

# Oil and Gas Expansion in the Colombian Amazon: Navigating Risks, Economics, and Pathways to a Sustainable Future



Organización Nacional de los  
Pueblos Indígenas de la  
Amazonía Colombiana



# Oil and Gas Expansion in the Colombian Amazon: Navigating Risks, Economics, and Pathways to a Sustainable Future

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**Cover Image:** Aerial view of the low water level of the Amazon River in the Macedonia community, Amazonas department, Colombia, on October 2, 2024. The river’s flow has dropped by up to 90% due to severe drought, affecting the triple border with Brazil and Peru. Image credit: Luis Acosta/AFP via Getty Images.

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# Executive Summary

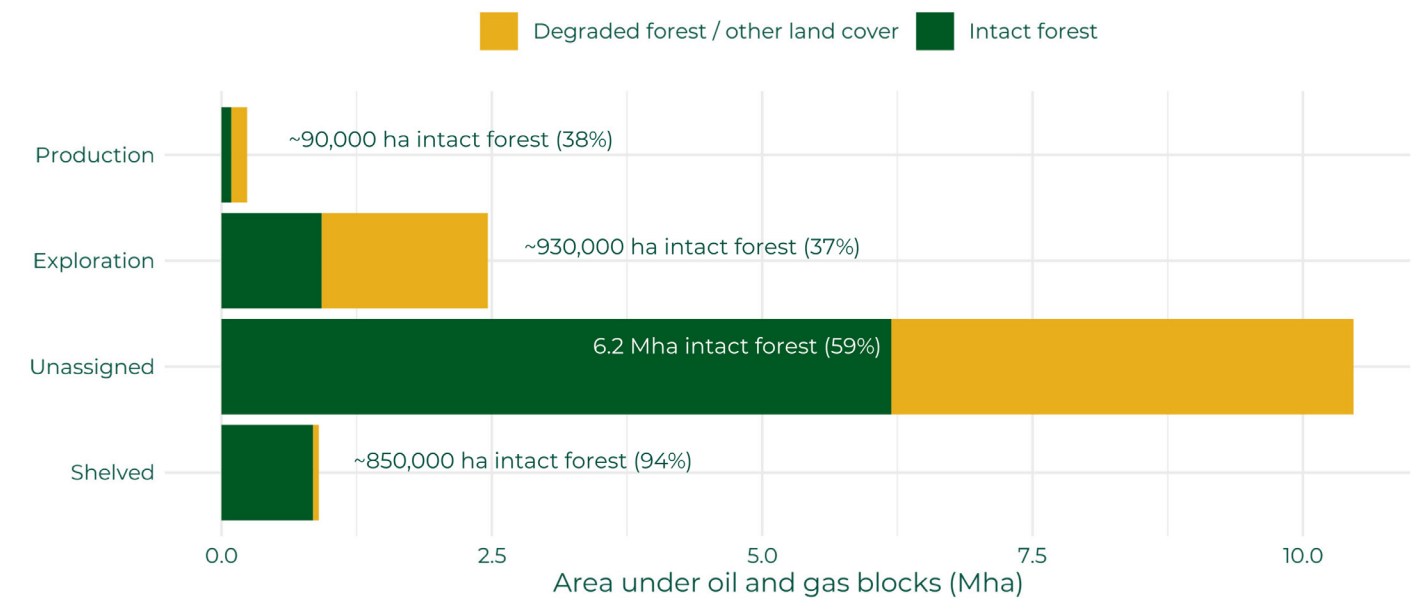


Panoramic view of Puerto Nariño in the department of Amazonas, Colombia, near the Amazon River.  
Image Credit: Courtesy of Mario Malagon via IISD

This report examines the economic and wider risks of continued oil and gas expansion in the Colombian Amazon, a region of immense ecological and cultural significance. Colombia has positioned itself as an international leader in climate and environmental policy. In late 2022 the Colombian government announced its intention to end new oil and gas exploration and called for a transition away from fossil fuels. Colombia also held the Presidency of the 16th Conference of the Parties of the Convention for Biological Diversity. The current Colombian government has made important steps to shelve blocks overlapping with Protected Areas in the Amazon. Nonetheless, ongoing and potential new fossil fuel activities in the region, encouraged by narratives around economic profitability and energy security, continue to threaten the

livelihoods and human rights of Indigenous Peoples and local communities, the region’s rich biodiversity, and its carbon sinks. The economic and security case for fossil fuel expansion in the Amazon is however poorly substantiated, as shown by this report. Instead, permanently removing the unassigned oil and gas blocks, managing declining oil production, investing in the region’s rich natural and human capital, and safeguarding its communities would promote sustainable development and deliver Colombia’s environmental and climate commitments. This would consolidate its international leadership and attract further investments into green growth sectors like renewables, eco-tourism and sustainable agriculture, supporting its \$40 billion climate and nature investment plan.

Distribution of oil and gas blocks in Colombian Amazon



Source: Authors’ calculation based on Vancutsem et al (2021) and ANH (2025).

## Expanding fossil fuel activities in the Amazon is a risk to people, nature and climate:

- Approximately 14 million hectares of the Colombian Amazon are overlapped by oil and gas blocks:** This represents approximately 28% of the Colombian Amazon region. While almost 20% of this area has either ongoing production or exploration permits, roughly 75% has not yet been assigned to any investors. The fossil fuel industry is a key driver of deforestation in the Amazon through infrastructure development that can trigger a cascade of such high-impact activities as logging, mining, and agriculture.
- These blocks threaten Indigenous Peoples and local communities and their human rights:** Almost 70% of Indigenous Peoples and local communities in the Amazon are threatened by oil and gas blocks, which overlap directly with 15% of IPs and LCs’ recognized lands in the Colombian Amazon. Approximately 8% of their territories are overlapped by blocks already in active production or exploration stages. Numerous oil spills have already substantially endangered these communities, which is reflected in the high number of environmental lawsuits against oil companies related to ecosystem degradation and pollution.
- The Amazon’s rich biodiversity is also at risk:** While the current Colombian government has made important steps to shelve blocks overlapping with Protected Areas, nearly 43% of unprotected Key Biodiversity Areas recognized by the International Union for the Conservation of Nature in the Colombian Amazon are still threatened by oil and gas expansion. There is increasing recognition that to comply with international human rights law states should prohibit oil and gas exploration or exploitation in protected and highly biodiverse areas.
- Further oil and gas expansion puts in danger a large carbon sink:** The Colombian Amazon is a critical carbon sink containing approximately 9.6 billion metric tons of sequestered CO2 equivalent. **Approximately** 19% –roughly 10.7 times greater than Colombia’s 2030 climate target– could be disturbed by oil and gas expansion and subsequent industrial activities, which would threaten the sinks’ stability.

## There is no clear economic nor energy security justification for such expansion:

- Expanding oil and gas activities in the Amazon is not economically sound:** Higher relative operational costs, and an accelerating domestic energy transition make new projects financially risky. Expanding fossil fuel activities in the Amazon could potentially lead to stranded assets and growing subsidy costs. This report shows that lackluster economic prospects for licensed blocks portend low potential for those still unassigned. The permanent shelving of unassigned blocks and of assigned blocks with negative Net Present Value in the Colombian Amazon would be a rational strategy to manage stranded asset risks.



Expanding fossil fuel activities in the Amazon is a risk to people, nature and climate:

- **The Amazon reserves would not contribute effectively to Colombia’s energy security:** Oil production in the Colombian Amazon peaked at 50 thousand barrels per day (kbbbl/d) in 2024 and is expected to halve in just 10 years. The 33 exploration licenses currently awarded in the Amazon would barely generate about 2 kbbbl/d of oil by 2035, which brings scant value to Colombia’s energy security. Prioritizing investments in accelerating clean transport and renewable energy systems, rather than risky fossil fuel projects in ecologically sensitive areas, would build more energy security.
- **The government should proactively develop a strategy for just, orderly and equitable transitioning away from fossil fuel production:** As Colombia’s Amazon oil wells mature and decline, the region faces an inevitable phase-out of fossil fuel production. Against this backdrop, instead of promoting investment in risky exploration projects, the government can prioritize a managed decline strategy. This could decommission oil and gas infrastructure with the highest environmental and social standards and ensure a participatory and just transition from fossil fuels. This strategy can build on Colombia’s unparalleled biological and human capital and be part of its \$40 billion climate and nature investment plan.

Economics of exploration blocks in the Colombian Amazon under the International Energy Agency’s STEPS, APS, and NZE scenarios (2025-2040)

Scenario	Proportion of stranded assets (economically unviable)	Net present value (USD Millions)
STEPS – 2.4 °C	48%	-74
APS – 1.7 °C	64%	-161
NZE – 1.5 °C	97%	-213

Note: Stranded assets are defined as fields that are economically unviable i.e. they do not break even during the 2025-2040 period as they fail to make net positive cash flows above the discount rate of 10%.



Ecopetrol SA refinery stands along the Magdalena River in Barrancabermeja, Colombia, following a crude oil spill incident. Image credit: Nicolo Filippo Rosso / Bloomberg via Getty Images.

Main Policy Recommendations:

**Permanently Shelve Unassigned Blocks:** Cancel ongoing and future awarding rounds and remove all unassigned blocks from the National Hydrocarbon Agency’s Mapa de Tierras either via national legislation, administrative acts grounded on Colombia’s international environmental commitments, or by permanently designating them as “Reserved Areas” for ecological or sociocultural reasons.

**Defend and Restore Biodiversity:** Protect at least all Key Biodiversity Areas with effective area-based conservation measures, strengthen the environmental standards for new licenses, expand environmental governance schemes in Indigenous territories based on traditional knowledge systems, declare the Amazon a Colombian natural and cultural heritage, consider including the region in UNESCO’s World Heritage List, and leverage the region’s bio-economy potential.

**Safeguard Community Rights:** Legally recognise the establishment of an additional 13 million hectares of Indigenous Territories, empower Indigenous environmental authorities, ensure free, prior, and informed consent to all fossil fuel projects, and launch a region-wide consultation on future economic diversification.

**Consolidate the Transition Away from Fossil Fuels:** Plan a managed decline of the fossil fuel industry in Putumayo and other departments, support renewable energy projects, anchor Colombia’s leadership in international initiatives, and align domestic policy with transition timelines. Before any further investment decisions are made in the 33 blocks already licensed, the government, as well as investors, shareholders and when relevant the National Oil Company Ecopetrol, should carry a case by case evaluation to assess the blocks’ economic viability, their environmental and social impacts, as well as the legal risks of further expansion.

**Leverage Colombia’s Environmental and Climate Diplomacy:** Anchor Colombia’s leadership in climate and biodiversity topics by scaling up its commitment to initiatives like Beyond Oil and Gas Alliance (BOGA), the Fossil Fuel No Proliferation Treaty Initiative (FFNTI), and the Amazon Cooperation Treaty Organization (ACTO). In addition, to continue gathering international support for its energy transition, Colombia could include a concrete commitment to transition away from fossil fuels with a timeline in its new climate targets.

Copernicus Sentinel-1 radar image of the Amazon River winding through the tropical rainforest. Image credit: Courtesy of European Space Agency/Flickr (CC BY-SA 3.0 IGO)



# Introduction



Oil pumpjacks operate in Colombia's Amazon region.  
Image credit: Shutterstock

Colombia has rightly earned recognition as an international leader in climate and environmental policy, from championing global Sustainable Development Goals (SDGs) over a decade ago to successfully presiding over the 16th Conference of the Parties to the Convention on Biological Diversity in Cali, joining the Powering Past Coal Alliance (PPCA), the Beyond Oil and Gas Alliance (BOGA), and endorsing the Fossil Fuel Non-Proliferation Treaty (FFNPT) in recent years. The current Colombian government has backed this up with a public commitment to end new oil and gas exploration licenses and with numerous efforts to reduce deforestation and protect

critical ecosystems. Such efforts have also underscored the social, political and economic challenges of carrying out an accelerated ecological transition in an emerging economy (Darby, et al. 2024).

The Amazon region presents an unparalleled opportunity to consolidate Colombia's international leadership. The Amazon forest spans a vast portion of Colombia's national territory and is inhabited by hundreds of Indigenous Peoples and local communities that depend on it for their livelihoods and cultural practices. It is also home to 53,000 fauna and flora species, of which 20% are unique (Yngvil 2024), and functions as a crucial sink of greenhouse gases. Its unique cultural and ecological significance was upheld by the Supreme Court's recognition of the Amazon as a subject of rights in 2018 (Eco Jurisprudence Monitor 2024).

Despite Colombia's global leadership to halt new fossil fuel licenses and curb deforestation, a significant number of oil and gas blocks still threaten the Colombian Amazon. While most are unassigned to any investor, they pose a latent threat to people and nature. Fossil fuel extraction in the Amazon, ongoing since the early 1960s, has already accelerated deforestation, caused local pollution and endangered Indigenous Peoples and local communities in several Amazonian departments, particularly Putumayo.

Expanding fossil fuel exploration in such ecologically and culturally sensitive areas is neither effective to meet domestic energy demand nor competitive in an increasingly volatile global energy market. A decisive move to permanently remove all unassigned blocks is a no-regret choice that would consolidate the government's environmental legacy, reinforce Colombia's international leadership, and position the country to attract investments into green growth sectors like renewables, eco-tourism and sustainable agriculture, supporting its \$40 billion climate and nature investment plan (Darby et al. 2024). By making this choice, the Colombian government can also ensure the long-term health and sustainable development of the Amazon region and its communities.

This report provides an assessment of this policy pathway, mapping and outlining the risks associated with further oil and gas expansion in the Colombian Amazon, examining the economic viability of such endeavors, and offering policy recommendations for a just transition in the Amazon.

## Oil and Gas Blocks Cover More Than a Fourth of the Colombian Amazon

Colombia is home to a vast and richly biodiverse tropical rainforest. The Colombian Amazon extends over 50 million hectares (Mha), covering 44% of Colombia's territory (RAISC 2020).

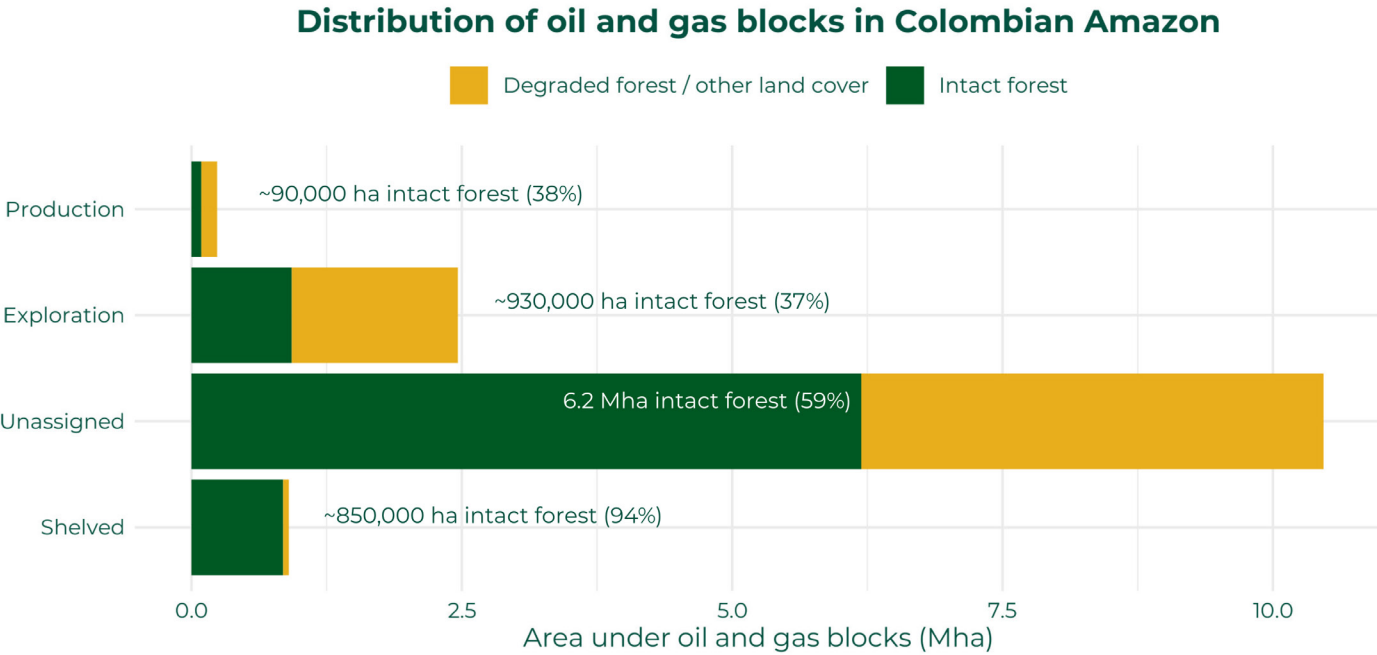
Not all Colombian Amazonian forests are equally well preserved: 40.7 Mha, or roughly 85% of the total Colombian Amazon region,<sup>1</sup> are still considered intact, with the remaining in different degrees of degradation due to activities including oil and gas production and exploration.

Fossil fuel activities and their related infrastructure have accelerated forest loss in the Amazon, including in Colombia, as the entry for other high-impact industries, such as logging, mining, and agriculture (Killeen 2021, pp. 45-46).

Despite Colombia's international leadership in calling for a transition away from fossil fuels (Lo 2022) and holding the Presidency of the 16th Conference of the Parties of the Convention for Biological Diversity, a considerable amount of its Amazonian forests remain under threat of drilling, particularly for crude oil.

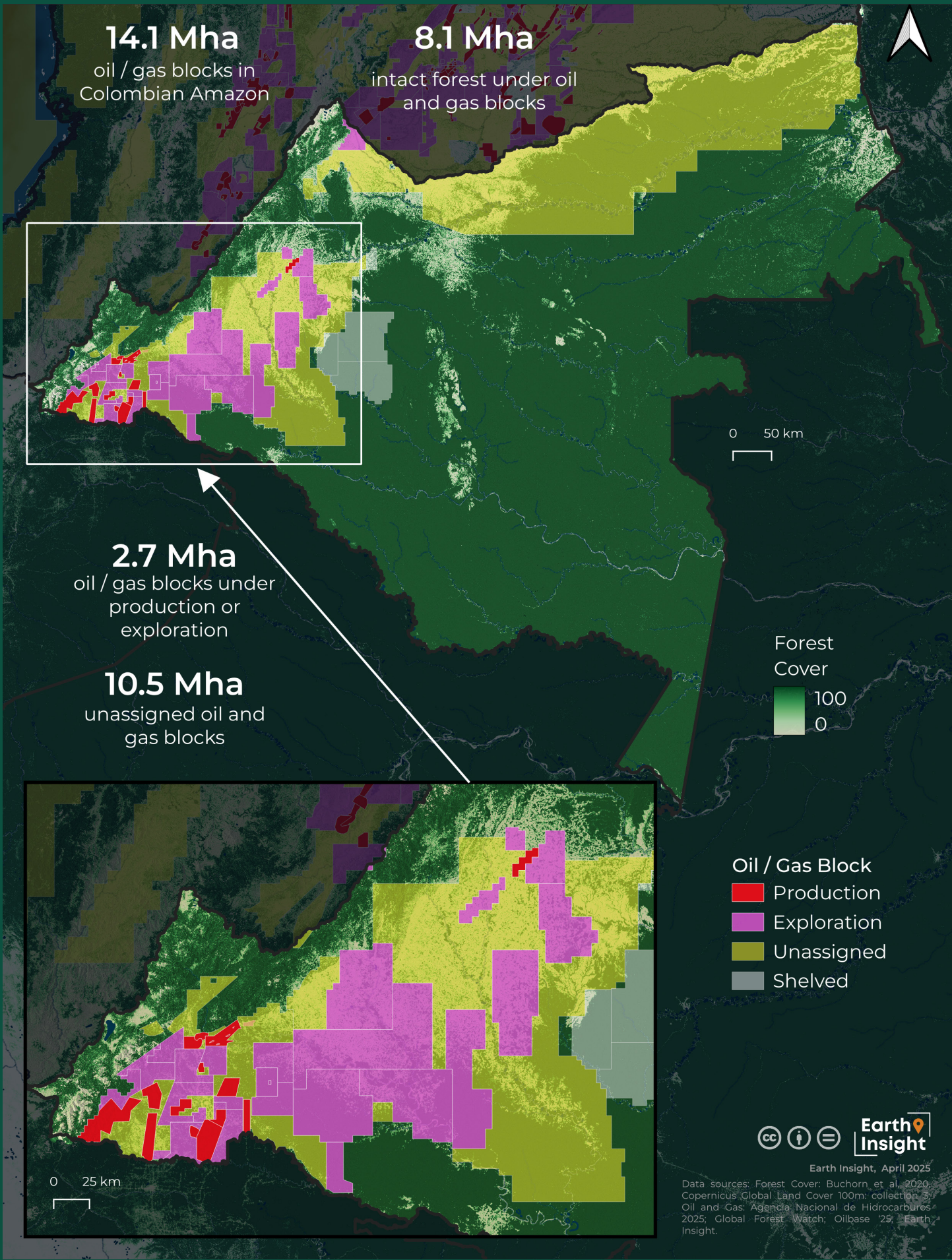
Figure 1 below shows the extent to which oil and gas blocks registered in Colombia's National Hydrocarbon Agency's (ANH) Mapa de Tierras overlap with degraded and intact forest in the Colombian Amazon in millions of hectares.<sup>2</sup> The blocks have been reclassified into four categories following the ANH's own glossary (ANH 2022, Art. 5), namely those where:

- 1. fossil fuel production is ongoing;
- 2. exploration contracts have been signed;
- 3. no contract is currently assigned and are therefore available for public offerings (areas disponibles); and
- 4. exploration has been shelved (areas reservadas).<sup>3</sup>



Source: Authors' calculation based on Vancutsem et al (2021) and ANH (2025)





MAP 1: Production, exploration, and unassigned oil and gas blocks threaten the Colombian Amazon

There are a **total of 14 Mha (Mha) of oil and gas blocks in the Colombian Amazon covering 28% of the region, of which eight million hectares overlap with intact forest.** Oil and gas production is already happening in blocks that cover 240,000 hectares, roughly 1.7% of the total overlap (colored red in Map 1 below). The extent of the Colombian Amazon affected by exploration blocks (colored pink in Map 1), is roughly 10 times greater, covering 2.5 Mha (18% of the total overlap).

The Colombian government has currently granted 33 exploration permits in the Amazon and 14 production licenses. Colombia's state-owned petroleum company Ecopetrol operates nine licenses within the Amazon (five in production, four in exploration stage) while the remaining production and exploration blocks are direct concessions to private companies.<sup>4</sup>

The greatest overlap is with unassigned blocks supervised by the ANH where no exploration or production contracts are currently held. These represent almost 75% of the total overlap, roughly 10.5 Mha (colored yellow in Map 1). While there is no significant fossil fuel activity taking place in these blocks, the Colombian Government via the ANH could at any point

open a process to accept bids from investors and developers to expand oil and gas activities into these areas.

In the Colombian Amazon, roughly 900,000 hectares of oil and gas blocks have already been shelved and designated as Reserved Areas by the ANH, making them unavailable for investors. However, a persistent concern is that changes in the economic, political, and social landscape could change the Colombian government's decision to shelve the blocks. These represent more than 6% of the total overlap (colored light gray in Map 1).

Figure 1 also portrays the extent to which these oil and gas blocks overlap with intact forests. Currently 8 Mha of intact Amazon forest is directly under oil and gas blocks at different stages of development, **more than 50% of the total area under threat** of oil and gas. In turn, this overlap represents **nearly 20% of Colombia's intact Amazon forest**, an area equivalent to Austria. As is visible in the forest cover represented in Map 1, there is a higher proportion of degraded Amazon forest under exploration blocks than under unassigned blocks, a possible indicator of the impacts of fossil fuel activities.





## The Oil and Gas Sector is a Threat to People and Nature in the Colombian Amazon

The considerable overlap between oil and gas blocks and the Colombian Amazon region poses a series of challenges to nature, biodiversity, climate safety and the communities who live there.

## Fossil Fuel Expansion is a Key Enabler of Deforestation in the Region

From 2000 to 2024, Colombia has lost roughly 5.6 Mha of forest cover, equivalent to 6.8% of its forested land, of which 2.1 Mha, or 37.5%, were humid primary forest (Global Forest Watch n.d.). Other estimates point to 2.3 Mha of lost Amazonian forest in Colombia since 2000, equivalent to 5.2% of its intact Amazonian forest, giving the country the fourth highest rate of Amazon deforestation in the region (Zanon et al 2023).

Considerable progress has been made in the last three years to slow deforestation. This century's peak rate of deforestation, roughly 220,000 hectares, was in 2017. It then plateaued at an average of approximately 175,000 hectares per year between 2018 and 2021, and quickly dropped to 79,000 hectares in 2023, the lowest rate recorded this century (Mendoza et al. 2024). In 2024, deforestation spiked 35% to approximately 107,000 hectares, 63.6% of which occurred in the Colombian Amazon (Erickson-Davis 2025).

Deforestation in the Colombian Amazon is a result of a complex interplay between illegal and legal activities, and civil conflict (Arias-Gaviria et al. 2021). Small dirt roads, often used for illegal economic activities or criminal smuggling, usually kickstart forest degradation: **most forest clearing occurs within 1 km of a road** (Griffin 2021). Larger, state-financed road systems further accelerate forest encroachment in a cascade of degradation and permanent deforestation (González-González et al. 2021). Accessing new fossil fuel reserves in the Amazon often politically justifies road system expansion, and thus contributes to accelerating processes of forest degradation and deforestation (Trujillo Quintero et al. 2017). The correlation between oil production and deforestation is indeed well-documented (Stand.earth and Amazon Watch 2021, pp. 16-17).



A squirrel monkey perches on a branch in the Amazon canopy, glowing with yellow-orange limbs against the emerald foliage. Image credit: Courtesy of Adobe Stock

With over 70% of production blocks and more than 250 active wells,<sup>5</sup> **the Putumayo region is the epicenter of fossil fuel production in the Colombian Amazon.** While the fossil fuel industry creates a smaller direct deforestation footprint in Putumayo than such activities as agriculture, its associated road infrastructure serves as a critical enabler for their expansion (Hoffmann et al. 2018, p. 384). The region has a particularly high deforestation rate: 361,000 hectares of forest lost from 2001 to 2024, or about 15% of its forest cover. Roughly 53% was humid primary forest, which decreased by 10% in this period (Global Forest Watch, n.d.b). Both figures are well above the national average.

**Forest degradation and deforestation driven by the fossil fuel industry is at risk of expanding into an additional 2.5 Mha** where exploratory drilling and seismic surveys are already ongoing, including in Putumayo but also in the Caquetá and Meta regions. These areas are shown in more detail in Map 1 above. Fossil fuel expansion has already been identified as a driver of deforestation near the Picachos National Natural Park between Caquetá and Meta (Acuña Cepeda n.d.). If exploration finds more viable deposits, these territories are at risk of further degradation and deforestation.

Yet, the bulk of the oil and gas threat to the Colombian Amazon forest is still an unrealised possibility. No significant fossil fuel activity has been carried out in the approximately 10.5 Mha of unassigned oil and gas blocks overlapping with the Amazon (shown in yellow in Map 1). The ANH retains all discretionary power under Colombian law to permanently forbid such activities without being liable to any investor or private contractor.



Oil storage facility in Amazon rainforest in Putumayo, Colombia. Image credit: Maxar Technologies





Indigenous children in Colombia play flutes as part of cultural activities supported by an EU-funded project. Image credit: Courtesy of Camila Díaz/EU/ECHO/Flickr (CC BY-NC-ND 2.0)

### Oil Expansion is a Threat to Indigenous Peoples, Local Communities and Their Human Rights

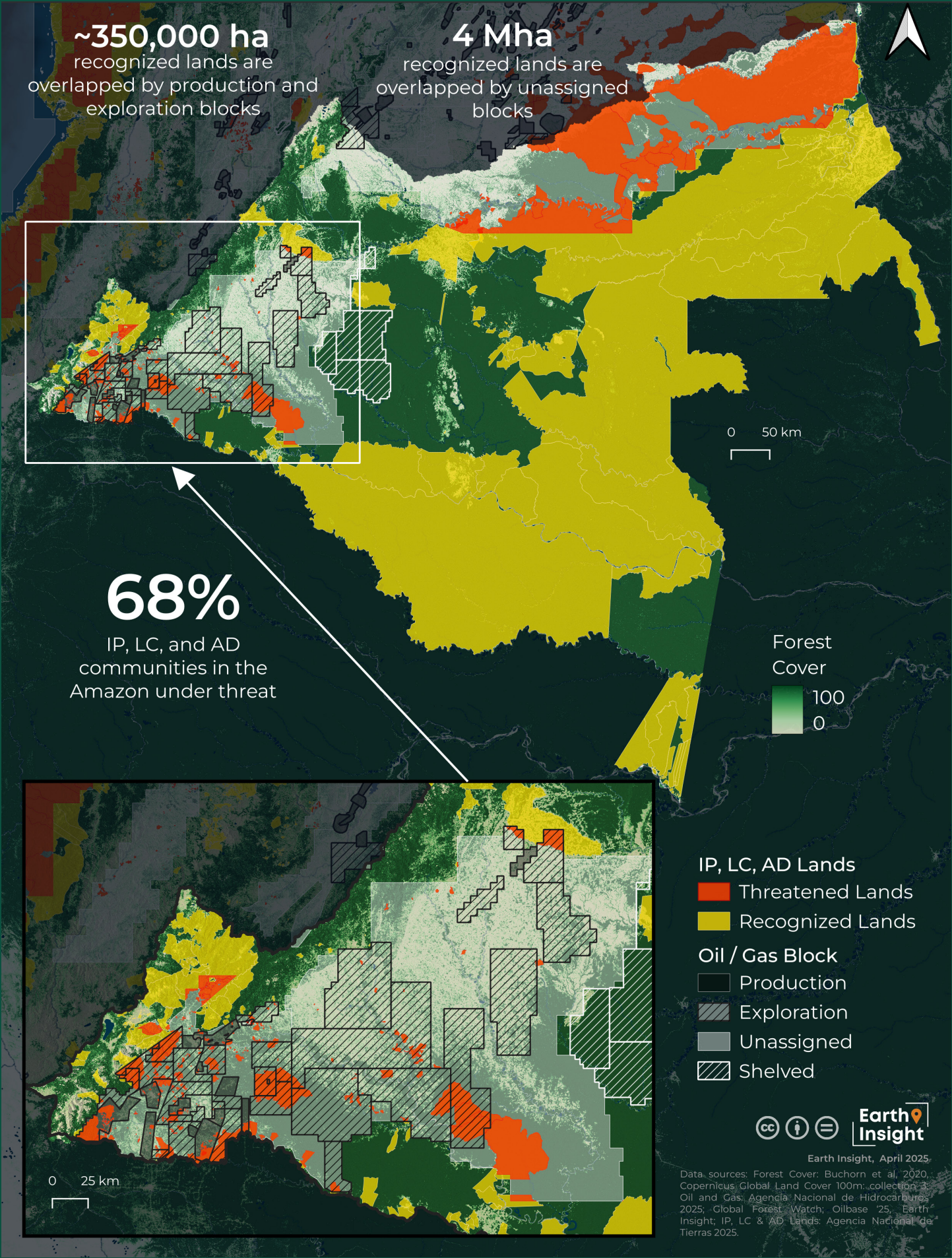
There are 41.1 Mha of documented and recognized lands of Indigenous Peoples (IPs), local communities (LCs) and Afro-descendants (ADs) in Colombia that cover 36% of its national territory. Approximately 28.7 Mha of such territories are within the Amazon region, covering almost 60% of it (colored yellow and orange in Map 2.) They include 320 legally recognized *resguardos indigenas*, *consejos comunitarios* and *zonas de reserva campesina* (Indigenous reservations, community councils, and peasant reserve zones).<sup>6</sup>

Of these 320 recognized IPs, LCs and ADs communities, 218 (68%) are overlapped to some extent by oil and gas blocks that present varying degrees of threat. From a territorial perspective, nearly 4.4 Mha of oil and gas blocks overlap with documented and recognized IPs, LCs and ADs lands in the Colombian Amazon, or approximately 15% of their total territories in the region (colored orange in Map 2.) About 8% of the total overlap, nearly 350,000 hectares, is with oil and gas blocks currently in exploration or production stages (colored black and with black stripes respectively in Map 2.).

Indigenous Peoples and local communities are indispensable to the ecological integrity and preservation of intact Amazon forest areas.

According to data from the National Organisation of Indigenous Peoples of the Colombian Amazon (OPIAC), at least 93% of Indigenous territories in the region were covered by natural forest in 2024, a greater proportion than the region’s average, reflecting IPs’ critical role in conserving the Amazon forest (OPIAC 2024). Across the Amazon Indigenous territories have lower deforestation rates and lower loss of intact forests due to a combination of cultural, political and economic factors (FAO and FILAC 2021, pp. 27-28). The preservation and continuation of their knowledge systems and livelihoods is an increasingly recognized pillar for the conservation of the Colombian Amazon (Dahl 2025).

This growing international consensus on the critical role of IPs in conserving the Amazon forest reinforces OPIAC’s proposal to legally recognise an additional 13 million hectares of Indigenous territories. However, the overlap with oil and gas blocks often delays such processes of legal expansion, constitution and recognition of Indigenous territories, as recognised by the Interamerican Commission of Human Rights (OEA, 2020). OPIAC has identified 291 pending requests in the Colombian Amazon, detailed in Table 1. Almost 60% of them are in the Putumayo department, possibly due to its high concentration of oil and gas concessions.<sup>7</sup> The potential expansion of fossil fuel blocks into Indigenous territories, as shown in Map 2, would risk further undermining the legal constitution of existing and new Indigenous territories.



MAP 2: Oil and gas blocks threaten recognized Indigenous Peoples, local communities' and afro-descendents' lands in the Colombian Amazon.



Table 1. Ongoing requests for the legal expansion, constitution and recognition of indigenous reservations in the Colombian Amazon.

Department	Amount of Ongoing Processes (Constitution, Expansion and Recognition)	Approximate Land Reclaimed (in Ha)
AMAZONAS	22	300,832.9
AMAZONAS / PUTUMAYO	1	63,373.7
CAQUETÁ	59	241,066.4
GUAINIA	14	61.8
GUAVIARE	21	556,721.1
PUTUMAYO	169	820,922.2
PUTUMAYO / NARIÑO	1	10,000.0
VAUPES	4	301,025.0
Total	291	2,230,629.4

Source: OPIAC (2025) OPIAC's calculations based on Agencia Nacional de Tierras (2024).

**Fossil fuel expansion in the Colombian Amazon is historically linked to the colonisation of indigenous territories.** The colonisation of the Putumayo department was accelerated by the development of the Orito oil field in Puerto Asís in 1963 and the construction of the Trans-Andean Pipeline (Brücher 2016, p. 4; Martínez y Delgado, 2018, p.18). This process has often led to the displacement of IPs in the Amazon and a growing interdependence of fossil fuel industries with illicit economies and the armed conflict (Lema et al. 2022; Martínez y Delgado, 2018, p. 130). In Putumayo, the Siona and Inga peoples have resisted the expansion of oil production, which disturbs their livelihoods, diets and traditional rituals, and often pollutes sacred waterways (Alexa 2022).

Such negative environmental and sociocultural impacts of oil production were recently detailed by OPIAC in their *Report on Territorial Interventions and Environmental Impacts* (2023) (OPIAC 2023). Fossil fuel exploration and production have led to drastic land-use changes, the pollution of surface waterways and groundwater sources, the transformation of landscapes, the desiccating of wetlands and peatlands, and the undermining of traditional practices, living spaces and Indigenous Peoples' cosmovision (Avellaneda, 1990). Indeed, there is a growing international recognition that such impacts caused by oil and gas extraction can breach the human rights to livelihood, food and health of people living in the vicinity, as well as Indigenous Peoples' cultural rights, notably the right to knowledge production and transmission (UNHRC, 2025).

An investigation by *Hasta la Última Gota* of oil impacts across the Amazon analyzed official government data and 28 environmental lawsuits against oil companies in the Colombian Amazon in the last decade. Most (67%) were related to ecosystem degradation and pollution. The analysis also showed **17,000 hectares of the Colombian Amazon affected by oil spills** (Espinosa 2025). In 2015 an oil spill of 30,000 gallons of crude oil took place in Siona territory in Puerto Asís, Putumayo, polluting the Piñuña Blanco and Mansoyá rivers and the caño Singuiya, a sacred waterway (Mongabay 2022). Recently, the October 2024 spill in La quebrada Danta laku located in Inga territory contaminated a major source of drinking water, a sacred pathway, and a critical biodiversity corridor (Rutas del Conflicto, n.d.).

These events are emblematic of a broader pattern of fossil fuel activities carried out without the Free, Prior and Informed Consent (FPIC) of affected communities (Ambiente y Sociedad, 2023). Civil society organizations have documented significant corporate abuses against Indigenous Peoples in the Putumayo region. Such abuses have amounted to “systematic violations of territorial and environmental rights” and include the deforestation of key subsistence crops, medicinal plants, and water pollution (Amazon Watch et al. 2023), as well as the absence of any FPIC to fossil fuel expansion in Block PUT-8, PUT-12, and Platanillo (Montaño 2020).

The precarious security situation in the Colombian Amazon exacerbates the vulnerability of Indigenous Peoples vis-à-vis the fossil fuel industry. The Putumayo accounted in 2015 for 43% of all attacks on oil infrastructure nationwide, including the forced spillage of 200,000 gallons of crude oil along the Puerto Vega-Teteyé corridor, contaminating wetlands, springs, and affecting more than 200 families (CNMH 2015, p. 39). The potential complicity between extractive companies and illegal armed groups, such as in La Perla Amazónica Campesino Reserve Zone, further exacerbate the risks to Indigenous Peoples and local communities in the region, as denounced by the Inter-Church Commission for Justice and Peace (CIJP, 2021).

For Indigenous Peoples and local communities in the Colombian Amazon, the situation might get even worse: more than 90% of the overlapping blocks, or 4 Mha, are still available (shown as orange lands overlapped by white blocks in Map 2).<sup>8</sup> These territories could be open for bids at any time. **It is critical that unassigned blocks in the Amazon forest are permanently shelved and new licenses are not granted without the explicit free, prior and informed consent of such communities,** in accordance with Article 330 of the Colombian constitution.



Indigenous leaders walk through the Colombian Amazon to protect their ancestral lands. Image credit: Courtesy of OPIAC.



Spectacled caiman swimming in a river in the Amazon. Image credit: Courtesy of Luis Fernando González via IISD



### Key Biodiversity Areas (KBAs) Are Threatened By Oil and Gas Expansion

Colombia is a global leader in the establishment of Protected Areas (PAs) and has significantly advanced in complying with Target 3 of the Kunming Montreal Global Biodiversity Framework.<sup>9</sup> In 2024 approximately 31% of its national territory was under some form of conservation or protection measures (Mendoza et al. 2024). In the Colombian Amazon, 12.2 Mha of territory, or roughly 24% of the region, are conserved under some category of Protected Area.<sup>10</sup>

At the helm of Colombia’s area-based conservation measures are its 61 National Natural Parks (PNNs), covering approximately 17.5 Mha, or 8.47% of the national territory (Gobierno de Colombia 2025). Eleven PNNs are in the Amazon region and cover 9.7 Mha. Almost 6% of Colombia’s deforestation took place within PNNs, of which 82% took place in the Amazon region - roughly 12,000 hectares between 2016 and 2023 (Mendoza et al. 2024). Since coming into office in August 2022, the current government has established one national park in the Serranía de Manacácias in the Orinoquía region, outside the Amazon (Min. de Ambiente 2023).

According to the Special Rapporteur on the promotion and protection of human rights in the context of climate change, to comply with international human rights law states should immediately prohibit oil and gas exploration or exploitation in protected and highly biodiverse areas (United Nations, 2025). Under Petro’s presidency, Colombia has made **important steps toward preserving Amazonian PAs from fossil fuel expansion.** Approximately 800,000 ha of oil and gas blocks overlapping with PAs have been recently shelved, equivalent to roughly 7% of all protected lands in the Amazon (shown with white borders and stripes in Map 3). The ANH has now classified these as *Áreas Reservadas Ambientales* (Reserved Environmental Areas) where further fossil fuel-related activity is either prohibited or must follow strict environmental regulations (Agencia Nacional de Hidrocarburos 2017). Less than 10,000 ha of oil and gas blocks remain overlapping with recognized protected areas in the Colombian Amazon.

Unfortunately, **PAs do not yet cover the breadth and depth of the Colombian Amazon’s biodiversity.** There are nearly 7.5 Mha of Key Biodiversity Areas (KBAs, colored purple without green stripes and orange in Map 3)<sup>11</sup> in the Amazon region, of which one million, or just over 13%, are unprotected by any area-based conservation measures.<sup>12</sup> Of these unprotected KBAs, 290,000 ha, or roughly 30%, are directly threatened by overlapping exploration and production blocks, while 140,000 ha, or 14%, are overlapped by unassigned blocks (all colored orange in Map 3). Over 46,000 ha of unprotected KBAs currently overlapped by oil and gas blocks are also within IPs, LCs, and ADs lands.

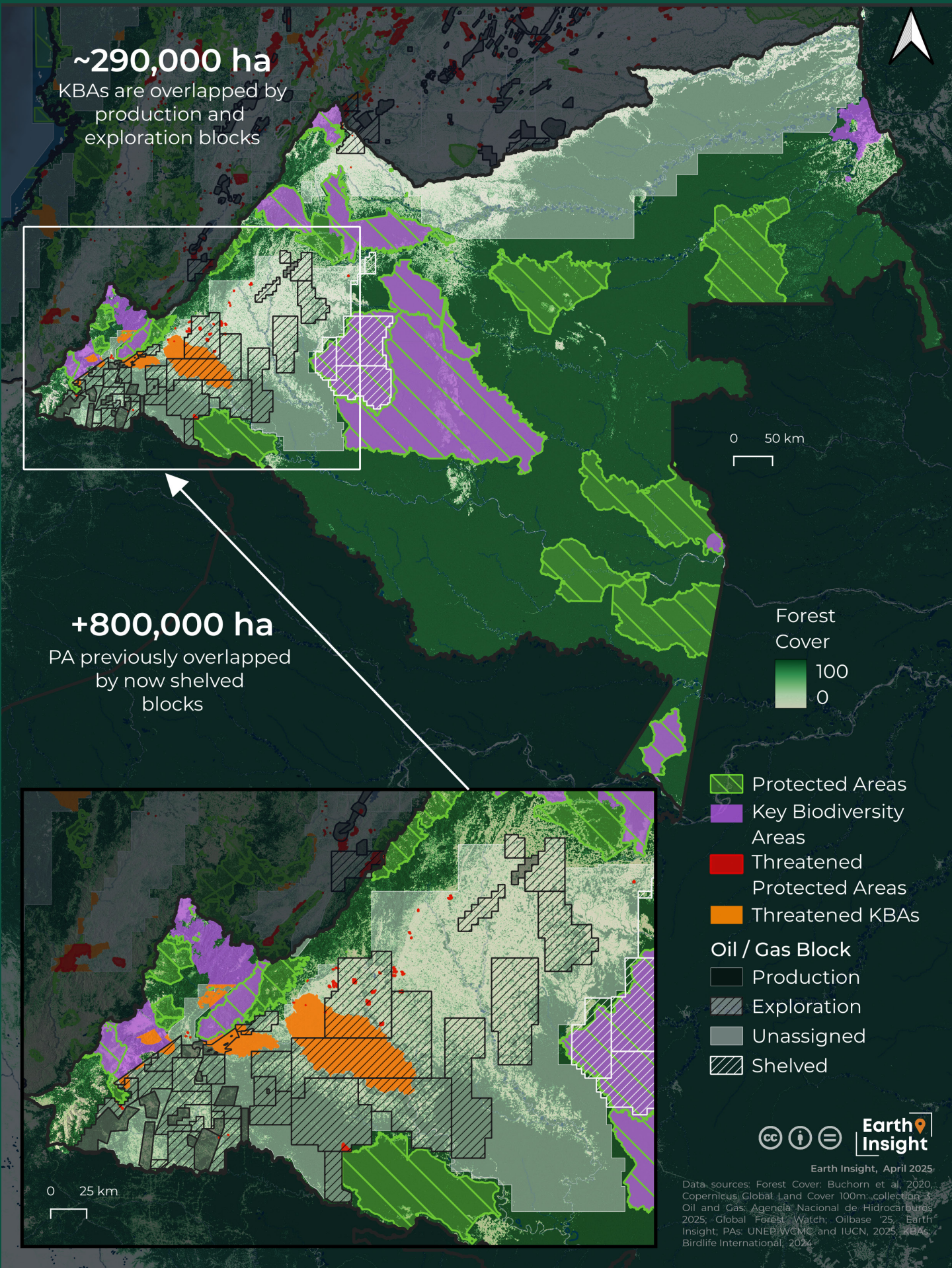


Miles of waterways contaminated by the oil spill in Santander, Colombia.  
Image credit: Alamy/ZUMA Press, Inc.



Scarlet macaw perched in the tropical rainforest canopy of the Colombian Amazon.  
Image credit: Courtesy of akportfolio24/Envato Elements.





**MAP 3: Oil and gas blocks threaten Protected Areas and Key Biodiversity Areas in the Colombian Amazon**

### Colombia's international Leadership on Climate and Nature Protection

In late 2022, the Colombian government publicly announced its intention to end new oil and gas exploration licenses - later reaffirmed at the 2023 World Economic Forum in Davos and reflected in Colombia's accession as a "Friend" of the Beyond Oil and Gas Alliance (BOGA) and endorsement of the Fossil Fuel Non-Proliferation Treaty (FFNPT) (Min Energia 2023a; FFNPT 2023). Although the end of new oil and gas exploration has yet to be formalized into law, it has effectively halted new licensing under the current administration, including in sensitive areas like the Amazon.

Codifying this stance would be a landmark move for Colombian and Latin American climate leadership, aligning with global climate goals while supporting a just transition toward economic diversification. Moreover, such a formal commitment could strengthen Colombia's case for accessing international finance in support of its \$40 billion climate and nature investment plan, for which the country is seeking \$10 billion from international partners (Darby, et al. 2024).

However, stopping new licensing would not affect over 300 pre-existing exploration contracts –a loophole that could still lead to an expansion of fossil fuel production if new reserves are discovered. The government has not yet announced clear measures to address production licenses stemming from older contracts. More detailed analysis on a case-by-case basis of those contracts would be consistent with a legal risk management approach that minimizes exposure to litigation around existing contracts, which has been found to be high (Schaugg et al. 2025). Nonetheless, officials continue to emphasize the need to reduce fossil fuel dependency, safeguard biodiversity, and accelerate the clean energy transition—particularly in ecologically critical areas like the Amazon.

Colombia is also an international environmental leader, being one of the first countries to advocate for an integrated agenda that combined environmental sustainability, social equity, and economic development in the development of the Sustainable Development Goals (SDGs) over a decade ago (IISD, 2019). This position was reinforced during its Presidency of the 2024 Conference of the Parties to the Convention on Biological Diversity (COP16) in Cali and the year after in Rome at the close of the resumed UN biodiversity talks. Such leadership positioned Colombia as a key actor in the implementation of the Kunming Montreal Global Biodiversity Framework (GBF), particularly Target 3 to conserve 30% of terrestrial and inland waters, which Colombia is well-positioned to achieve.

At COP16 Colombia also led the adoption of the Cali Declaration of the Amazon Cooperation Treaty Organization (ACTO), deepening the historic 2023 Belem Declaration that aligned eight Amazonian countries around biodiversity conservation and sustainable development, further signaling Colombia's intent to align energy policy with environmental stewardship (ACTO 2024).



### Expanding Drilling May Disrupt Irrecoverable Sinks of Greenhouse Gases

The Colombian Amazon is also a critical carbon sink that absorbs greenhouse gases (GHGs) – an ecosystem service that is at risk of disruption from further fossil fuel exploration and production. Carbon is stored in the region’s rich soil and vast quantities of biomass. The carbon storage cycles in the soil can be disturbed by activities like drilling or seismic surveys and the biomass can be harvested for fossil fuel expansion, which releases once-sequestered carbon into the atmosphere as a greenhouse gas.

The carbon stores coloured in different shades of pink in Map 4 are vulnerable to disturbances from human activities. These carbon sinks are referred to as ‘irrecoverable carbon’ because if they are lost, the GHGs released will likely not be re-absorbed from the atmosphere and sequestered until after 2050. The disturbance and loss of these carbon sinks would undermine efforts to meet Paris Agreement temperature goals (Conservation International n.d.).



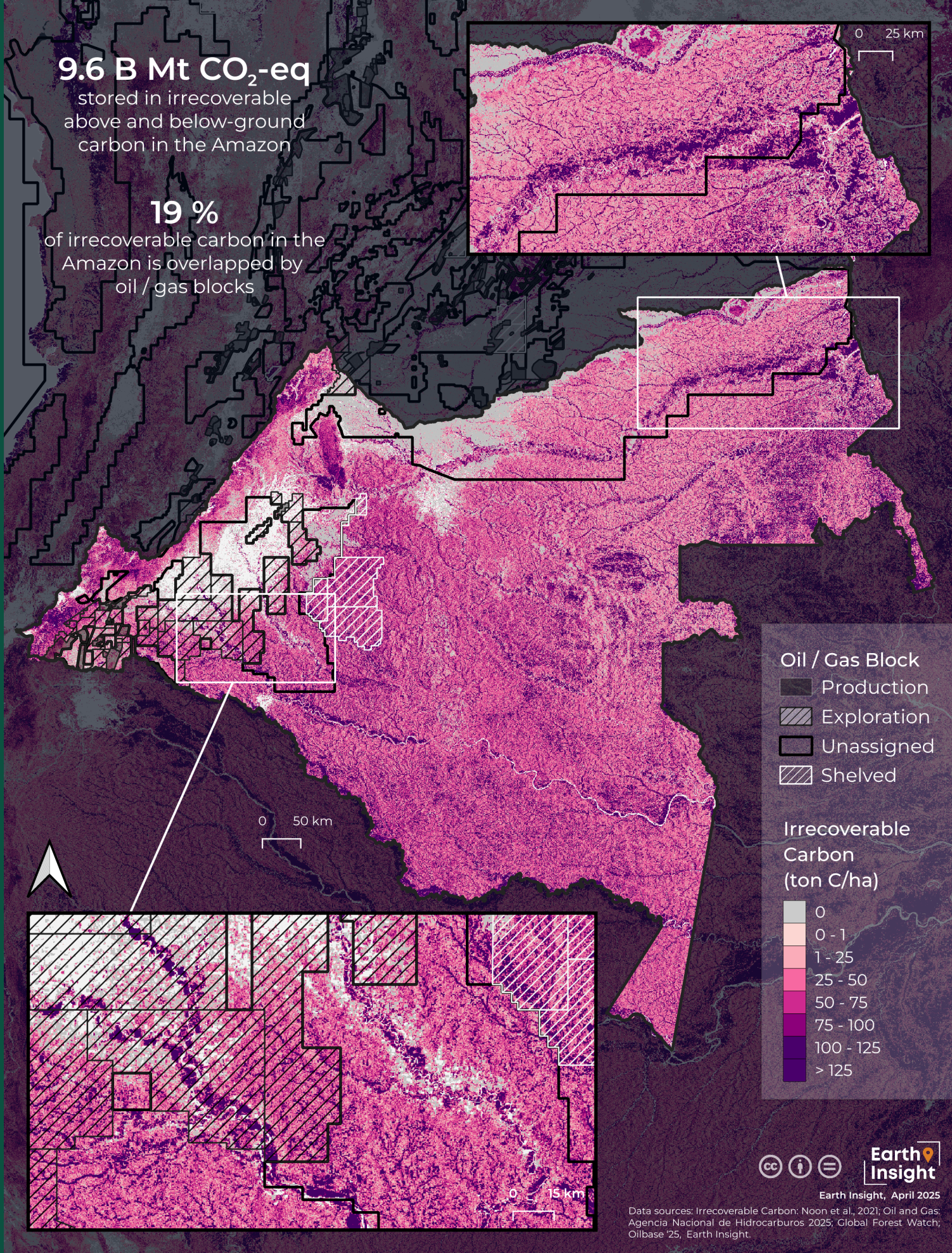
Arrau turtle (*Podocnemis expansa*) in its natural habitat in the Colombian Amazon. Image credit: Courtesy of Sergey Pisarevskiy/Flickr (CC BY 2.0)



Oil-contaminated water flows through a concrete channel in Colombia's Amazon region. Image credit: Courtesy of OPIAC.

The Colombian Amazon stores 2.6 billion metric tons of irrecoverable carbon, or 9.6 billion metric tons of CO<sub>2</sub>-eq<sup>13</sup>, both below and above ground.<sup>14</sup> These sinks are **a genuine natural carbon bomb** – they contain over 56 times more CO<sub>2</sub>-eq than Colombia’s 2030 emissions target of 169.44 million tons (including Land Use, Land Use Change and Forestry) (Climate Action Tracker 2022).

Irrecoverable carbon is unevenly distributed in the Amazon (as seen by the different shades of pink in Map 4). Approximately **19% of irrecoverable carbon in the Amazon is at risk of disturbance by oil and gas activities** (as seen by the overlap of oil and gas blocks with darker pink areas in the inset maps in Map 4). Ongoing fossil fuel activities in these blocks are a threat to the stability of Colombia’s rich Amazon carbon sinks, as well as the country’s compliance with its UNFCCC Nationally Determined Contribution (NDC).



MAP 4: Oil and gas blocks overlap with above and below-ground irrecoverable carbon in the Colombian Amazon



## No Economic Case for Oil and Gas exploration in the Colombian Amazon



Members of OPIAC gather in the indigenous territory of the Vaupés department. Image credit: Courtesy of ORPIO.

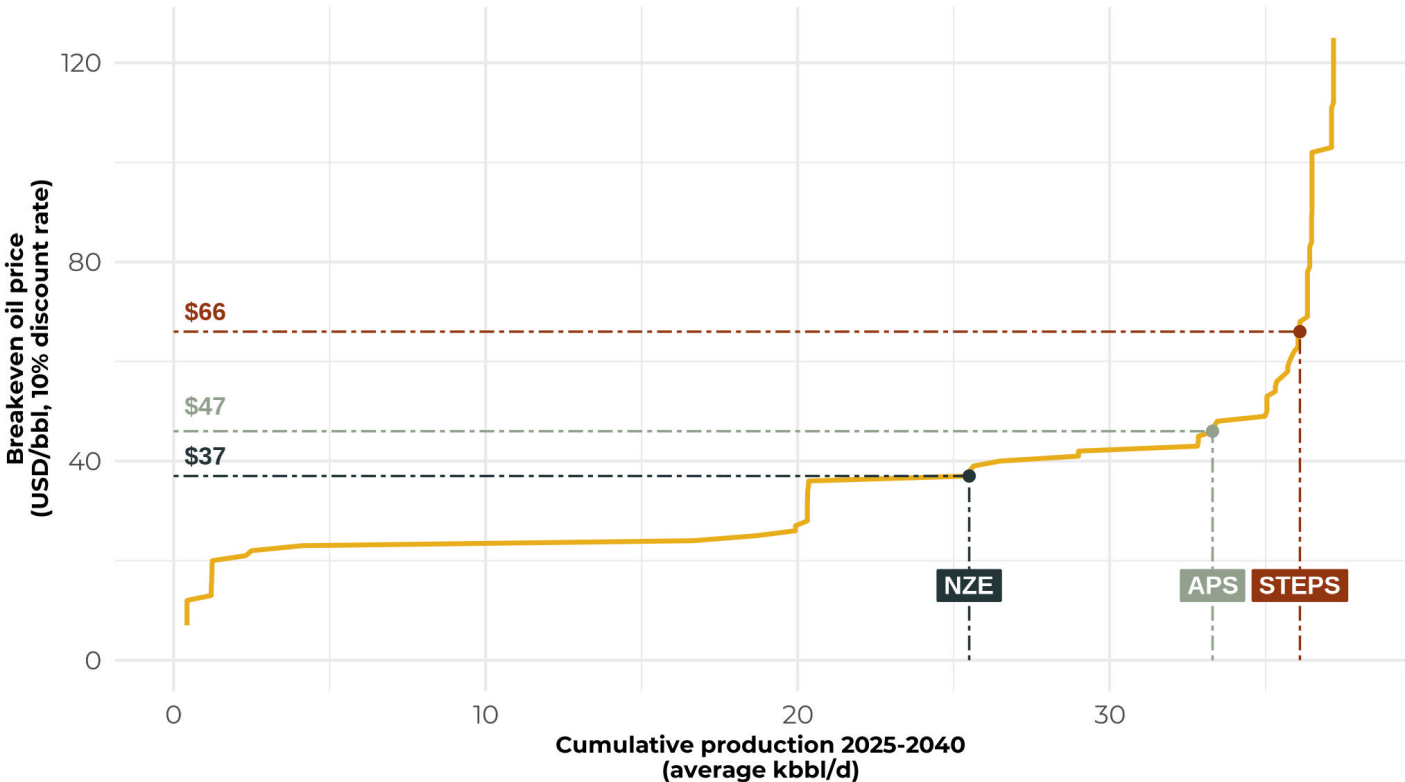
### Oil and Gas Exploration in the Amazon is Costly and Uncompetitive

Further developing the oil and gas fields in the Amazon and expanding exploration of new fields would be misguided and risky from an economic perspective. An assessment of the economics of new fields shows that the majority of them would be financially unviable, justifying a permanent shelving of currently unassigned blocks, as well as those with some levels of exploration underway.

This section delves into the economics of ongoing and prospective oil production and exploration in blocks of the Colombian Amazon. It builds on Carbon Tracker's methodology for estimating stranded asset risk and uses, with updated analysis from IISD (Carbon Tracker 2019 & 2024a), which has been already applied to evaluate the economic prospect of new oil fields in other countries, like Brazil and Canada (IISD 2025a, 2025b). An asset is deemed to be financially stranded when it is economically unviable, i.e. it does not make a return on investment and has a negative net present value for the 2025-2040 period. Accordingly, this section assesses the economic viability of future investment in oil and gas production in this region. This is achieved by applying estimates of equilibrium oil prices in the International Energy Agency's (IEA) STEPS, APS, and NZE scenarios to assess the relative competitiveness of Colombian oil production sourced in the Amazon.

This method uses Rystad Energy's data to derive a cost curve that ranks forecasted global oil production volumes between 2025 and 2040 with their respective breakeven prices (Rystad Energy 2025). We then use this cost curve to match the total oil demand under the three IEA scenarios for the same period. Assuming that the most competitive supply (fields with the lowest breakeven prices) would meet the demand first, this enables us to derive the marginal equilibrium oil price over the next 15 years in each scenario. Projects or fields with breakeven prices above the equilibrium price, therefore, have a negative net present value and will make a financial loss.

Accordingly, we apply these equilibrium market prices to the Colombian forecasted oil production in the Amazon to assess which share of domestic production would be competitive under each respective scenario. Figure 2 below shows the cumulative production of forecasted oil production in the Colombian Amazon over the next 15 years ranked from lowest to highest production breakeven prices. We then apply these equilibrium oil prices to this cost curve, which are expected to average USD 37, USD 47, and USD 66 per barrel based on the IEA NZE, APS, and STEPS demand scenarios, respectively (IISD, 2025a). By comparison, international oil prices were trading, at the time of writing this report, around USD 63 per barrel and averaged roughly USD 68 per barrel over the past ten years (Financial Times, 2025, Statistica, 2025). This process enables us to determine what proportion of Colombian oil production in the Amazon would operate at a loss in each of IEA scenarios.



Source: Author's calculation based on Rystad Energy (2025).

Table 2 below provides the detailed results of the respective share of potentially stranded assets in the Colombian Amazon under each of these price scenarios. It reveals that **almost all licensed reserves in the Amazon, beyond those already producing or under development, would become stranded** if the demand for oil declines in line with the IEA NZE scenario. This is due to steeper operational costs, which leads to relatively high breakeven costs of new oil fields in this region. Blocks located in the Colombian Amazon region are more expensive to operate and would hence be economically unviable if oil prices drop in line with the IEA Paris-aligned scenario.

The proportion of new production that would likely become stranded remains high but decreases to 64% in APS, which assumes that all climate pledges will be implemented. Then, nearly half of the new fields are estimated to be economically unviable in STEPS, the IEA's least ambitious outcome on the energy transition, where no new climate policies are implemented.

Table 2: Proportion of projected oil production in the Colombian Amazon that is economically unviable under the IEA STEPS, APS, and NZE scenarios (2025-2040).

Scenario	Producing / under development	Exploration blocks	Total
STEPS - 2.4 °C	0%	48%	3%
APS - 1.7 °C	7%	64%	10%
NZE - 1.5 °C	37%	97%	40%

Source: Author calculation based on Rystad Energy (2025) data. 10% discount rate.

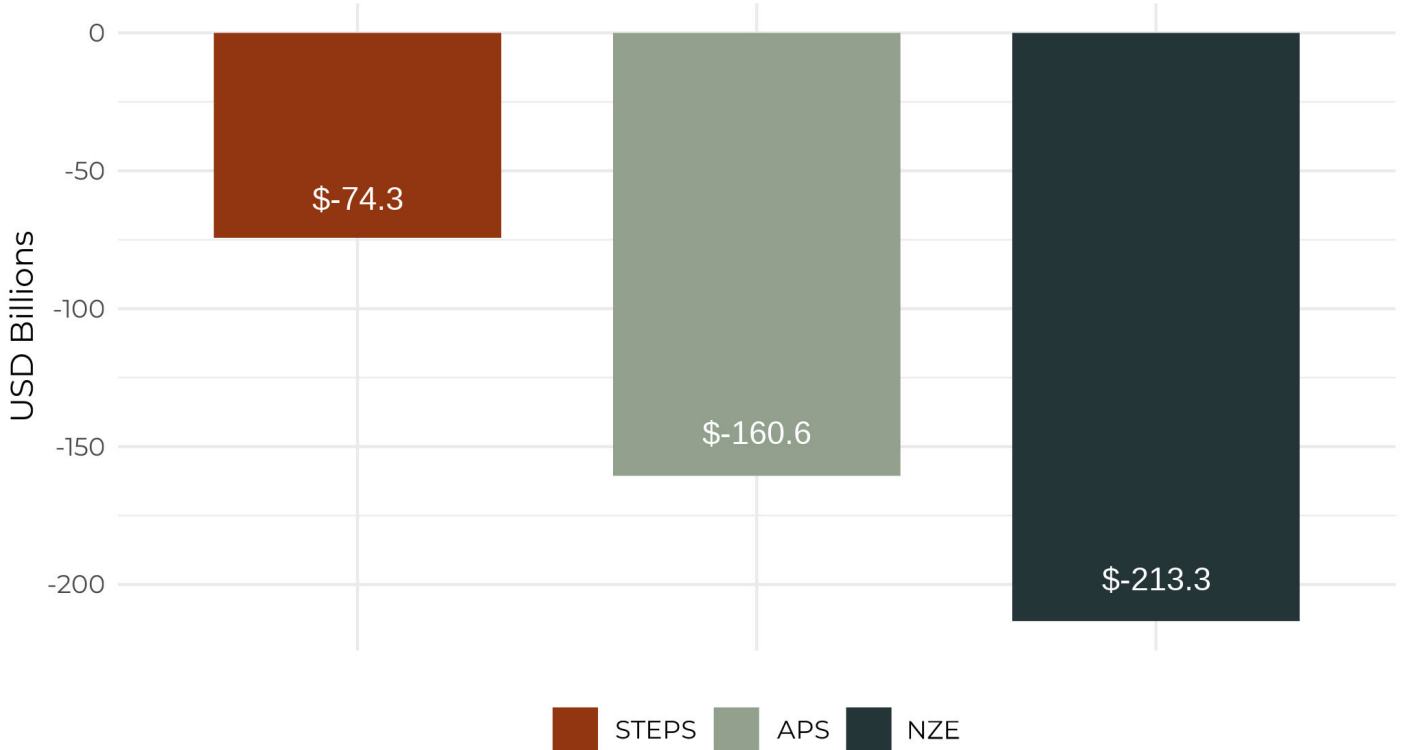


This assessment of stranded asset risks is based on the breakeven oil prices, which are calculated as a forward-looking metric and the economic (un)viability of future investment in oil. Accordingly, in the case of exploration blocks, the analyses above show quite clearly that **many of these projects would be extremely risky in any of the IEA energy transition scenarios.** Moreover, our results represent a relatively conservative assessment of stranded asset risks: the breakeven analysis presented in this section uses a 10% discount rate, as compared to higher rates used by others, such as Carbon Tracker (2024), which increase the rate of return necessary to make an asset breakeven.

Figure 3 shows the aggregated net present value (NPV) for all the Amazon projects under various oil prices, based on the three IEA scenarios. The NPV provides an estimate of the current value of future expected returns from an oil or gas asset. Accordingly, using estimates of projected oil prices under IEA scenarios, we observe that the aggregate of the NPV of Colombian oil reserves in the Amazon in all three IEA scenarios is overwhelmingly negative.



Figure 3. Net present value of exploration blocks in the Colombian Amazon region (USD Millions)



Source: Author's calculation using Rystad Energy (2025) and Muttitt, (2025)



Even if a few assets within this region may be profitable under certain conditions, the overwhelmingly negative aggregate values of the new fields in the Amazon show that **it would not be economically sound to open up this region to further oil extraction.** Moreover, as shown in Table 2, the economic analysis of Amazon oil fields shows oil reserves at high breakeven prices, making them economically uncompetitive in global markets. Thus, nearly all new fields are likely to become stranded in the NZE scenarios. Overall, this makes any investment in exploring and developing these fields economically questionable.

If economic prospects are already so poor for licensed blocks, there is no reason to believe that the unassigned blocks would have any better prospects, considering similar geology and even longer time horizons in which they would enter operation. Profitability prospects are expected to shrink as the global energy transition advances, making the permanent shelving of unassigned blocks and of assigned blocks with negative NPV in the Colombian Amazon a no-regret policy option from an economic perspective.

Considering such poor economic prospects for new oil and gas fields, especially those oriented toward exports, and the incompatibility of such fields with the Paris Agreement targets, marginal oil and gas producers like Colombia would be best advised to stop issuing new exploration licenses in ecologically critical regions like the Amazon.

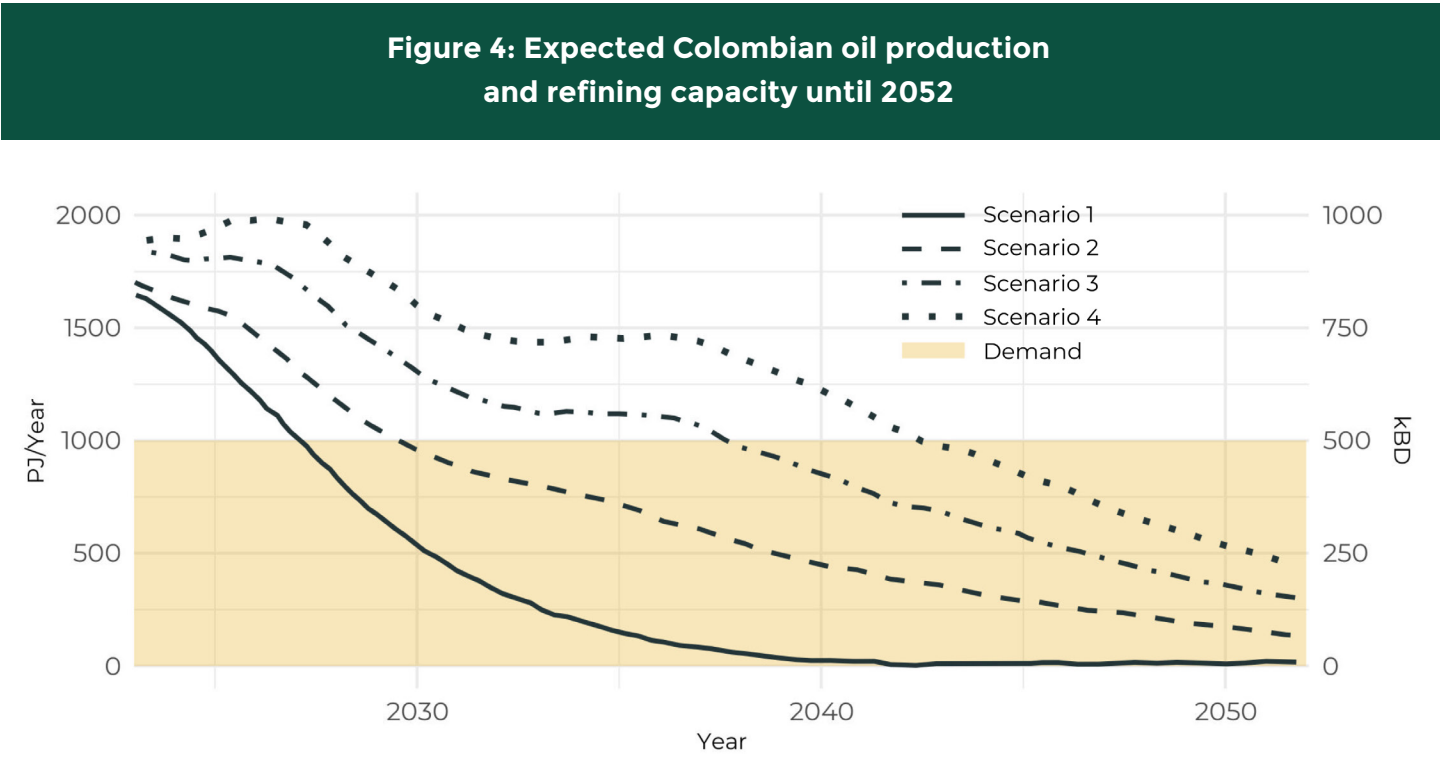


Future Domestic Needs Do Not Require New Oil and Gas Exploration in the Amazon

Domestic oil and gas consumption is also a significant driver of future oil and gas developments in Colombia. Oil and gas represent around 59% of the total primary energy supply and 54% of final energy demand. Oil and its derivatives, which are mostly used in the transportation sector, account for the majority (42%) of this demand (UPME 2024b). Given the expected volatility of international oil and gas markets, partially due to the accelerating energy transition, domestic reserves have earned a greater role in national energy security (idem).

According to the ANH’s 2023 projections, the currently proven reserves (so-called “1P”), which have reached 2,019 million barrels (Mbl) of oil and 2,373 Giga cubic feet (Gcf) of gas, will be sufficient to cover Colombia’s oil and gas demand for 7.1 years for oil and 6.1 years for gas at the current consumption rate. This backdrop of fast-declining reserves in Colombia has strengthened the case for developing and exploiting newly discovered fields to safeguard the country’s energy security in the future (Martínez and Sarmiento 2024). Indeed, recent fossil gas developments have been justified to meet domestic demand (IISD, 2023).

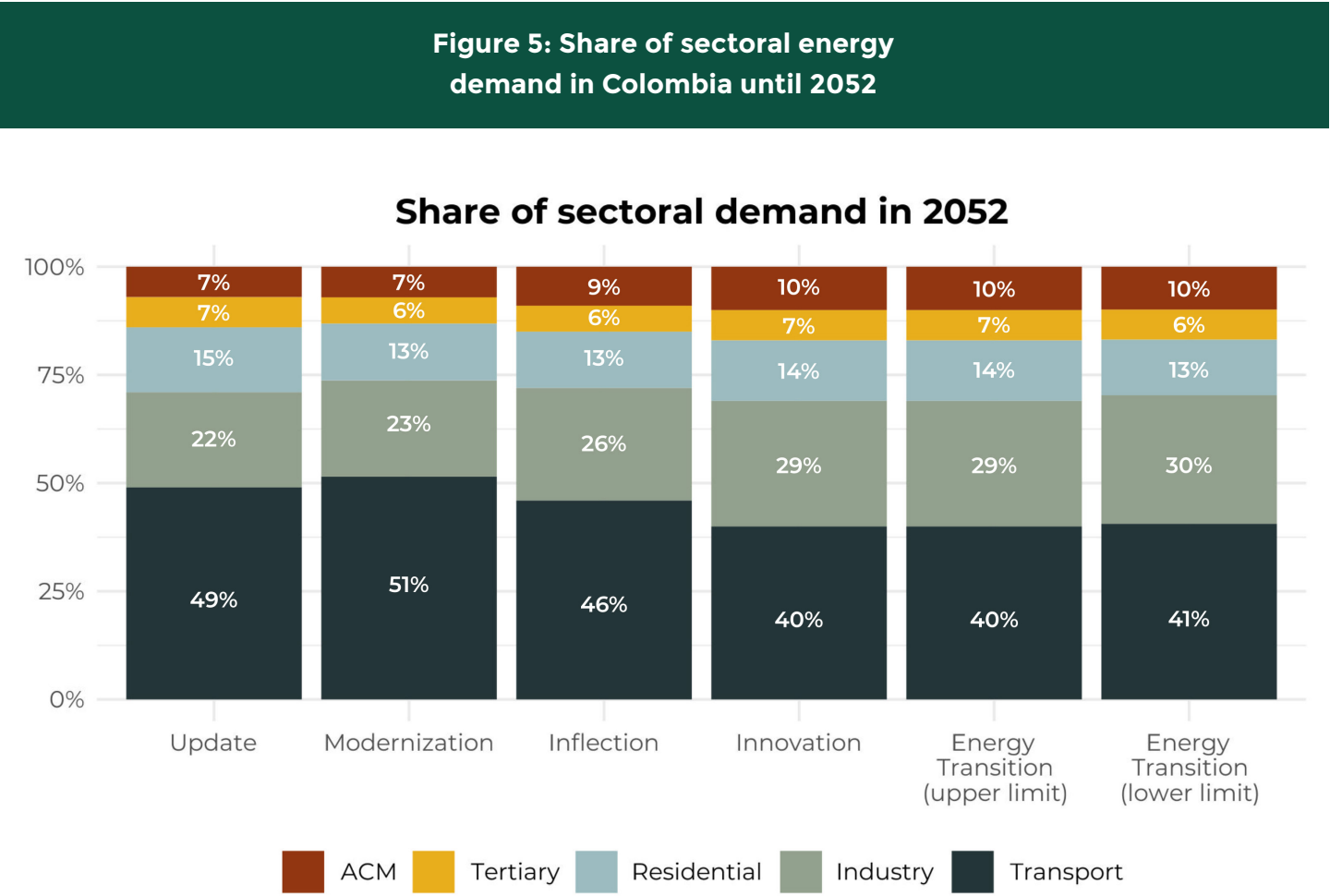
Similarly, although current oil production is largely geared toward exports, the internationally uncompetitive position of Colombian oil producers has bolstered the economic relevance of the domestic market for the country’s producers. Although some companies have floated the export potential of new discoveries, the push for new exploration is largely framed around domestic energy security (Martínez and Sarmiento 2024). Regardless of new developments, all current national energy planning scenarios expect Colombia’s oil imports to increase considerably from 2030 onwards, with the country becoming a net importer of oil in the 2040s. Those scenarios expect national production to dip below the country’s refining capacity between 2030 and 2045, as seen in Figure 4 (UPME 2024b).



Source: Adapted from Colombia’s National Energy Plan (UPME, 2024b)

The push to expand oil exploration in Colombia is of critical relevance to the Amazon given that a very large majority of the existing blocks in the region contain mostly oil. Guaranteeing a return on any future oil development in the Amazon geared towards domestic consumption likely requires selling the fuel at much higher prices than international ones, which will force Colombian consumers to pay the difference, either directly, or indirectly through substantial government subsidies to lower prices. Similar findings have been made by IISD (2023) when assessing the economic prospects of offshore gas developments in Colombia. This is a clear risk to the prospects of financing the national energy transition, which is fundamental to safeguard the country’s long-term energy security.<sup>15</sup>

Against this backdrop of decreasing domestic reserves and production, fossil fuel demand from the transport sector will remain a major driver of energy imports in Colombia and thus a major energy security risk (Martínez and Sarmiento 2024). Colombia’s current available scenarios project that the transportation sector will continue to be the dominant consumer of oil through 2050. As shown in Figure 5, the current National Energy Plan (PEN 2022–2052) expects transportation’s portion of energy consumption to evolve from 52% of total energy demand in 2022 to between 40% and 51% under different energy scenarios. Meanwhile, oil’s share in transportation is expected to decline between 6% to 75% below 2021 levels (UPME 2024). It is important to note that none of the energy scenarios considered in the current PEN would achieve the emissions reduction targets of 51% reductions by 2030 that Colombia established in its 2021 NDC (UPME 2024b).



Source: Adapted from Colombia’s National Energy Plan (UPME, 2024b)



While all scenarios reflect the Colombian government's ambition to move toward electric mobility powered by renewable energy, the pace of such transition differs considerably among scenarios, particularly due to the long lifespan of the existing vehicle fleet. The speed of such transition to electric mobility has deep implications for Colombia's energy security: the faster the transition, the lower the oil import requirements. This highlights the strategic relevance of reducing the continued reliance on fossil fuel use in transportation for Colombia's energy security and underscores the need for deep policy interventions.

The most ambitious scenario of the PEN 2052 foresees a 100% share of electric vehicles sales by 2052 and an accelerated penetration of heavy-duty vehicles using hydrogen and LNG, with an estimated 23,000 to 40,000 hydrogen vehicles, and between 32,000 and 40,000 LNG-fueled vehicles by 2052 (UPME 2024b). This policy scenario achieves a faster transition to lower demand and use of oil as transport fuel. An even more ambitious version of PEN (PEN 2024-2054), currently under consideration by the government, would include for the first time scenarios consistent with Colombia's international emission reduction commitments, such as the NDC and the net-zero-by-2050 goal enshrined in the Climate Act (2169/2021). The new PEN is expected to be launched in the third quarter of 2025 (UPME 2024a).

To further address the energy security risks and economic costs of a slow domestic energy transition, recent government plans, such as the Just Energy Transition Roadmap, underscore an accelerated decarbonisation of the transport sector compared to the PEN scenarios (Min Energia 2023b). Key proposals include scaling up national rail infrastructure for both passenger and freight transport, speeding up the adoption of electric vehicles, and increasing the conversion of internal combustion engine vehicles in the national market to electric or hybrid engines.

Considering this growing ambition of energy transition strategies in Colombia can help rightsize the energy security case for

expensive new exploration activities, especially in ecologically critical and economically uncompetitive areas like the Amazon. Oil and gas production in the Colombian Amazon peaked at 50 kbbl/d in 2024. Rystad Energy (2025) expects both to decline rapidly, with production forecasted to drop to about half of the current level in just 10 years. The 33 exploration licenses currently awarded in the Amazon would barely generate about 2 kbbl/d of oil by 2035 if all the development milestones were met without any delays (highly unlikely). This is a very small share of the national refining capacity of around 450kbbl/d shown in Figure 4, and even a smaller share of projected national demand (which varies a lot depending on the scenario considered but is always higher than the national refining capacity).

Developing such oil and gas reserves in the Amazon would thus add little value to Colombia's energy security while seriously undermining national climate and biodiversity goals. A more rewarding strategy in the medium- and long-term, consistent with the government's own just energy transition roadmap, would be to gradually reduce the share of oil destined for export, prioritize the remaining reserves to meet shrinking domestic energy needs, and redirect public investment away from risky exploration projects toward accelerating clean transport and renewable energy systems. This would help Colombia strengthen its energy sovereignty, protect biodiversity, and deliver a more just and sustainable transition.

## Policy Considerations to Stop Oil and Gas Expansion in the Colombian Amazon

Considering the poor economic prospects for prospective new oil and gas fields and the incompatibility of such fields with the Paris Agreement and the GBF goals, as well as with Colombia's domestic environmental commitments, stopping the issuing of new exploration licenses altogether would be the safest pathway to safeguard Colombia's international climate and environmental leadership. This is particularly the case for ecologically and culturally critical regions like the Amazon.

In this section, we explore policy considerations that can guide the way forward to halt oil and gas expansion in the Colombian Amazon and move toward a just, legally safe transition from fossil fuels.

### There are Several Pathways to Permanently Shelve Unassigned Blocks

According to the Decree 714 of 2012, any decision to change the classification of oil and gas blocks in the *Mapa de Tierras* corresponds to the ANH's *Consejo Directivo*, who are nominated by the government. Thus, although blocks may be shelved by the ANH at a given time, they may be made available again in the future given shifts in public policy. However, the ANH must abide by binding decisions taken by other public authorities to designate certain areas as reserved or excluded fossil fuel activities (ANH 2017).

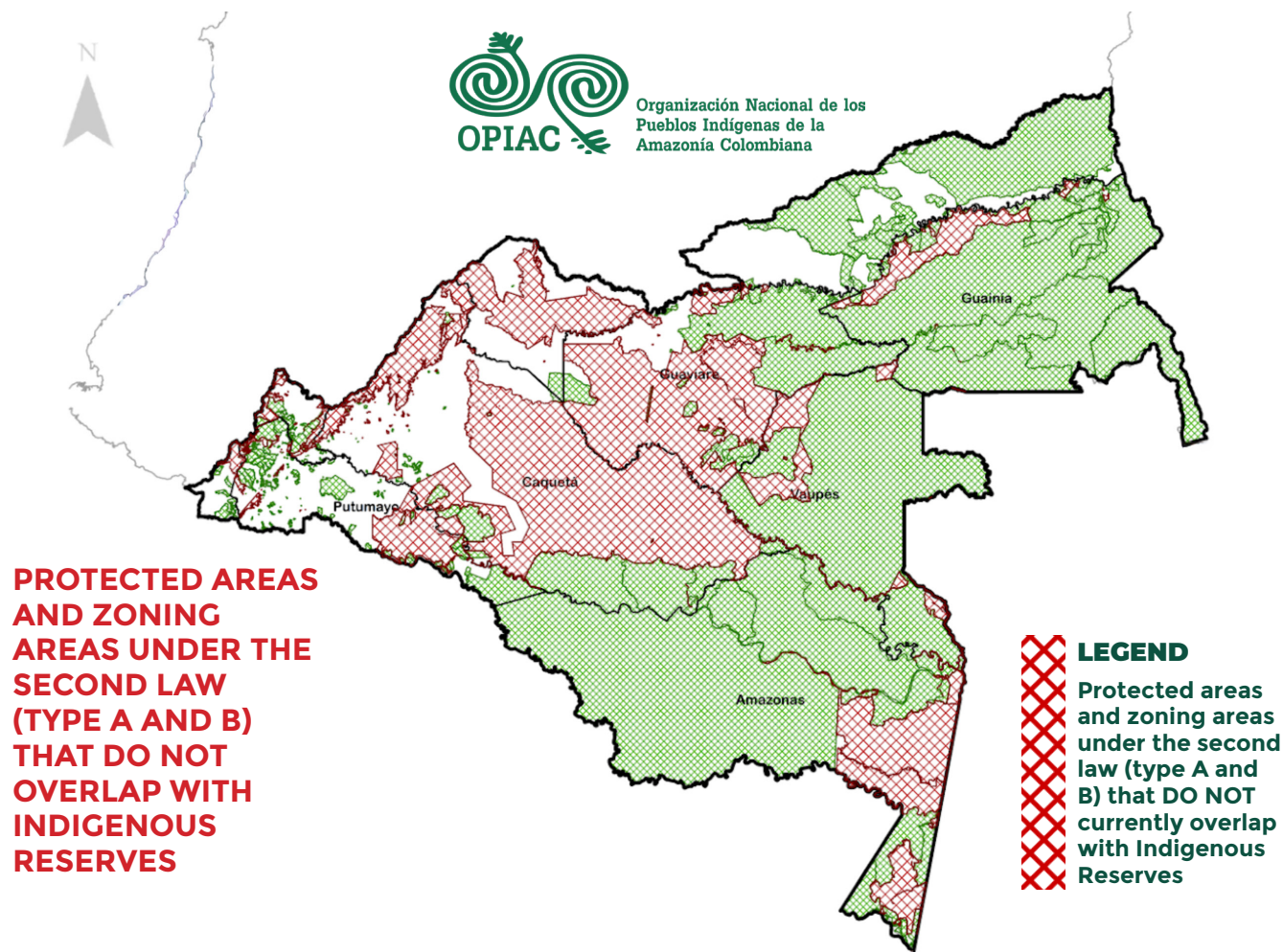
The creation of area-based conservation measures forbidding the expansion of oil activities as well as decisions to recognise and safeguard IPs, LCs and ADs land tenure can thus be effective strategies to permanently shelve oil and gas blocks. Their implementation, however, needs to be closely monitored to ensure its effectiveness and avoid loopholes that allow again for fossil fuel activities.<sup>16</sup> An effective strategy to avoid future rollbacks could involve filing an application to include all Amazonian protected areas and IPs, LCs and ADs recognised territories in UNESCO's World Heritage List.<sup>17</sup>



Women from across the Colombian Amazon gather for the launch of "Chagra Viva" to strengthen ancestral farming and Indigenous knowledge. Image credit: Courtesy of OPIAC.

As mentioned above, the National Organisation of Indigenous Peoples of the Colombian Amazon (OPIAC) has put forward a proposal to legally recognise an additional 13 million hectares of Indigenous territories, coloured red in Map 5 below. Such expansion would contribute to an enhanced conservation of critical biodiversity corridors identified by the Amazon Institute for Scientific Research (SINCHI 2019) as well as certain Key Biodiversity Areas. The expansion of such territories would also contribute to upholding Indigenous Peoples' fundamental rights and resilience vis-à-vis extractive industries.





Source: OPIAC (2024).

By **merging** the protected areas and the zoning areas under the second law (type A and B) that DO NOT currently overlap with Indigenous Reserves, we find that there are approximately **13 million hectares** that can be expanded as Indigneous territorios, with legal security, and under the management and territorial governance of the Indigenous Peoples of the Colombian Amazon.

However, new protected areas and Indigenous territories may not cover the whole Amazon region. In that case, the most effective way to ensure the permanent shelving of oil and gas blocks would be via a national Legislative Act. Some Representatives and Senators of the Colombian Congress presented an Act last April that would forbid the exploration and production of fossil fuels in the Amazon region by reforming Article 360 of the Constitution (Cámara de Representantes 2025). Similar proposals have been made in the last five years but to no success (Cámara de Representates 2021). Although the Act is supported by congresspeople from the current government coalition as well as some independent parties, it seems unlikely they will achieve both gathering the support of an absolute majority of Congress and finalizing the constitutional reform procedure ahead of the next parliamentary elections in March 2026. Considering the political and procedural challenges facing the legislative route, an alternative would be for the government to shelve or reserve all available blocks in the Amazon via an administrative act. To increase its chances of being permanent, the government could ground such decisions in Colombia’s international commitments, including multilateral environmental agreements like the CBD, the UNFCCC or the Escazú Agreement as well as non-binding initiatives like BOGA and political declarations. It could also make reference to the principles of precaution, progression and non-regression in international environmental law (Vordermayer-Riemer 2020) and the ecological function of property, all recognised in Colombia’s Constitution and constitutional jurisprudence (Corte Constitucional de Colombia 1992, 2016). While such formal aspects may not make the administrative act permanent, it would significantly raise the legal and political hurdles for reversing it, and also be helpful in defending it against legal or arbitration challenges.

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## Planning for a Managed Decline of the Fossil Fuel Industry

As Colombia’s Amazon producing oil and gas wells continue to mature and decline, unless significant resources are discovered and exploited, the region faces an inevitable phase-out of fossil fuel production. Rather than reacting to this decline by scaling up exploration activities, the government should proactively develop a strategy for transitioning away from fossil fuel production in a just, orderly and equitable manner –one that ensures that the decommissioning of oil and gas infrastructure meets the highest environmental and social standards. This includes a planned and well-managed well closure and site restoration that complies with the polluter-pays principle, along with long-term environmental monitoring to avoid legacy pollution that could jeopardize ecosystems and community health (Stanley et al. 2018; Pinilla and Tibocha 2021; IGF 2021; Ángel 2019).

A managed decline that pursues a just transition away from fossil fuels must also be participatory (Atteridge and Strambo 2020; Alvarez and Castaneda 2023; Vargas Guevara et

al. 2022). In addition, workers and communities dependent on oil extraction activities as well as communities directly affected by fossil fuel operations—including IPs, LCs and ADs—should have a central role in shaping the transition. Public dialogues and territorial planning processes, such as those launched by the current government in other fossil fuel-dependent regions (Min Energia 2024a; 2024b), or the ones conducted during the creation of the national Just Energy Transition Roadmap (Min Energia 2022b), can help identify locally-appropriate economic alternatives, protect cultural and environmental values, and ensure that the burdens and benefits of the transition are fairly distributed.

This inclusive approach can foster trust, prevent conflict, and build the social foundation needed for a just transition in the Amazon region. Planning now will allow Colombia to align its energy transition with community resilience and economic justice, rather than being forced into abrupt or disorderly shifts later.



## The Amazon Has Very Promising Biological and Human Capital

Colombia has a very promising economic path in preserving and leveraging the Amazon’s unparalleled biological and human capital. The Amazon is not only one of the most biodiverse regions on the planet, but also home to numerous Indigenous Peoples whose knowledge systems, cultural heritage, and stewardship have preserved this ecosystem for generations.

Colombia can channel investment toward sectors aligned with long-term sustainability and global demand trends. The bio-economy, which has been identified by the last two governments as a strategic policy and investment area (Gobierno de Colombia 2020; 2024), offers opportunities to develop high-value, forest-compatible products rooted in traditional knowledge and scientific innovation. For instance, recent case studies have shown the potential for the development of value chains around local crops that could be created following high social and environmental standards, such as cassava and açai<sup>18</sup> (Canales and Trujillo 2023; Trujillo et al. 2025). The launch of the Cali Fund at the CBD COP16 under Colombia’s leadership (CBD 2025), as well as the \$40 billion climate investment plan, may offer additional sources of revenue to support conservation of the rich Amazonian biodiversity, direct financing to Indigenous Peoples, and new economic activities for local communities.

Similarly, sustainable tourism built around the Amazon’s ecological richness and cultural diversity can create jobs and revenue without degrading the environment if made in a responsible way and centered around community-based tourism and co-governance with Indigenous Peoples (Quintana Arias 2018). While experiences in such hotspots of the Amazon as Leticia underscore the risks of poorly-managed tourism and eco-tourism (Ramirez Jimenez 2024), there are also positive examples on which the government could build to promote sustainable tourism in the region, such as the growing eco-tourism sector in Florencia, Caquetá (López et al. 2024),



which has traditionally been an oil producing region. Ecotourism has been already identified as a strategic priority of the government to promote sustainable development in the region (Min Comercio, Industria y Turismo 2024).

Small-scale, distributed renewable energy projects—especially solar and micro-hydro—can meet local energy needs, foster energy sovereignty, and avoid the ecological footprint of extractive infrastructure. The majority of the Amazon region is not interconnected or off-grid, including regions like Putumayo where fossil fuel extraction has done little to reverse one of the largest urban-rural gaps in electricity access in Colombia (UPME 2020). The Colombian government’s current focus and approach for such areas is promoting energy communities via policies that provide finance and other support like capacity building to community-led renewable energy projects in vulnerable regions of the country (Min Energia, n.d.).

By protecting the Amazon and supporting its communities, Colombia can leverage its domestic commitments and international leadership to attract foreign investments in these sustainable growth sectors (NatureFinance 2024). This approach ensures a more resilient, inclusive, and forward-looking economy for Colombia and the Amazon than any future tied to declining oil and gas reserves.



Portales del Fragüita, en San José del Fragua, Caquetá.  
Image credit: Mateo Arteaga/Pexels



## Policy Recommendations

Based on the analysis carried out above, and considering the current international and domestic political context, the following policy options could constitute a legally-sound and effective political strategy for Colombia:

### 1. Permanently shelve all the unassigned oil and gas blocks in the Amazon by:

- Canceling all ongoing and future awarding rounds for oil and gas blocks in the Colombian Amazon region.
- Removing the blocks currently considered “available” from the Mapa de Tierras and categorising them as Reserved Areas either for their strategic ecological value, if they overlap with Key Biodiversity Areas (KBAs) or similar, or for reasons of social cohesion if they overlap with the lands of Indigenous Peoples, local communities and afro-descendants (IPs, LCs and ADs) (Earth Insight 2024).
- Introducing national legislation to permanently remove unassigned blocks from the Amazon region, grounding it on Colombia’s international commitments, including multilateral environmental agreements like the CBD, the UNFCCC or the Escazú Agreement as well as non-binding initiatives like BOGA and other political declarations.

### 2. Defend and restore the Amazon’s rich biodiversity and ecological integrity by:

- Including all recognized KBAs in the Amazon under effective, area-based conservation measures, aligned with the Kunming Montreal Global Biodiversity Framework Target 3, stopping any new fossil fuel activity, including any expansion in overlapping assigned blocks.
- Increasing the Indigenous territories under environmental governance schemes based on traditional knowledge systems.
- Declaring the entire Colombian Amazon a natural and cultural heritage, building on the 2018 jurisprudence of the Colombian Supreme Court on the Amazon’s right to be protected, preserved and restored (Eco Jurisprudence Monitor 2024), and submitting it to be included in UNESCO’s World Heritage List.
- Strengthening the environmental and social standards and their application, so that any potential future licenses for oil and gas developments resulting from existing contracts (i.e., wells, pipelines, railroads, roads, etc.) would only go ahead upon the fulfillment of the highest standards, including Free, Prior and Informed Consent (FPIC).
- Leveraging the Amazon’s bioeconomic potential—including bioeconomy sectors and sustainable tourism—by fully integrating them into national and regional economic plans and channeling finance towards them from such innovative mechanisms as the Tropical Forest Forever Facility (TFFF).

### 3. Safeguard the rights and livelihoods of Indigenous Peoples and other affected communities by:

- Implementing OPIAC’s demands to legally recognise the expansion of approximately 13 million hectares of Indigenous territories in the Amazon region.
- Widening the mandate and capacities of Indigenous environmental authorities and their oversight, consent, and leadership in territorial planning processes.
- Defending Indigenous knowledge systems as a pillar of environmental conservation and restoration efforts, as well as bio-economic practices, and ensuring the fair sharing and direct access to the proceeds of the Cali Fund and the TFFF.
- Ensuring affected communities’ rights to co-design or reject extractive projects in their territories and strengthening the effectiveness of consultation procedures to guarantee FPIC.
- Launching a region-wide consultation procedure on economic diversification, the social protection of affected communities, labour re-skilling and other elements of a just transition in the Amazon.

### 4. Consolidate Colombia’s commitment to transition away from fossil fuels by:

- Planning for a legally-sound managed decline of oil and gas and other extractive industries in the Amazon region on the basis of the polluter-pays principle, including the industry’s responsibility for well closure, site restoration, and long-term environmental monitoring to avoid legacy pollution.
- Carrying a case by case evaluation of the 33 exploration licenses currently awarded in the Amazon, engaging investors and shareholders of the companies involved, including the National Oil Company Ecopetrol, before any further investment decisions are made, assessing their economic viability, environmental and social impacts, as well as the legal risks of further expansion.
- Supporting small-scale, distributed renewable energy projects in the Amazon, such as solar and micro-hydro projects, as well as reinforcing local energy communities.

### 5. Leverage Colombia’s Environmental and Climate Diplomacy:

- Anchoring Colombia’s leadership in diplomatic initiatives like the Beyond Oil and Gas Alliance and the Fossil Fuels Non Proliferation Treaty Initiative by committing to a concrete timeline to transition away from fossil fuels in Colombia’s new Nationally Determined Contribution (NDC), with priority on the Amazon region, and aligning domestic policy, planning documents, and investment plans with such timeline.
- Leveraging Colombia’s leadership within the Amazon Cooperation Treaty Organization (ACTO) to build on the Belem and Cali Declarations in the 2025 ACTO Summit to strengthen the region’s leadership on transitioning away from fossil fuels and combating deforestation at the UNFCCC COP30.



Methodology

Annex 1: Spatial Analysis Methodology

Data Disclaimer:

The geospatial analyses in this report are an attempt to capture threats to the Colombian Amazon using the most recently available, most accurate and precise data and methods available. As such, the results of these analyses may change between reports as data and/or methods are updated. The Colombian Agencia Nacional de Hidrocarburos (ANH) regularly releases updated maps of oil and gas blocks. The World Database of Key Biodiversity Areas (WDKBA) releases regular updates based on national assessment processes. The World Database on Protected Areas (WDPA) has known data inconsistencies due to national government data reporting. We have accounted for these inconsistencies wherever possible.

Earth Insight takes a precautionary approach to estimating the potential area under oil, gas, and mining threats. Oil and gas data used in the analyses in this report include active production blocks as well areas under multiple stages of exploration and permitting. This approach provides the most expansive view of areas under threat of extractive industries.

Oil and Gas Blocks

The extent of oil and gas blocks was compiled by Earth Insight based on the February 2025 Mapa de Tierras released by the Colombian Agencia Nacional de Hidrocarburos (ANH) and previously released data.

For the purposes of this analysis, oil and gas blocks were re-categorized into four stages: production blocks, exploration blocks, unassigned blocks, and shelved blocks. Production blocks are blocks in which companies hold active production licenses. Exploration blocks are blocks where companies hold exploration licenses, as well as blocks in (technical) evaluation. Unassigned blocks are areas where there is no active license or contract awarded for exploration or production but are areas where future oil and gas activities could occur in the future. Shelved blocks have been identified by Earth Insight as blocks that were present in previous versions of the ANH’s Mapa de Tierras but have been removed from production, exploration and/or unassigned areas. These blocks are included as a distinct shelved category because of the concern that the decision to shelve blocks could be reversed or criteria used could change. Land designated as Reserved Areas (Areas Reservadas) and Crystalline Basement (Basamento Cristalino) in the ANH Mapa de Tierras are not included in this analysis.

The number of oil wells in Putamayo was calculated by selecting active oil wells from the well data from the Servicio Geologico Colombiano (2024), and intersecting that selection with Level 1 data from the Global Database on Administrative Areas.

Forest Cover

The forest cover area under oil and gas blocks was calculated by intersecting the JRC Tropical Moist Forest (TMF) cover product (Vancutsem et al., 2021) with the oil and gas layer using Zonal Histogram, and then summarizing the number of pixels by country. The Copernicus Global Land Service, derived from the PROBA-V satellite, was used for visualization (Buchhorn et al., 2020).

Key Biodiversity Areas

The area of KBAs under oil and gas blocks was calculated by intersecting the WDKBA layer (BirdLife International, 2024) using the intersection tool. To find the number of KBAs that overlap with oil and gas activity, we grouped to find the unique instances of KBA by name.

Protected Areas

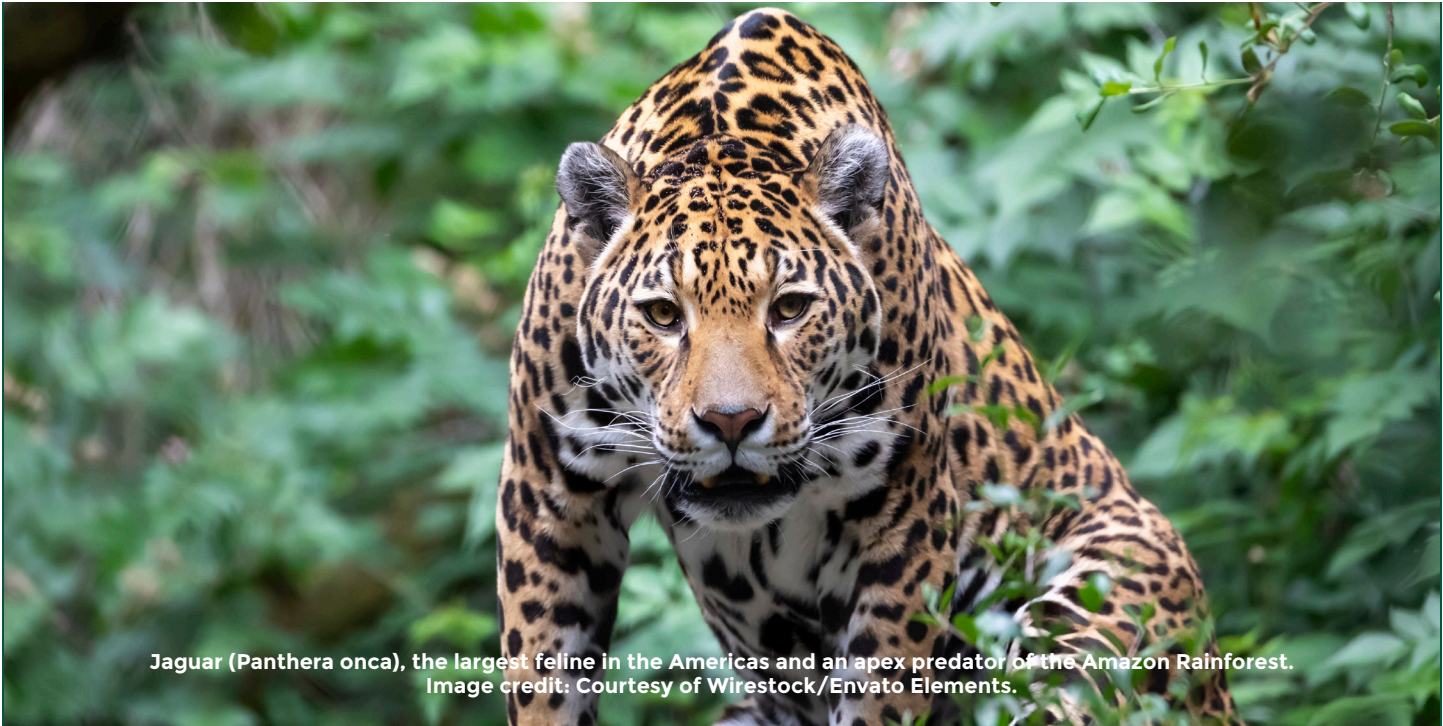
The protected areas data used in this analysis are from the World Database of Protected Areas (UNEP-WCMC and IUCN, 2025). Protected areas include strict nature reserves, national parks, and protected areas with sustainable use of natural resources.

The area of PAs under oil and gas blocks was calculated by intersecting the WDPA layer using the intersection tool. To find the number of PAs that overlap with oil and gas activity, we grouped to find the unique instances of PA by name.

Indigenous Peoples, Local Communities, and Afro-descendant Lands

Indigenous Peoples, local communities, and afro-descendant lands are represented using the Resguardos Indigenas (Indigenous Reserves), Consejos Comunitarios (Community Councils), and Zonas de Reserva Campesina Constituida (Peasant Reserve Zones) from the Colombian Agencia Nacional de Tierras. These spatial datasets represent Indigenous, local community, afrodescendent and peasant lands that are recognized by the Colombian government. These datasets, and therefore our analysis, do not include IP, LC, or AD lands that are in the process of being titled and/or recognized. Customary Indigenous lands are also not included in this dataset, and notably customary IP and LC lands are usually more extensive than recognized lands.

The datasets for resguardos indigenas, consejos comunitarios, and zonas de reserva campesina constituida were combined into a single layer. This layer was intersected with the oil and gas layer using the intersection tool, and the area was summed by community land type. To find the number of communities that overlap with oil and gas activity, we grouped by community name to find the unique instances of community overlap.



Jaguar (Panthera onca), the largest feline in the Americas and an apex predator of the Amazon Rainforest. Image credit: Courtesy of Wirestock/Envato Elements.

Data Sources

**Country Boundaries:** Global Database of Administrative Areas - GADM (v. 3.6) [dataset]. Available at <https://gadm.org/index.html>

**Amazon Basin:** RAISG (2024). Amazon Basin - RAISG Limits [dataset]. Available at <https://www.raisg.org/en/maps/>

**Exclusive Economic Zone:** Flanders Marine Institute (2020). Union of the ESRI Country shapefile and the Exclusive Economic Zones (version 3). Available online at <https://www.marineregions.org/>. <https://doi.org/10.14284/403>

**Oil and Gas Blocks:** Earth Insight (2025) Oilbase; Agencia Nacional de Hidrocarburos (2025). Mapa de Tierras, February 2025 [dataset]. Available at <https://geovisor.anh.gov.co/tierras/>

**Wells:** Servicio Geológico Colombiano (2024).Banco de Información Petrolera: Pozos [dataset]. Available at [https://www.datos.gov.co/dataset/Banco-de-Informaci-n-Petrolera-Pozos/4dai-7crq/about\\_data](https://www.datos.gov.co/dataset/Banco-de-Informaci-n-Petrolera-Pozos/4dai-7crq/about_data)

**PROBA-V Forest Cover:** Buchhorn, M.; Smets, B.; Bertels, L.; Lesiv, M.; Tsendbazar, N.-E.; Masiliunas, D.; Linlin, L.; Herold, M.; Fritz, S. (2020). Copernicus Global Land Service: Land Cover 100m: Collection 3: epoch 2019: Globe (Version V3.0.1) [Data set]. Zenodo. DOI: [10.5281/zenodo.3939050](https://doi.org/10.5281/zenodo.3939050)

**Tropical Moist Forest:** C. Vancutsem, F. Achard, J.-F. Pekel, G. Vieilledent, S. Carboni, D. Simonetti, J. Gallego, L.E.O.C. Aragão, R. Nasi. (2021). Long-term (1990-2019) monitoring of forest cover changes in the humid tropics. Science Advances

**Protected Areas:** UNEP-WCMC and IUCN (2025), Protected Planet: The World Database on Protected Areas (WDPA) and World Database on Other Effective Area-based Conservation Measures (WD-OECM) [Online], March 2025, Cambridge, UK: UNEP-WCMC and IUCN. Available at: [www.protectedplanet.net](http://www.protectedplanet.net).

**Key Biodiversity Areas:** BirdLife International (2024) World Database of Key Biodiversity Areas. Developed by the KBA Partnership: BirdLife International, International Union for the Conservation of Nature, American Bird Conservancy, Amphibian Survival Alliance, Conservation International, Critical Ecosystem Partnership Fund, Global Environment Facility, Re:Wild (formerly Global Wildlife Conservation), NatureServe, Rainforest Trust, Royal Society for the Protection of Birds, Wildlife Conservation Society and World Wildlife Fund. June 2024 version. Available at <http://keybiodiversityareas.org/kba-data/request>

**IP, LC, and AD lands:** Agencia Nacional de Tierras (2025). Consejos Comunitarios [Data set] Available at <https://data-agenciadetierras.opendata.arcgis.com/> ; Agencia Nacional de Tierras (2025). Resguardos Indigenas [Data set] Available at <https://data-agenciadetierras.opendata.arcgis.com/> ; Agencia Nacional de Tierras (2025). Zonas de Reserva Campesina [Data set] Available at <https://data-agenciadetierras.opendata.arcgis.com/> Irrecoverable Carbon: Noon M, Goldstein A, Ledezma JC, Roehrdanz P, Cook-Patton SC, Spawn-Lee SA, Wright TM, Gonzalez-Roglich M, Hole DG, Rockström J, and Turner WR 2021. Mapping the irrecoverable carbon in Earth’s ecosystems. Nature Sustainability. DOI: [10.5281/zenodo.4091029](https://doi.org/10.5281/zenodo.4091029).



References

Amazon Cooperation Treaty Organisation (ACTO). 2024. *Foreign Ministers of ACTO Member Countries Approve the Cali Declaration for Amazon Protection*. ACTO. 24 October 2024. <https://otca.org/en/foreign-ministers-of-acto-member-countries-approve-the-cali-declaration-for-amazon-protection/>.

Acuña Cepeda, Nicole. n.d. “Cordillera de los picachos: comunidad, guardaparques y medioambiente en riesgo.” Rutas del Conflicto. Accessed May 2025. <https://rutasdelconflicto.com/especiales/parques-objetivo-guerra/picachos.html>.

Agencia Nacional de Hidrocarburos. 2017. “ACUERDO No. 02 DE 2017” [https://www.anh.gov.co/documents/51/ACUERDO\\_02\\_DE\\_2017.pdf](https://www.anh.gov.co/documents/51/ACUERDO_02_DE_2017.pdf)

----. 2022. “Anexo 1 Acuerdo 03 De 2022 - Glosario De Términos, Unidades Y Equivalencias.” [https://www.anh.gov.co/documents/19040/Anexo\\_1\\_Acuerdo\\_03\\_de\\_2022\\_-\\_Definiciones.pdf](https://www.anh.gov.co/documents/19040/Anexo_1_Acuerdo_03_de_2022_-_Definiciones.pdf).

Alexa. 2022. “¿La Nueva Amerisur?: Petrolera Es Señalada Por Contaminación Y Daños a La Salud Por Pueblo Siona.” Noticias Ambientales. March 24, 2022. <https://es.mongabay.com/2022/03/la-nueva-amerisur-petrolera-es-senalada-por-contaminacion-y-danos-a-la-salud-por-pueblo-siona/>.

Alvarez, Andres & Brigitte Castaneda. 2023. ‘Preparando La Transicion Energetica Justa En Las Regiones: Analisis de Impactos Macroeconomicos’. 2023. [https://uniandes.edu.co/sites/default/files/asset/document/00informe\\_transicion\\_energetica\\_en\\_colombia-comprimido.pdf](https://uniandes.edu.co/sites/default/files/asset/document/00informe_transicion_energetica_en_colombia-comprimido.pdf).

Ángel, Andres. 2019. ‘Impactos a Perpetuidad’. *Ideas Verdes* 10:12-15.

Amazon Watch, Asociación Ambiente y Sociedad, Alianza de Organizaciones por los Derechos Humanos de Ecuador, Asociación Minga, AIDA, La Confederación de Nacionalidades Indígenas del Ecuador, CONAIE, Corporación Acción Ecológica, et al. 2023. “Abusos corporativos de empresas canadienses en el sector petrolero en Colombia, Ecuador y Perú.” Report. <https://amazonwatch.org/assets/files/2023-04-25-un-upr-canada-oil-report.pdf>. Accessed May, 2025.

Ambiente y Sociedad. 2023. “Colombia: pueblo Inga celebra la salida de petrolera de su territorio pero temen no ser consultados en futuros proyectos”. *Asociación Ambiente y Sociedad*. Editorial. 15 February 2023. <https://www.ambienteysociedad.org.co/colombia-pueblo-inga-celebra-la-salida-de-petrolera-de-su-territorio-pero-temen-no-ser-consultados-en-futuros-proyectos/>

Arias-Gaviria, Jessica, Cesar Freddy Suarez, Veronica Marrero-Trujillo, J. Camilo Ochoa P, Clara Villegas-Palacio, and Santiago Arango-Aramburo. 2021. “Drivers and Effects of Deforestation in Colombia: A Systems Thinking Approach.” *Regional Environmental Change* 21 (4). <https://doi.org/10.1007/s10113-021-01822-x>.

Atteridge, Aaron, and Claudia Strambo. 2020. ‘Seven Principles to Realize a Just Transition to a Low-Carbon Economy’. Stockholm Environment Institute (SEI). <https://cdn.sei.org/wp-content/uploads/2020/06/seven-principles-for-a-just-transition.pdf>.

Avellaneda, Alfonso. 1990. ‘Petróleo e impacto ambiental en Colombia’. *Revista de la Universidad Nacional*, 6(24), pp. 21-28. <https://revistas.unal.edu.co/index.php/revistaun/article/view/12208>

Bois von Kursk, Olivier, Greg Muttitt, Angela Picciariello, Lucile Dufour, Thijs Van de Graaf, Andreas Goldthau, Diala Hawila, et al. 2022. ‘Navigating Energy Transitions: Mapping the Road to 1.5°C’. International Institute for Sustainable Development. <https://www.iisd.org/publications/report/navigating-energy-transitions>.

Brücher, Wolfgang. 2016. ‘La colonización de la selva pluvial en el piedemonte amazónico de Colombia’. *Boletín De Investigaciones Marinas Y Costeras* 4, Article 583 (January). <https://doi.org/10.25268/bimc.invemar.1970.4.0.583>.

Cámara de Representantes. 2025. *Proyecto de Ley por el cual se modifica el artículo 360 de la Constitución Política de Colombia, con la finalidad de prohibir la exploración, la explotación y la producción de hidrocarburos en la Región Amazónica*. Cámara de Representantes. Proyecto de Ley 582/2025C. 2 April 2025. <https://www.camara.gov.co/prohibicion-hidrocarburos-amazonia>

----. 2021. *Proyecto de Ley por medio del cual se modifica el artículo 360 de la Constitución Política de Colombia, en el sentido de Prohibir la Explotación de Petróleo en la Región Amazónica*. Cámara de Representantes. Proyecto de Ley 188/2021C. 3 Agosto 2021. <https://www.camara.gov.co/prohibicion-explotacion-de-petroleo>

Canales, Nella, & Mónica Trujillo. 2023. ‘The cassava value web and its potential for Colombia’s bioeconomy’. SEI Working Paper. *Stockholm Environment Institute (SEI)*. <https://doi.org/10.51414/sei2023.038>

Centro Nacional de Memoria Histórica (CNMH). 2015. *Petróleo, coca, despojo territorial y organización social en Putumayo*. Bogotá: CNMH. <https://centrodememoriahistorica.gov.co/petroleo-coca-despojo-territorial-y-organizacion-social-en-putumayo/>

Climate Action Tracker. 2022. *Colombia - Targets*. Accessed June 2025. <https://climateactiontracker.org/countries/colombia/targets/>.

Comisión Intereclesial de Justicia y Paz (CIJP). 2021. “Nuevas amenazas contra la integridad de lideresa Jani Silva”. Editorial. 24 April 2021. <https://www.justiciaypazcolombia.com/nuevas-amenazas-contra-la-integridad-de-lideresa-jani-silva/>

Convention on Biological Diversity (CBD). 2025. “The Cali Fund Launches in the Margins of the Resumed Session of COP16.” n.d. Convention on Biological Diversity. <https://www.cbd.int/article/cali-fund-launch-2025>.

Conservation International. N.d. “Irrecoverable Carbon.” <https://www.conservation.org/projects/irrecoverable-carbon>

Corte Constitucional de Colombia. 1992. Sentencia No. T-411/92. Residing judge: Alejandro Martínez Caballero. 17 June 1992. <https://www.corteconstitucional.gov.co/relatoria/1992/t-411-92.htm>

----. 2016. Sentencia C-298/16. Residing judge: Alberto Rojas Ríos. 8 June 2016. <https://www.corteconstitucional.gov.co/relatoria/2016/c-298-16.htm>

Dahl, Mie Hoejris. 2025. “Indigenous Communities Come Together to Protect the Colombian Amazon.” Mongabay Environmental News. January 8, 2025. <https://news.mongabay.com/2025/01/indigenous-communities-come-together-to-protect-the-colombian-amazon/#:~:text=Indigenous%20communities%20are%20increasingly%20recognized,rather%20than%20short%2Dterm%20profits>.

DANE. n.d. ‘Exportaciones’. Accessed 11 July 2022. <https://www.dane.gov.co/index.php/estadisticas-por-tema/comercio-internacional/exportaciones>.

Darby, Megan, Paola Yanguas Parra, and Eduardo Posada Perla. 2024. “Why the International Community Should Back Colombia’s Post-Fossil Fuel Plan”. Climate Home News (blog). 17 November 2024. <https://www.climatechangenews.com/2024/11/17/why-the-international-community-should-back-colombias-post-fossil-fuel-plan/>.

Earth Insight. 2024. “Colombia’s Commitment to Stop Fossil Fuel Expansion.” Briefing Note. 24 October 2024. <https://earth-insight.org/insight/colombia-fossil-fuel/>.

Eco Jurisprudence Monitor. 2024. “Colombia Court Case on the Rights of the Amazon - Eco Jurisprudence Monitor.” September 16, 2024. <https://ecojurisprudence.org/initiatives/colombian-amazon/>.

Erickson-Davis, Morgan. 2025. “Armed Groups, Cattle Ranchers Drove 35% Rise in Colombia’s Deforestation in 2024.” Mongabay Environmental News. April 18, 2025. <https://news.mongabay.com/2025/04/armed-groups-cattle-ranchers-drove-35-rise-in-colombias-deforestation-in-2024/>.

Espinosa, Pilar Puentes. 2025. “Indígenas De La Amazonía Colombiana Denuncian Contaminación Petrolera Y Amenazas De Grupos Armados.” InfoAmazonia, June 18, 2025. <https://infoamazonia.org/es/2025/04/10/indigenas-de-la-amazonia-colombiana-denuncian-contaminacion-petrolera-y-amenazas-de-grupos-armados/>.

FAO and FILAC. 2021. *Forest Governance by Indigenous and Tribal People. An Opportunity for Climate Action in Latin America and*

*the Caribbean*. Santiago, Chile. Food and Agriculture Organization of the United Nations and the Fund for the Development of the Indigenous Peoples of Latin America and the Caribbean. Accessed June 2025. <https://openknowledge.fao.org/items/361a142c-ba6f-49bc-89e9-7f7153adffac>

FFNPT. 2023. “Colombia Joins Call for Fossil Fuel Treaty, Strengthening International Climate Leadership”. The Fossil Fuel Non-Proliferation Treaty Initiative. 2023. <https://fossilfueltreaty.org/colombia-press-release>.

Global Forest Watch. 2024. “What Are Primary Forests and Why Should We Protect Them? | Forest Insights | Global Forest Watch Blog.” Global Forest Watch Content. March 20, 2024. <https://www.globalforestwatch.org/blog/forest-insights/primary-forests-definition-and-protection/>.

----. n.d.a “Colombia Deforestation Rates & Statistics | GFW.” <https://www.globalforestwatch.org/dashboards/country/COL/?category=forest-change>.

----. n.d.b “Putumayo, Colombia Deforestation Rates & Statistics: Tree-cover loss by type [Data dashboard]. <https://www.globalforestwatch.org/dashboards/country/COL/23/> Accessed June, 2025.

Gobierno de Colombia. 2025. “Sistema Nacional De Parques Nacionales Naturales: Parques Nacionales Naturales De Colombia.” Accessed June 20, 2025. <https://www.parquesnacionales.gov.co/entidad/sistema-nacional-de-parques-nacionales-naturales/>.

----. 2020. ‘Bioeconomía Para Una Colombia Potencia Viva y Diversa’. *Ministerio de Ciencias*. [https://minciencias.gov.co/sites/default/files/upload/paginas/bioeconomia\\_para\\_un\\_crecimiento\\_sostenible-qm\\_print.pdf](https://minciencias.gov.co/sites/default/files/upload/paginas/bioeconomia_para_un_crecimiento_sostenible-qm_print.pdf).

----. 2024. “Gobierno lanza estrategia para fortalecer la bioeconomía de la mano con el sector empresarial”. *Presidencia de la República*, 3 December 2024. <https://www.presidencia.gov.co/prensa/Paginas/Gobierno-lanza-estrategia-para-fortalecer-la-bioeconomia-de-la-mano-241203.aspx>.

González-González, Andrés, Juan Camilo Villegas, Nicola Clerici, and Juan Fernando Salazar. 2021. “Spatial-temporal Dynamics of Deforestation and Its Drivers Indicate Need for Locally-adapted Environmental Governance in Colombia.” *Ecological Indicators* 126 (April): 107695. <https://doi.org/10.1016/j.ecolind.2021.107695>.

Green, Fergus, Olivier Bois von Kursk, Greg Muttitt, and Steve Pye. 2024. ‘No new fossil fuel projects: The norm we need’. *Science*, 384(6699), pp. 954-957. <https://www.science.org/stocken/author-tokens/ST-1888/full>

Griffin, Oliver. 2021. “Road to ruin: Informal byways sow seeds of destruction in Colombia’s Amazon”. Reuters. 14 April 2021. <https://www.reuters.com/business/environment/road-ruin-informal-byways-sow-seeds-destruction-colombias-amazon-2021-04-14/>. Accessed June, 2025.

Hoffmann, Carolin, Jaime Ricardo García Márquez, and Tobias Krueger. 2018. ‘A Local Perspective on Drivers and Measures to Slow Deforestation in the Andean-Amazonian Foothills of Colombia’. *Land Use Policy* 77 (June): 379-91. <https://doi.org/10.1016/j.landusepol.2018.04.043>.

Instituto Amazónico de Investigaciones Científicas (SINCHI).. 2019. *Prioridades de Conservación de Corredores de Conectividad en la Amazonia Colombiana*. Instituto SINCHI. Consultado el 11 de julio de 2025. <https://ierna.sinchi.org.co/informe/11-prioridades-de-conservacion-de-corredores-de-conectividad-en-la-amazonia-colombiana/>

International Energy Agency (IEA). 2021. ‘Net Zero by 2050: A Roadmap for the Global Energy Sector’. Paris, France: International Energy Agency. <https://www.iea.org/reports/net-zero-by-2050>.

----. 2024. ‘World Energy Outlook 2024’. International Energy Agency. <https://www.iea.org/reports/world-energy-outlook-2024>.

----. 2025. *Chair’s summary: Summit on the future of energy security* [PDF]. [https://iea.blob.core.windows.net/assets/e9c913b8-4efe-4e25-8c50-460f800cc2a6/ChairsSummary\\_FutureofEnergySecurity.pdf](https://iea.blob.core.windows.net/assets/e9c913b8-4efe-4e25-8c50-460f800cc2a6/ChairsSummary_FutureofEnergySecurity.pdf). Accessed June 2025.

IGF. 2021. ‘Estudios de caso: Políticas sobre cierre de minas en América del Sur’. <https://www.iisd.org/system/files/2021-01/igf-case-study-mine-closure-south-america-es.pdf>.

International Institute for Sustainable Development (IISD). ----. 2019. “Paper Describes Colombia’s Efforts to Localize, Achieve SDGs” <https://sdg.iisd.org/news/paper-describes-colombias-efforts-to-localize-achieve-sdgs/>

----. 2023. “Gas Prospects in Colombia”. International Institute for Sustainable Development. 2023. <https://www.iisd.org/publications/brief/gas-prospects-in-colombia>.

----. 2025a. “Canadian Oil and Gas Production in the Global Clean Energy Transition.” <https://www.iisd.org/publications/report/canada-oil-gas-clean-energy-transition>

----. 2025b. “Brazil at a crossroads: Rethinking Petrobras oil and gas expansion”. <https://www.iisd.org/system/files/2025-06/brazil-petrobras-oil-gas-expansion.pdf>

International Panel on Climate Change (IPCC). 2006. “Chapter 2: Generic Methodologies Applicable to Multiple Land-Use Categories.” In *2006 IPCC Guidelines for National Greenhouse Gas Inventories*. Volume 4: Agriculture, Forestry and Other Land Use. [https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4\\_Volume4/V4\\_02\\_Ch2\\_Generic.pdf](https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_02_Ch2_Generic.pdf).

International Union for the Conservation of Nature (IUCN). 2016. “A Global Standard for the Identification of Key Biodiversity Areas : Version 1.0”. IUCN Library System. <https://portals.iucn.org/library/node/46259>.

----. N.d. “IUCN WCPA Protected Area Downgrading, Downsizing, and Degazettement Task Force.” IUCN. <https://iucn.org/our-union/commissions/group/iucn-wcpa-protected-area-downgrading-downsizing-and-degazettement-task>.

Killeen, Timothy J. 2021. “Mineral Commodities: A Small Footprint, a Large Impact and a Great Deal of Money.” In *A Perfect Storm in the Amazon Wilderness*. THE WHITE HORSE PRESS. [https://www.whpress.co.uk/Books/PerfectStorm\\_Ch5\\_WHP\\_2022\\_lowRes.pdf](https://www.whpress.co.uk/Books/PerfectStorm_Ch5_WHP_2022_lowRes.pdf).

Lema, Daqui, and Augusta Vasquez. 2022. “Forced Displacement of Indigenous Peoples in the Amazon Caused by Environmental Hardship: A Case for Human Security.” *Peace Human Rights Governance* 6-6 (2): pp. 159-80. <https://doi.org/10.14658/pupj-phrg-2022-2-4>.

Lo, Joe. 2022. “Colombia’s New President Gustavo Petro Pledges to Keep Fossil Fuels in the Ground.” Climate Home News. June 20, 2022. <https://www.climatechangenews.com/2022/06/20/colombias-new-president-gustavo-petro-pledges-to-keep-fossil-fuels-in-the-ground/>.

López, Salomón Calvache, Esther Julia Olaya Marín, Cesar Omar Jaramillo Morales, and Cristian David Plaza Pérez. 2024. ‘Diversidad y Dinámicas del Ecoturismo en la Amazonia: Estudio de Caso en Florencia- Caquetá, Colombia’. *Historia Ambiental Latinoamericana y Caribeña (HALAC) revista de la Solcha* 14 (3): pp. 553-80.

Martínez, Astrid, and Jesus Daniel Sarmiento. 2024. “La Dependencia Del País y de Los Territorios de Los Hidrocarburos y El Carbón En Colombia y La Necesidad de La Diversificación de Las Exportaciones y de La Producción Ante La Transición Energética” in *Documentos de antecedentes del Informe Nacional de Desarrollo Humano 2024*. United Nations Development Programme. [https://www.undp.org/sites/g/files/zskgke326/files/2024-08/undp\\_co\\_pub\\_13-la-dependencia-del-pais-y-de-los-territorios-de-los-hidrocarburos-y-el-carbon-en-colombia.pdf](https://www.undp.org/sites/g/files/zskgke326/files/2024-08/undp_co_pub_13-la-dependencia-del-pais-y-de-los-territorios-de-los-hidrocarburos-y-el-carbon-en-colombia.pdf)

Martínez, Astrid, & Martha Delgado. 2018. *Estudio sobre el impacto de la actividad petrolera en las regiones productoras de Colombia: Caracterización departamental Putumayo*. Bogotá: Fedesarrollo. <https://www.repository.fedesarrollo.org.co/handle/11445/3616>

Mendoza, J.E., Solano-Gutiérrez, C. L., Gutiérrez-Chacón, C., Moncaleano, A.M., Franco, O. (Eds). 2024. “Parques Nacionales Naturales Colombianos y su aporte a la paz con la naturaleza. Informe 2024”. Parques Nacionales Cómo Vamos. Fundación Natura. Bogotá. D.C. 213pp. <https://parquescomovamos.com/wp-content/uploads/2024/10/Informe-2024-PNCV-Parques-Nacionales-Como-Vamos.pdf>



Min Ambiente. 2023. “El Gobierno Declaró El Parque Nacional Número 61 Para Colombia: Serranía De Manacacías -.” December 2, 2023. <https://www.minambiente.gov.co/el-gobierno-declaro-el-parque-nacional-numero-61-para-colombia-serrania-de-manacacias/>.

Min Comercio, Industria y Turismo. 2024. ‘Así impulsará el Ministerio de Comercio, Industria y Turismo el desarrollo sostenible del Amazonas’. *MINCIT*, 16 May 2024. <https://www.mincit.gov.co/Prensa/Noticias/Turismo/Se-impulsara-el-desarrollo-sostenible-del-Amazonas>.

Min Energía. 2022a. Gobierno reitera que respetará los más de 330 contratos vigentes de exploración y explotación de hidrocarburos. <https://www.minenergia.gov.co/es/sala-de-prensa/noticias-index/gobierno-reitera-que-respetar%C3%A1-los-m%C3%A1s-de-330-contratos-vigentes-de-exploraci%C3%B3n-y-explotaci%C3%B3n-de-hidrocarburos/>

----. 2022b. ‘Dialogo Social Para Definir La Hoja de Ruta de La Transición Energética Justa En Colombia’. <https://www.minenergia.gov.co/documents/9497/HojaRutaTransicionEnergeticaJustaColombia.pdf>.

----. 2023a. ‘Colombia Nuevo Amigo de La Alianza Internacional “Más Allá Del Petróleo y El Gas-BOGA”’. *Ministerio de Minas y Energía* (blog). 31 August 2023. <https://www.minenergia.gov.co/es/sala-de-prensa/noticias-index/colombia-nuevo-amigo-de-la-alianza-internacional-m%C3%A1s-all%C3%A1-del-petr%C3%B3leo-y-el-gas-boga/>.

----. 2023b. ‘Documentos de La Hoja de Ruta de La Transición Energética Justa’. 2023. <https://www.minenergia.gov.co/es/servicio-al-ciudadano/foros/documentos-de-la-hoja-de-ruta-de-la-transici%C3%B3n-energ%C3%A9tica-justa/>.

----. 2024a. ‘El Pacto Es Con La Gente: Diálogos Para La Transformación Del Corredor de La Vida Del Cesar’. Minenergía. 14 June 2024. <https://www.minenergia.gov.co/es/sala-de-prensa/noticias-index/el-pacto-es-con-la-gente-dialogos-para-la-transformacion-del-corredor-de-la-vida-del-cesar/>.

----. 2024b. ‘Finaliza Con Éxito La Cumbre Minera “Diálogos Climáticos Por La Diversificación Productiva y La Transición Energética Justa”’. Minenergía. 27 November 2024. <https://www.minenergia.gov.co/es/sala-de-prensa/noticias-index/finaliza-con-%C3%A9xito-la-cumbre-minera-di%C3%A1logos-clim%C3%A1ticos-por-la-diversificaci%C3%B3n-productiva-y-la-transici%C3%B3n-energ%C3%A9tica-justa/>.

----. n.d. ‘Comunidades Energéticas’. <https://www.minenergia.gov.co/es/comunidades-energeticas/> Accessed 30 May 2025.

Mongabay Latam. (2022, 23 de marzo). “¿La Nueva Amerisur?: Petrolera es señalada por contaminación y daños a la salud por pueblo siona.” *ManchadosXElPetroleo*. <https://es.mongabay.com/2022/03/la-nueva-amerisur-petrolera-es-senalada-por-contaminacion-y-danos-a-la-salud-por-pueblo-siona/> Noticias ambientales.

Montaña, Laura. 2020. “Análisis Sobre La Industria De Hidrocarburos En El Piedemonte Amazónico: Caso Putumayo.”, Asociación Ambiente Y Sociedad. March 5, 2020. <https://www.ambienteysociedad.org.co/analisis-sobre-la-industria-de-hidrocarburos-en-el-pidemonte-amazonico-caso-putumayo/>.

NatureFinance. 2024. “The Global Bioeconomy - Preliminary Stocktake of G20 Strategies and Practices.” NatureFinance. <https://www.naturefinance.net/resources-tools/global-bioeconomy-g20-stocktake/>.

Noon, Monica L., Allie Goldstein, Juan Carlos Ledezma, Patrick R. Roehrdanz, Susan C. Cook-Patton, Seth A. Spawn-Lee, Timothy Maxwell Wright, et al. 2022. “Mapping the Irrecoverable Carbon in Earth’s Ecosystems.” *Nature Sustainability* 5 (1): 37–46. <https://doi.org/10.1038/s41893-021-00803-6>.

Organization of American States (OEA). 2020. *Report No. 146/19 – Case 11.754* [PDF]. In Spanish. [https://www.oas.org/es/cidh/decisiones/corte/2020/CO\\_11.754\\_ES.PDF](https://www.oas.org/es/cidh/decisiones/corte/2020/CO_11.754_ES.PDF)

Organización Nacional de los Pueblos Indígenas de la Amazonía colombiana (OPIAC). 2023. *Informe sobre Intervenciones Territoriales y Problemáticas Socioambientales en la Amazonía colombiana*.

Organización Nacional de los Pueblos Indígenas de la Amazonía colombiana (OPIAC). 2024. *Estrategia de Pueblos Indígenas Amazónicos de Colombia camino a la COP16 y actualización del PNB, con base en el Acta de la sesión noventa y cinco* (95) *de la Mesa Regional Amazónica (MRA) del 09 de agosto de 2024*.

Organización Nacional de los Pueblos Indígenas de la Amazonía colombiana (OPIAC). 2025. *Matriz sobre solicitudes de formalización en Resguardos Indígenas. Datos calculados con registros de la Agencia Nacional de Tierras (ANT) - 2024*.

Pinilla, Wilson, and Julie Tibocha. 2021. ‘Cuaderno N°1. Descarbonización, gobernanza de los cierres mineros y transformación del sector minero-energético en el Cesar y La Guajira, Colombia’. PAS. <https://www.pas.org.co/articulo-descarbonizacion-gobernanza>.

Quintana Arias, Fernando. 2018. ‘Turismo, Ambiente y Desarrollo Indígena En El Amazonas Colombiano’. *Estudios y Perspectivas En Turismo* 27 (2): 460–86.

Ramírez Jiménez, Carolina. 2024. ‘Análisis del Ecoturismo en Leticia, Amazonas, Colombia, con enfoque sustentable y sostenible desde la regulación’, September. <http://repository.unad.edu.co/handle/10596/64658>.

RAISG. 2020. ‘Amazonia Under Pressure.’ Amazonian Network of Georeferenced Socio-Environmental Information. <https://www.raisg.org/en/publication/amazonia-under-pressure-2020/>

Rystad Energy. 2025. UCube Browser v. 2.6.14. Accessed on May 15. <https://www.rystadenergy.com/services/upstream-solution>.

Rutas del Conflicto & InfoAmazonia. (n.d.). ‘Wasipungo: Derrame’ [PDF]. [https://rutasdelconflicto.com/especiales/doc\\_InfoAmazonia/wasipungo\\_derrame.pdf](https://rutasdelconflicto.com/especiales/doc_InfoAmazonia/wasipungo_derrame.pdf). Accessed June 2025.

Schaugg, Lukas, Indira Urazova, Greg Muttitt, and Suzy Nikiëma. 2025. ‘A Legally Sound Oil and Gas Phase-Out’. International Institute for Sustainable Development. 9 April 2025. <https://www.iisd.org/publications/report/legally-sound-oil-gas-phase-out>.

Stand.earth & Amazon Watch. 2021. ‘Linked Fates: How California’s oil imports affect the future of the Amazon rainforest’. Stand.earth. 2 December 2021. Accessed June, 2025. [https://stand.earth/wp-content/uploads/2022/10/linked\\_fates\\_report\\_final\\_eng\\_0.pdf](https://stand.earth/wp-content/uploads/2022/10/linked_fates_report_final_eng_0.pdf). Accessed June, 2025.

Stanley, Michael C., John E. Strongman, Rachel Bernice Perks, Helen Ba Thanh Nguyen, Wendy Cunningham, Achim Daniel Schmillen, and Michael Stephen McCormick. 2018. ‘Managing Coal Mine Closure: Achieving a Just Transition for All’. 130659. World Bank. <https://documents1.worldbank.org/curated/en/484541544643269894/pdf/130659-REVISED-PUBLIC-Managing-Coal-Mine-Closure-Achieving-a-Just-Transition-for-All-November-2018-final.pdf>.

Trout, Kelly. 2023. ‘Sky’s Limit Data Update: Shut Down 60% of Existing Fossil Fuel Extraction to Keep 1.5°C in Reach’. Oil Change International. 16 August 2023. <https://oilchange.org/publications/skys-limit-data-update-shut-down-60-of-existing-fossil-fuel-extraction-to-keep-1-5c-in-reach/>.

Trujillo Quintero, Hernán Felipe, Jhon Jairo Losada Cubillos & Hernando Rodríguez Zambrano, 2017. ‘Amazonía colombiana, petróleo y conflictos socioambientales’. *Revista Científica General José María Córdova*, 15(20), pp. 209–223. <https://doi.org/10.21830/19006586.181>

Trujillo, Mónica, Benjaluck Denduang, Lutta Alphayo, Alphayo Lutta, Yudi Yepes & Francis X. Johnson. 2025. ‘Bioresource use and transformation for a sustainable bioeconomy in the tropics: case studies from Thailand, Kenya and Colombia: SEI Working Paper. *Stockholm Environment Institute*. <https://doi.org/10.51414/sei2025.014>

United Nations. 2022. Kunming-Montreal Global Biodiversity Framework 2030 Targets (with Guidance Notes). Montreal: Secretariat of the Convention on Biological Diversity. <https://www.cbd.int/gbf/targets>

United Nations Human Rights Council (UNHRC). 2025. “The imperative of defossilizing our economies – Report of the Special Rapporteur on the promotion and protection of human rights in the context of climate change.” A/HRC/59/42. <http://www.ohchr.org/en/documents/thematic-reports/ahrc5942-imperative-defossilizing-our-economies-report-special>

Unruh, Gregory C. 2000. ‘Understanding Carbon Lock-In’. *Energy Policy* 28 (12): 817–30. [https://doi.org/10.1016/S0301-4215\(00\)00070-](https://doi.org/10.1016/S0301-4215(00)00070-)

Unidad de Planeación Minero Energética (UPME). 2020. ‘Lineamientos de Política Pública para la Energización Rural Sostenible del departamento de Putumayo’ Plan de Energización Rural Sostenible. <https://docs.upme.gov.co/SIMEC/PERS/Putumayo/Lineamientos-Putumayo.pdf>

----. 2021. ‘Plan Energético Nacional 2020-2050: La Transformación Energética Que Habilita El Desarrollo Sostenible’. Bogotá. <https://www1.upme.gov.co/Paginas/Plan-Energetico-Nacional-2050.aspx>.

----. 2024a. ‘Plan Energético Nacional’. *UPME* (blog). 2024. <https://www.upme.gov.co/simec/planeacion-energetica/plan-energetico-nacional/>.

----. 2024b. ‘Plan Energético Nacional 2022-2052’. <https://www.upme.gov.co/simec/planeacion-energetica/plan-energetico-nacional/>.

Vancutsem, C., Achard, F., J.-F. Pekel, G. Vieilledent, S. Carboni, D. Simonetti, J. Gallego, L.E.O.C. Aragão, R. Nasi. 2021. ‘Long-term (1990–2019) monitoring of forest cover changes in the humid tropics’. *Science Advances*. <https://forobs.jrc.ec.europa.eu/TMF>

Vargas Guevara, Óscar Santiago, Javier Omar Ruiz Arroyave, Lorena Marcela López Orellano, Naryelis Padilla Guzmán, Nicolas Malz, Felipe Alberto Corral Montoya, Óscar Giovanni Bonilla Camargo, et al. 2022. *Impulsos Desde Abajo Para Las Transiciones Energéticas Justas: Género, Territorio y Soberanía*. Universidad del Magdalena. <https://doi.org/10.21676/9789587464689>.

Vordermayer-Riemer, Markus. 2020. “Introduction”. In *Non-Regression in International Environmental Law: Human Rights Doctrine and the Promises of Comparative International Law*. Intersentia; pp. 1-32.

Yngvil. 2024. “Colombia – Norway’S International Climate and Forest Initiative.” Norway’s International Climate and Forest Initiative. August 19, 2024. <https://www.nicfi.no/partner-countries/colombia/#~:text=They%20contain%20more%20than%2053%20000%20species%20of%20flora%20and%20fauna%2C%2020%20%25%20of%20which%20are%20unique%20on%20the%20plan-et.>

Zanon, Sibélia, et al. 2023. “Deforestation in the Amazon: past, present and future.” InfoAmazonia. Accessed May 9, 2025. <https://infoamazonia.org/en/2023/03/21/deforestation-in-the-amazon-past-present-and-future/>.

Endnotes

- 1 Earth Insight analysis based on data from EC JRC’s Tropical Moist Forest dataset (Vancutsem et al., 2021). Accessed May, 2025.
- 2 Earth Insight analysis based on data from the Agencia Nacional de Hidrocarburos’ Mapa de Tierras (n.d.). Last update: February 14, 2025. Accessed May, 2025.
- 3 Please refer to the methodology section for more details.
- 4 Earth Insight analysis based on ANH (n.d.). Last update: February 14, 2025. Accessed May, 2025.
- 5 Earth Insight analysis based on data from Agencia Nacional de Hidrocarburos (n.d.) and Servicio Geológico Colombiano (2024).
- 6 Earth Insight analysis based on data from Agencia Nacional de Hidrocarburos (2025) and Agencia Nacional de Tierras (2025). Accessed May 2025.
- 7 Law 160 of 1994 establishes in Art. 67 paragraph 1 that “Public lands (baldíos) located within a radius of five kilometers around areas where non-renewable natural resource exploitation is being carried out, those adjacent to national natural parks, and those selected by public entities for the development of road infrastructure projects or others of similar significance whose construction may increase land prices due to factors other than their economic exploitation, shall not be subject to adjudication.”
- 8 Idem.
- 9 “Ensure and enable that by 2030 at least 30 percent of terrestrial and inland water areas, and of marine and coastal areas, especially areas of particular importance for biodiversity and ecosystem functions and services, are effectively conserved and managed through ecologically representative, well-connected and equitably governed systems of protected areas and other effective area-based conservation measures, recognizing indigenous and traditional territories where applicable (...)” (United Nations 2022).
- 10 Earth Insight dataset, including all Protected Areas in IUCN categories I-IV, as well as those unreported/uncategorized. This includes National Natural Parks, regional natural parks, nature reserves, world heritage sites, recreation areas, forest reserves, and other area-based efforts that may be counted towards Target 3 of the Global Biodiversity Framework. Accessed May 2025.
- 11 KBAs are sites that contribute significantly to the global persistence of biodiversity. They are mapped by the KBA Partnership, composed of 13 global conservation organizations, based on the 2016 KBA Standard and assisted by standardized guidelines. (IUCN 2016).
- 12 Earth Insight analysis based on Birdlife International (2024) and UNEP-WCMC and IUCN (2025).
- 13 The conversion to CO2-eq from sequestered C is based on the ratio of molecular weights (44/12), as suggested by the International Panel on Climate Change (2006).
- 14 Earth Insight analysis based on Noon et al. (2022).
- 15 The government of Colombia recently took part in the IEA Summit on the Future of Energy Security. The co-Chair’s summary delved into the opportunities presented by clean energy technologies for countries’ energy security. (International Energy Agency 2025).
- 16 Area-based conservation measures are not always permanent and may suffer legal rollbacks. These rollbacks are globally classified as downgrading, downsizing, and degazettement (PADDD). While some of such rollbacks may return rights to access, use, manage, or own lands to IPs, LCs and ADs, thus generally enhancing conservation efforts, many may also strongly undermine the effectiveness of protection measures. More info at IUCN (n.d.).
- 17 <https://whc.unesco.org/en/nominations/>
- 18 Cassava is a root which has wide uses potential ranging from bioplastics to gluten-free products production and açai is considered a “super fruit” with high antioxidant properties from which functional foods, biocosmetics and pharmaceuticals can be made. Both are native to the Amazon.



