme incorporates procedures to estimate variation in carbon reserves due to land use change, aerial biomass within the plots where planting was carried out, the amount and density of fallen dead wood, and more specialised variables.

Supporting documentation

- [Corridors in heavily fragmented landscapes](#)



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