

# Confronting Nature Crime in the Amazon



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### Executive summary: From Evidence to Accountability

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#### Overview

“**Confronting Nature Crime in the Amazon**” is a three-part study of Nature crime across eight countries of the Amazon basin — Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela —. It examines how environmental crimes and associated human rights abuses including illegal deforestation, illegal logging, illegal mining, mercury pollution, and violence against environmental defenders can be detected, documented, and ultimately sanctioned, and what role civil society plays in supporting government accountability efforts where State capacity is limited. The study’s findings are presented across three chapters:

- **Chapter I — Towards an Amazon Nature crime Atlas** assesses whether the data exist to monitor Nature crime consistently across the basin.
- **Chapter II — Amazonian civil society in the fight against Nature crime** maps how civil society organisations (CSOs) already contribute to government accountability efforts.
- **Chapter III — Enabling conditions for government engagement on Nature crime** assesses the legal and institutional conditions that enable, or obstruct, that contribution in each country.

The three chapters approach the accountability of Nature crime in the Amazon from different angles. **Chapter I** establishes the evidential foundation: before civil society or the State can act, the harm must be visible. **Chapter II** takes that foundation and asks what organised civil society does with it. **Chapter III** then explores how civil society's contribution is able to engage the government and produce accountability outcomes.

Taken together, the three chapters come to a single conclusion: **Amazonian countries have developed a considerable capacity to detect Nature crime, but that capacity does not guarantee accountability.** The gap between the two reflects an under-resourced civil society operating unevenly across the “evidence-to-accountability pipeline”, in an enabling environment that differs sharply across borders and is under active pressure in several countries. **Closing that gap requires working simultaneously on all three dimensions: better and more interoperable data, stronger civil society presence at the accountability end of the pipeline, and deliberate investment in the legal and institutional conditions that allow that presence to translate into enforcement.**

## Main findings for each chapter

### Chapter I — Towards an Amazon Nature crime Atlas

This chapter reviews the data available across eight countries for five observable manifestations of Nature crime: illegal deforestation, illegal logging, illegal artisanal and small-scale gold mining, mercury pollution, and violence against environmental defenders. Six findings stand out:

- The five manifestations reviewed share a common geography and are often linked to the same criminal networks. Yet they are monitored through separate systems and at different intervals, and the resulting data coverage depends more on countries' institutional capacity to detect, document, and report these activities than on the actual scale or severity of Nature crime.
- Varying capacities for detection of potential Nature crime across Amazonian countries obscures the relative scale of the issue. The fact that more data is available in Peru, Brazil or Colombia doesn't mean that Nature crime is more widespread in these countries. Venezuela combines the most acute mining-driven destruction with the least reliable data, and Bolivia and Guyana sit in a similar blind spot.
- Criminal networks operate across borders, but every national dataset stops at the border. The pan-Amazonian data that does exist is produced largely by civil society (MapBiomias Amazonia, RAISG, Amazon Mining Watch, Monitoring of the Andes Amazon Program), not by governments.
- Detection of potential manifestation of nature crimes has improved substantially across the region, thanks to civil society-driven, pan-Amazonian platforms such as MAAP, Mapbiomas and Amazon Mining Watch. The primary constraint is to determine whether a detected activity is legal or illegal. Establishing that an observed harm is unlawful requires up-to-date maps of protected areas, territories, concessions and authorisations that exist only partially, and recurring overlay analysis.
- The priority is no longer improving detection, but consolidating pan-Amazonian data layers that can be used for legality assessments for different potential manifestations of Nature crime and provide evidence for coordinated, transboundary operations.
- Civil society data alliances currently make up for the absence of official pan-Amazonian datasets built on cooperation from national authorities. These alliances need stable cross-border mandates and funding to maintain the basin-wide picture that no single national system provides.

### Chapter II — Amazonian civil society in the fight against Nature Crime

Drawing on a survey of 41 CSOs and 16 interviews across the eight countries, Chapter II maps how civil society supports the “evidence-to-accountability pipeline”, the process by which government authorities establish accountability for Nature crime, moving from detection to investigation, prosecution, judgement and application of eventual sanctions. The following findings stand out:

- The chapter identifies seven distinct types of contributions through which civil society supports accountability: (i) advocacy to prioritise the agenda, (ii) independent monitoring and detection, (iii) legality analysis, (iv) evidence-sharing with prosecutors, (v) public pressure campaigns, (vi) participation in judicial proceedings, and (vii) systematic assessment of enforcement effectiveness.

- Survey results reveal that contributions are concentrated at the detection end of the pipeline and thin progressively toward the accountability end. Legality analysis, the translation of monitoring into judicially usable evidence, and the tracking of enforcement outcomes tend to be under-resourced. The result is a pipeline that tends to generate awareness without producing sanctions.
- CSOs, governments and donors should reorient investment toward legality analysis, formalised cooperation with prosecutors, strategic litigation capacity and systematic enforcement monitoring — areas where civil society effort is currently weaker and where returns in terms of accountability would be higher.
- Promoting accountability requires connecting civil society's detection capacity more effectively to government enforcement. Key strategies include strengthening legality analysis, converting monitoring findings into evidence that can be used in investigations and judicial proceedings, formalising cooperation between CSOs and prosecutors, expanding strategic litigation capacity, and systematically tracking investigations, judgments and sanctions.

### Chapter III — Enabling conditions for government engagement on Nature crime

Developed with the International Lawyers Project, Chapter III compares the conditions for civil society engagement in eight Amazonian countries, across five dimensions: (i) civil society status, (ii) institutional landscape, (iii) legal pathways, (iv) admissibility of remote sensing evidence, and (v) challenges in engagement. The main findings from this comparative analysis are:

- Implementation of the Escazú Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean is bearing fruit — signatory countries show better enabling conditions for civil society.
- As levels of [violence against environmental defenders remain high across the Amazon](#), the safety of environmental defenders is the most critical gap in enabling conditions for civil society action, with six out of eight countries classified as challenging.
- The highest-return interventions are changes in the law, but also conditions surrounding the law: ratification and active implementation of the Escazú Agreement, formalised cooperation protocols between CSOs and prosecutors that reduce dependence on individual relationships, dedicated statutory frameworks for the admissibility of remote-sensing evidence, and stronger measures dedicated to environmental defender protection.
- Rights-of-nature doctrine can widen standing of CSOs wanting to promote accountability for Nature crime, but its effectiveness remains limited by low capacity to enforce the sanctions it underpins.
- Remote sensing evidence, a crucial tool for civil society to trigger enforcement from authorities, is admitted in all eight countries but protected by a dedicated statute in none. This leaves admissibility dependent on fragile practice and exposed to legislative rollback.

### Cross-cutting conclusions and recommendations

- The main bottleneck in addressing nature crime is no longer detection, but converting evidence into accountability. Decades of investment in satellite monitoring and alert systems has made detection comparatively strong. Approaching from different angles, each chapter finds that the constraint now lies further along the accountability pipeline: Chapter I identifies legality

assessment — matching an observed harm to authoritative maps of what is permitted — as the principal data gap; Chapter II finds legality analysis, prosecutorial evidence-sharing and enforcement tracking to be the most overlooked contributions; and Chapter III finds evidence admissibility and compliance with rulings to be the most fragile legal points. **The marginal return on additional detection capacity is now low; the unmet need is concentrated in the legality-to-enforcement segment.**

- Regional accountability is only as strong as the countries in which data, civil society capacity and enabling legal conditions are weakest. The countries where Chapter I finds the data thinnest — Venezuela, and to a lesser degree Bolivia and Guyana — are also where Chapter II finds civil society capacity weakest and where Chapter III records the least favourable enabling conditions. Weak data, weak civil society and a weak legal environment compound one another: a case cannot be built where there is no baseline data, no admissibility practice, and no protection for those who gather it. The consequences extend beyond these countries. Criminal networks operating across the basin can route activity through the jurisdictions where detection is weakest and prosecution least likely, which means that overall regional accountability is only as strong as its most compromised node. **Leveling up the countries with the widest gaps is therefore a functional priority: a regional accountability architecture with blind spots in some countries will remain exploitable regardless of how strong it is in other countries.**
- Nature crime is transboundary, but every layer of the response remains predominantly national. The chapters reveal the same limitation: monitoring datasets stop at the border, civil society responses are organised nationally, and enforcement and most legal pathways remain domestic, with regional frameworks still nascent. **The missing element is stronger coordination and regional integration mechanisms for civil society, connected to regional government cooperation efforts.**

In that context, the creation of the **CESPIT (ACTO's public safety commission)** and the **CCPI (the Amazon International Police Cooperation Centre)** opens a new institutional channel for translating civil society monitoring into intergovernmental enforcement action. As of 2026, both mechanisms are nascent, and the modalities for engaging civil society have not yet been defined, which makes this an important moment to establish norms before practice hardens in their absence.

**Chapter I's central finding** that no consolidated, cross-country official dataset on Nature crime exists, **points to a precise role for the CESPIT:**

- *Recognise and coordinate the pan-Amazonian civil society monitoring platforms* (MAAP, MapBiomass Amazonia, RAISG, Amazon Mining Watch) as standing technical contributors to the regional security agenda, giving their data a formal channel into intergovernmental deliberation rather than relying on country-by-country relationships.
- *Broker intergovernmental agreement on the acceptability of CSO-generated data.* The establishment of shared standard and protocols for quality, provenance and methodology that member states are willing to treat as reliable inputs. In the absence of consolidated official datasets, an intergovernmental endorsement of common civil-society data standards is the fastest route to a shared evidentiary baseline across the eight countries.
- *Embed those standards and channels into the action plans and operational instruments the Commission is currently developing,* so the link between independent monitoring and government action is built into regional policy.

- These measures would also address a long-standing criticism that ACTO has not allowed the effective participation of civil society, and would align the Commission's practice with member states' transparency obligations under the Escazú Agreement.

**Engaging the CCPI — operational evidence pathways, with safeguards.** As the body that can actually act on Nature crime, the CCPI is the natural operational endpoint for civil-society evidence. Its role could be enhanced by the following measures:

- *Establish structured, secure referral channels* through which civil society monitoring outputs (geospatial alerts, mining and deforestation mapping, chain-of-custody documentation) can enter the Centre's intelligence and investigative workflows, building on the admissibility and cooperation practices identified in Chapter II.
- *Design those channels to protect the organisations and individuals involved.* Anonymised or intermediated referral, clear limits on attribution, and safeguards against the reverse flow of police intelligence being used to surveil defenders, addressing the defender-safety gap identified in Chapter III.
- *Prioritize both the CCPI's investigative coordination and the CESPIT's agenda toward the weakest nodes* (Venezuela, Bolivia and Guyana) since criminal networks route activity through the jurisdictions where detection and prosecution are weakest, and infrastructure that concentrates on the already-strong jurisdictions leaves the regional system exploitable.

**CESPIT — Special Commission on Public Security and Transboundary and Transnational Illicit Activities in the Amazon Region.** Created in 2025 in Leticia, the Special Commission on Public Security and Transboundary and Transnational Illicit Activities in the Amazon Region (CESPIT) represents a strategic step forward in Amazon cooperation by placing public security and the fight against environmental crimes at the center of regional action. It is one of ACTO's special commissions, created in line with the Belém Declaration of 2023, alongside those on environment/climate, health and science. It brings together delegations from all member countries to review and refine the operational instruments guiding joint action in the region, working on agenda-setting, action plans and norm harmonisation.

**CCPI — Amazon International Police Cooperation Centre.** Inaugurated in September 2025 in Manaus, it is considered a milestone in the integration of the region's security forces and in international cooperation against transnational organized crime. Coordinated by Brazil's Federal Police, it functions as a space of articulation among the Federal Police, the Federal Highway Police, the National Force and the security forces of the nine Legal Amazon states, plus police authorities from the pan-Amazonian countries and international bodies. It will also work alongside international policing organisations such as Interpol and Europol. Its structure includes an intelligence service, operations and logistics divisions, a video-monitoring room and a crisis cabinet, and it works on three axes — integration, fighting organized crime, and environmental protection — with emphasis on decapitalising criminal organisations and mapping the illegal production chains behind mining, logging and wildlife trafficking.

## Relevance for the ASL Program

ASL's collective gains — protected areas created and brought under improved management, degraded land restored, emissions mitigated — are only as durable as the accountability systems

that deter the illegal clearing, mining and logging that erode them. Three points are especially relevant:

- ASL operates where the monitoring gaps are most acute. National projects work in and around the protected areas and Indigenous territories that Chapter I identifies as exposed to a variety of manifestations of Nature crime. Strengthening accountability for Nature crime directly protects ASL's investments.
- ASL's implementing agencies overlap with the government counterparts of civil society identified in Chapter III. Environmental authorities such as SERNANP (Peru), the EPA (Guyana) and SBB (Suriname), among others, are the institutions whose willingness to receive CSO evidence, protect defenders and uphold evidence admissibility determines whether civil society's contribution translates into enforcement. The study offers them an evidence base and a set of concrete, transferable practices for that cooperation.
- ASL is already active in this area and is well placed to anchor a response. The programme's regional platform, thematic working groups and convening capacity make it a natural institutional home for the coordination infrastructure that the study identifies as missing.

## Next steps

The study demonstrates that capable civil society organisations exist in all eight countries; what they lack is the infrastructure to find one another, share evidence securely across borders, access shared legal expertise, and demonstrate enforcement outcomes. A proposed follow-on programme could consist of four complementary components, as listed below:

### 1. Expansion of systematic assessment of enforcement outcomes beyond Brazil

The final stage of the accountability pipeline described in Chapter II — establishing whether detections and prosecutions actually result in *enforced* sanctions — is systematically documented in only one country. In Brazil, two civil society platforms have built this capacity: JusAmazônia (developed by the Instituto Democracia e Sustentabilidade), which applies jurimetric analysis to nearly 17,000 environmental public civil actions, tracking each from filing through to sentencing; and Monitor da Fiscalização (a coalition including ICV and MapBiomass), which tracks whether enforcement actions and penalties are actually carried out.

Their findings — that only about 7% of cases end in conviction, and just 0.2% of ordered penalties are ever paid — have been presented to Brazil's Supreme Court and National Justice Council and have generated genuine institutional interest in reform. On the enforcement side, the Attorney General's Office created "AGU Recupera" in 2023 to pursue strategic environmental-recovery cases. In June 2024, the AGU filed 648 actions seeking R\$1.1 billion from environmental offenders, including 616 actions for the collection of environmental fines. These initiatives represent concrete movement from diagnosis toward enforcement, although their effects on conviction rates, fine collection and compliance with judgments have yet to be systematically evaluated.<sup>1</sup>

No data equivalent exists in Bolivia, Venezuela, Guyana or Suriname, and only partial data exists in Peru, Colombia and Ecuador.

The practical consequence is that civil society across most of the basin cannot make the argument that closes the loop: it cannot show, with evidence, that enforcement is failing. This weakens

advocacy for reform and the case to donors. This proposal would replicate the conditions that made the Brazilian platforms possible, in three phases:

- a scoping phase assessing what enforcement data exists in each remaining country and which legal levers (freedom-of-information, judicial-transparency obligations, Escazú commitments) might compel its release;
- pilot tracking platforms in two or three countries where data and organisational capacity are sufficient (Bolivia, Colombia or Peru are the most plausible starting points).
- As systematic assessment capability is rolled out across the eight countries, it could culminate in a regional dashboard that aggregates the national streams into a single comparative picture, of direct relevance to the mandate of the CESPIT.

## 2. Amazon Nature Crime Network Hub

Capable organisations exist in every Amazon country but cannot easily find one another, route evidence across borders, or draw on shared legal expertise. The proposed Amazon Nature Crime Network Hub would address this through three different components:

- A *directory component* provides a searchable, continuously updated registry of civil society organisations working on Nature crime, indexed by organisation, by country and subnational area of operation, and by where they sit in the accountability pipeline (advocacy, monitoring, legality analysis, evidence-sharing, public campaigns, litigation support, enforcement tracking), with further filters for crime type, working language, legal capacity and the data tools each uses.
- A *referral component* would identify which organisations hold active working relationships with prosecutors in each country and what kinds of cases they can receive, provide a secure, encrypted channel for transmitting a structured evidence package from the organisation that generated it to one positioned to act on it. This handover would happen without creating a traceable link between the originating monitor and the receiving prosecutor. This component would also set common handoff standards (documentation requirements, chain-of-custody rules, evidentiary templates) so that a referral arrives prosecution-ready.
- A third, *legal-support component* would give organisations without in-house counsel access to shared (and pro-bono) legal expertise, from a standing consortium to an on-call roster of specialists.

## 3. Cross-Border Intelligence-Sharing Protocol

Several civil society networks already exchange sensitive, real-time intelligence about the same cross-border criminal operations. This sharing happens informally today, but without a common security standard or any agreed rules for what may be shared, with whom, and under what conditions.

The proposal would develop, through a participatory process anchored in the existing informal networks, a lightweight protocol: shared digital-security guidelines, a common way of classifying information and defined triggers for when intelligence should be shared, and explicit conflict-and-exit rules for situations where sharing could endanger field monitors or compromise an ongoing case. It is the upstream complement to the Network Hub: raw intelligence shared through the protocol is what eventually matures into the structured, prosecution-ready evidence that the Hub then routes to prosecutors.

The protocol's chain-of-custody rules, documentation requirements and evidentiary-format templates should be designed from the outset to converge on the shared evidentiary standard that the CESPIT could broker politically and the CCPI operationalise. The two instruments address different audiences and operate at different points in the chain: the protocol governs what civil society organisations share *with one another* — sensitive, often early-stage intelligence that must protect the monitors who gather it — while the evidentiary standard governs what *governments* will treat as reliable and admissible.

#### 4. Amazon Nature Crime Civil Society Forum

Coordination ultimately depends on trust, and trust depends on repeated interaction over time. No directory, referral channel or protocol can substitute for the working relationships that form when practitioners from different organisations and countries spend time together on shared problems. The Forum would be a recurring (biennial), operationally focused convening of 50–80 civil society organisations (with invited prosecutors and enforcement agencies where appropriate).

It would not be an awareness-raising conference but a working meeting: its purpose would be to populate the coordination infrastructure with human relationships, accelerate the spread of practices that already work, and give the network a regular shared moment to verify and update the Hub's entries.

#### Notes

1. Carta Capital. AGU cobra R\$ 31 milhões em indenizações de infratores por danos ambientais. 2025. Disponível em: <https://www.cartacapital.com.br/justica/agu-cobra-r-31-milhoes-em-indenizacoes-de-infratores-por-danos-ambientais/>

# Chapter I. Towards an Amazon Nature Crime Atlas

## 1. Introduction

### 1.1 Nature crime in the Amazon

“Nature crime” is used to refer to illegal forms of logging, ecosystem conversion, wildlife exploitation and trafficking (both domestic and international), fishing, and mining, and is often associated with financial offenses, fraud, corruption, organized crime, as well as labor and human rights abuses.<sup>1</sup> In the Amazon, it can be understood as a portfolio of illegal or illegality-tainted activities that harm forests, rivers, wildlife, and local populations,<sup>2</sup> although its legal definition is subject to variations depending on the environmental regulations of each Amazonian country and what constitutes a violation of these regulations (see Chapter III for a review of legal definitions in each country of the Amazon).

These activities do not operate in isolation. Criminal networks involved in illegal mining, deforestation, and drug trafficking are often involved in more than one activity and frequently share financing channels.<sup>3</sup>

Establishing a baseline of the extent, distribution and severity of these activities across the entire Amazon is a challenge, as they cannot all be represented spatially with the same precision or consistency. Financial transactions and criminal networks may be geographically dispersed, obscured behind opaque transactions, or impossible to attribute to specific locations. To address this limitation, the analysis presented in this report focuses on *manifestations* of Nature crime: the physical, observable consequences of illegal activity that leave a detectable footprint — on land cover, in river systems, or in records of violence — and that can be systematically tracked across all countries of the Amazon basin.<sup>4</sup>

This report tracks the following potential manifestations of Nature crime:

- **Illegal deforestation:** the permanent clearing of forest cover for agriculture, cattle ranching or other uses, that is unlawful in character — whether through the appropriation of public land or through violations of the rules governing land use and conversion in protected areas, Indigenous territories, or private properties.
- **Illegal logging:** the extraction of timber in violation of national forest management laws — including without a valid management plan, in excess of authorized volumes, in areas where logging is prohibited (such as protected areas and Indigenous territories), or using fraudulent documentation to launder illegally felled timber into legal supply chains. Illegal logging is both a significant source of forest degradation in its own right and a common precursor to full-scale deforestation, as selectively logged areas become more vulnerable to fire and agricultural encroachment.
- **Illegal artisanal and small-scale gold mining (land-based and river-based):** gold mining has expanded dramatically across the Amazon over the past two decades, driven by rising prices, weakened enforcement, and the entry of organized crime groups that use it as a vehicle for money laundering and territorial control, making it a defining feature of the region’s criminal economy. Illegal mining is both a source of deforestation, through direct removal of vegetation to access the soil where gold is found, and ecosystem degradation, through pollution of river courses from mercury use.

- **Mercury pollution:** used in artisanal gold mining to bind and separate gold from sediment, mercury enters Amazonian river systems as a persistent, bioaccumulative toxin that travels across national borders through shared waterways and the food chain, reaching dangerous concentrations in fish and in the Indigenous and riverine communities that depend on them.
- **Threats and violent deaths of environmental defenders:** attacks on individuals who monitor, report, or resist illegal activities in and around areas subject to Nature crime. These incidents are increasingly recognized as a direct and foreseeable consequence of the broader pattern of illegal extraction, and are often perpetrated by or on behalf of the same criminal networks responsible for the crimes being denounced.

## 1.2 Why assess the extent and severity of Nature crime across the Amazon?

The ultimate goal of this analysis is to take stock of data available across Amazonian countries that could enable consistent, systematic tracking of the spatial and temporal variation of Nature crime manifestations across the Amazon — understanding where they are concentrated, intensifying, and appear to be receding. This approach seeks to address a current challenge in our understanding of the dynamics of environmental degradation that stem from criminal or illegal activities: the absence of any single, integrated data source covering all eight countries of the Amazon basin with consistent definitions and methodologies. This results in an inability to assess the aggregate scale of the problem or to identify transboundary dynamics.

Various government and civil society-led platforms generate data relevant to Nature crime monitoring across the Amazon, many of them open-source. Yet most cover only a subset of countries or years, and their fragmented, retrospective character makes it difficult to assess regional trends or the cumulative scale of the problem.

Other organizations have attempted to map Nature crime across the Amazon previously. The Igarapé Institute and InSight Crime's [Amazon Underworld](#) platform and associated policy papers have documented how illegal mining, logging, land clearance, and wildlife trafficking are driven by organized criminal networks across five Amazonian countries, drawing on field investigation and open-source research. The Global Initiative Against Transnational Organized Crime (GI-TOC) published [Environmental Crimes in the Amazon: Current Trends and Rising Threats](#), which identified over 4,000 illegal mining sites across the region in 2023, mapped deforestation hotspots in Brazil, Colombia, and Peru, and documented how criminal organizations have adapted their methods to exploit regulatory gaps. While they serve to raise awareness of the severity and extent of Nature crime as a driver of environmental degradation across the Amazon, they fall short of a systematic assessment of available data across all countries that may be used to establish a baseline of Nature crime and monitor it regularly.

Rather than use in specific legal or enforcement proceedings based in data about individual instances of environmental violations, the primary purpose of such a baseline is to raise awareness among the public of trends in the scale of the issue, to mobilize resources, and to focus policy and enforcement efforts - including contributions from civil society to these efforts - in jurisdictions where the data show that they are most needed. Several audiences stand to benefit from such a sustained, regionally integrated monitoring effort.

- **For governments,** consistent data on the spatial and temporal variation of Nature crime — where it is intensifying, where it is receding, and what factors are associated with each — enables a more rigorous assessment of the effectiveness of enforcement policies and

operations. A regional evidence base is especially valuable for evaluating cross-border interventions and building the case for sustained investment in detection and prosecution capacity.

- **For regional governance and cooperation bodies (e.g. ACTO's public safety commission, Amazonian Police Cooperation Center - CCPI),** there is value in tracking nature crimes across the Amazon as a whole, rather than within individual national borders, and across manifestations, rather than focusing on a single issue. Nature crime is increasingly transboundary: border areas are disproportionately affected by illegal activity, and criminal networks routinely exploit jurisdictional gaps and corruption. The same criminal networks also operate across various categories, highlighting the value of datasets that consider more than one single manifestation. A pan-Amazonian evidence base is therefore essential for understanding the aggregate scale of the problem and for enabling the multi-country policy response it demands.
- **For Indigenous and local communities,** a quantitative baseline of the nature crimes they face provides a foundation for advocacy with governments, donors, and international bodies, establishing more clearly when the level of threats they are facing has increased markedly and warrants further protection.
- **For civil society organizations and the donor community,** a regional overview helps identify where needs are greatest and where support is most likely to have impact — whether in strengthening monitoring systems, funding enforcement operations, or supporting the communities most exposed to Nature crime.
- **For the private sector,** spatial data on nature crime is a valuable input to their risk management and due diligence processes. Companies importing into the European Union face supply chain due diligence obligations under voluntary and/or regulatory frameworks (such as the EU Deforestation Regulation - EUDR) and require granular, reliable data on deforestation risk in their sourcing areas. Financial institutions — banks, asset managers, and insurers — need to understand their exposure to assets tainted by illegal land conversion, a risk documented in detail in a [2024 WWF-UK report on financial crimes and land conversion](#).<sup>5</sup>

Against this backdrop of growing relevance for policy-makers, enforcement agencies, companies, investors and civil society, a question emerges: how well can the data currently available across the Amazon basin support such assessments, and where do the critical gaps lie? Answering this question first requires understanding the type of data that would be required to assess the extent and severity of Nature crime in the Amazon.

### 1.3 How to assess the extent and severity of Nature crime

A central difficulty to mapping Nature crime in the Amazon is that it is systematically underreported, under-prosecuted, and under-sentenced. In Brazil — arguably the country in the region with the most developed detection and enforcement systems — only around 45% of illegally deforested areas were issued infraction notices even during periods of heightened enforcement.<sup>6</sup> A major contributing factor is low reporting. In many areas, more than half of all crimes are never brought to the attention of authorities, largely because communities have little confidence that action will follow.<sup>7</sup> Basing the analysis on criminal convictions would provide a stronger evidentiary foundation — but conviction rates remain low: in Brazil, formal charges (*indiciamento*) are filed in only around 25% of environmental crime investigations.<sup>8</sup>

Thus, a picture of where Nature crime is occurring or of its scale cannot be drawn from an analysis of criminal records, which would only show instances of environmental harm actually prosecuted and sentenced. This report instead maps **potential manifestations of Nature crime**: observable events that combine two elements — **(i) evidence of environmental harm**, established through remote sensing or other spatially explicit data record; **(ii) grounds for characterizing that harm as a violation of applicable law**, based on land designation indicating what uses, changes to natural vegetation cover, and activities are authorized. For some offences, the act itself is inherently unlawful and a spatially explicit record of its manifestation is sufficient to establish that violation (for example, release of mercury from illegal mining, or violence against an environmental defender).

**This report surveys the data sources currently available across the eight Amazon countries for each of these manifestations of Nature crime, assesses their potential for consistent pan-Amazonian aggregation and presents illustrative analyses that demonstrate how these sources can be combined to shed light on the scale and legality of the harm.**

## 2. Illegal deforestation

Illegal deforestation is the permanent clearing of forest that is unlawful in character — whether through the appropriation of public land or through violations of the rules governing land use and conversion in protected areas, Indigenous territories, or private properties. Information on the driver of forest cover loss is also particularly relevant to an assessment of legality, as it facilitates the identification of activities that may constitute a violation of applicable regulations protecting against environmental harm.

Deforestation monitoring systems serve three distinct analytical purposes, and distinguishing them clarifies what any individual dataset is or is not suited to show. **Historical monitoring** reconstructs long-term forest loss trajectories from archived satellite imagery on a consistent methodological basis, typically back to the 1980s or early 2000s; its value lies in establishing reference baselines, tracking multi-decadal trends and anchoring carbon-accounting and REDD+ commitments. **Annual monitoring** produces one consolidated measurement of deforestation per year — usually with a one- to two-year publication lag to allow for cloud-free imagery compositing and validation — and supplies the figures countries report to international frameworks such as the UNFCCC and against which year-on-year policy performance is assessed. **Near-real-time monitoring** generates alerts at weekly or sub-weekly frequency, prioritising temporal responsiveness over definitive area estimates, and supports enforcement interception, operational targeting and civil-society monitoring before clearance progresses to full forest loss.

Each cadence plays a distinct role — historical data anchors the baseline against which recent change is read, annual data supports statistical assessment of illegality shares and drivers, and real-time alerts underpin the enforcement response.

Section 2.1 surveys official and civil-society deforestation datasets across the eight Amazon countries and assesses their potential to support a consistent pan-Amazonian baseline. Section 2.2 then presents four analytical approaches that illustrate how existing data can be used to characterize the legality, drivers and economic significance of illegal deforestation to approximate an Amazon-wide baseline for this Nature crime. Section 2.3 concludes on the remaining gaps for a full assessment of illegal deforestation in the Amazon and lists potential ways forward.

## 2.1 Review of Available Data from Governmental and Non-Governmental Sources

### Official National Monitoring Systems

Six of the eight Amazonian countries maintain official forest monitoring systems, though they vary significantly in methodological approach, spatial resolution, temporal frequency, and public accessibility.

- Only **Brazil, Colombia, and Peru** operate monitoring systems with near-real-time alert capability, essential for reactive enforcement against illegal deforestation.
- **Bolivia, Brazil, Colombia, and Peru** maintain annual datasets of deforested areas that are accessible online
- **Ecuador's** biennial monitoring cycle and **Guyana's** data lag of at least two years mean that neither system can support annual data series.
- **Suriname's** Gonini platform was offline at the time of writing, with its most recent data potentially dating to 2023.
- **Venezuela** presents the starkest gap: institutional collapse has left the country without a functioning official forest monitoring system since 2011, a period that coincides with a significant expansion of illegal mining and associated deforestation.
- **Colombia** appears to be the only country in the region to have conducted a classification of its official deforestation data by drivers, although that exercise was last conducted in 2015.

**Table 1. Official deforestation and degradation data in Amazonian countries.**

| Country  | System                                                                                         | Coverage                                                                                              | Latest data              |
|----------|------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------|
| Bolivia  | <a href="#">ABT360 (Autoridad de Fiscalización y Control Social de Bosques y Tierra)</a>       | <b>Annual</b> deforestation statistics and spatial data                                               | 2024                     |
| Brazil   | <a href="#">PRODES / TerraBrasilis (INPE)</a>                                                  | <b>Annual</b> , Brazilian Legal Amazon, since 1988. Complemented by DETER near-real-time alerts.      | 2025 (Aug 2024–Jul 2025) |
| Colombia | <a href="#">IDEAM — National Forest Monitoring System</a>                                      | <b>Annual</b> statistics since 2013; Near-real time alerts, driver classification conducted for 2015. | 2024                     |
| Ecuador  | <a href="#">SNMB — Sistema Nacional de Monitoreo de Bosques</a> — 2-year lag, biennial cadence | Biennial, covers 2-year periods                                                                       | 2020–2022                |
| Guyana   | <a href="#">GFC — Monitoring, Reporting and</a>                                                | <b>Annual</b> deforestation and degradation                                                           | 2022                     |

|           |                                                                                                           |                                                          |       |
|-----------|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|-------|
|           | <a href="#">Verification System (MRVS)</a>                                                                | (2-year lag)                                             |       |
| Peru      | <a href="#">Geobosques (MINAM)</a>                                                                        | <b>Annual</b> deforestation; weekly early warning alerts | 2024  |
| Suriname  | <a href="#">National Forest Monitoring System — Gonini platform</a> — Platform offline at time of writing | <b>Annual</b> , when operational                         | ~2023 |
| Venezuela | <i>Institutional collapse</i>                                                                             | No functioning official system since 2011                | —     |

The systems also differ in methodological approach, spatial resolution, and temporality (Brazil's Prodes deforestation year runs from August to July of the following year). In addition, only Brazil's PRODES and DETER systems, Colombia's IDEAM, and Peru's Geobosques routinely publish their data in formats readily available for download that could support cross-border analysis. Aggregating these national datasets into a consistent Amazon-wide annual baseline is currently not feasible as data is not available for several countries and would require significant methodological harmonization where it is available.

### Regional and Civil Society Monitoring Platforms

Several civil society and multi-institutional platforms provide deforestation data at regional scale, in some cases offering the most complete and consistent cross-country coverage available.

**Table 2. Civil society datasets relevant for the mapping of illegal deforestation**

| Platform                                 | Organization                                                              | Coverage                                                                                         | Resolution / Period | Geographic scope |
|------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|---------------------|------------------|
| MapBiomias Amazonia                      | <a href="#">Network of civil society orgs (INPE, MapBiomias partners)</a> | Annual land cover and land use maps; deforestation and degradation transitions                   | 30 m / 1985–present | All 8 countries  |
| Global Forest Watch /UMD tree cover loss | University of Maryland                                                    | Annual forest cover loss and gain, 30m resolution (1km resolution for disaggregation by drivers) | Since 2001          | Global           |
| SAD Alerts                               | Imazon (Brazil)                                                           | Monthly deforestation and degradation                                                            | Since 2008          | Brazil only      |

|                           |                                                                                 |                                                                                                   |                                             |                 |
|---------------------------|---------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------|
|                           |                                                                                 | alerts                                                                                            |                                             |                 |
| RAISG Geospatial Platform | <a href="#">Amazon Network of Georeferenced Socio-environmental Information</a> | Protected areas, Indigenous territories, mining concessions; not a deforestation detection system | Updated periodically, depending on the data | All 8 countries |

### Global Forest Watch (GFW) / University of Maryland (UMD) annual tree cover loss data

provides globally consistent, annual estimates of tree cover loss at 30-meter resolution from 2000 through 2025. The UMD annual product does not directly distinguish between legal and illegal forest loss. A recent release also available on the GFW platform disaggregates detected deforestation by direct driver (agriculture, mining, logging, settlements, other), at 1km resolution.<sup>9</sup> This methodological step forward is used in Section 2.2 of this report to support a more fine-grained assessment of the relationship between deforestation data and efforts to map Nature crime.

**MapBiomias Amazonia** stands out as a strong foundation for a consistent pan-Amazonian deforestation baseline. It applies a harmonized methodology across all eight countries, producing land cover and land use transition data at 30-meter resolution from 1985 to 2023, a bigger time lag than the UMD data. Its ability to distinguish between different land use categories (agriculture, pasture, mining, urban) provides insights into deforestation drivers, and its forest degradation layer complements the deforestation detection data. Importantly, it is specific to the Amazon region, meaning that the categories of drivers used may be more in line with the reality of the dynamics on the ground.

**RAISG's** pan-Amazonian geospatial platform, meanwhile, provides the most comprehensive available dataset on land designations — protected areas, Indigenous territories, and mining concessions — that are essential for legality assessment. Its coverage is genuinely pan-Amazonian and reflects collaborative data-sharing between civil society organizations across the region, though certain land designations may not be specific enough to establish legality, given the simplification of data associated with producing wall-to-wall coverage across 8 countries, each with their own legal system and land designation categories.

## 2.2 Relevant analyses and their potential for scaling

### Qualification of deforestation data across Brazil

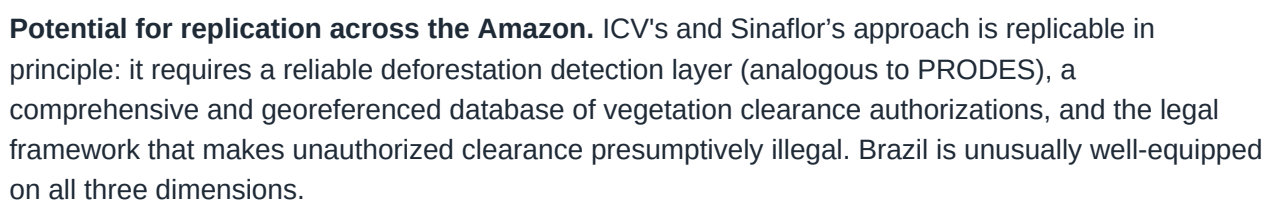
A recurring limitation of deforestation monitoring is that detecting where forest loss has occurred tells us little, on its own, about whether that loss was illegal and constitutive of a potential Nature crime. Remote-sensing deforestation data captures the physical fact of clearance; determining its legal status requires additional information on what is permitted under the applicable land designation. Illegality, for example, can be presumed if the clearance has occurred in a Protected Area with strict conservation status, such as a National Park. The illegality of forest cover loss in conservation areas that allow for sustainable use and in Indigenous Territories will depend on the specific rules for that area and the size of the clearance. While small areas of forest loss may indicate sustainable use activities compatible with the designation, large-scale deforestation carries a stronger presumption of illegality.

Over private land, lawful deforestation requires a “vegetation suppression authorization” (*Autorização de Supressão de Vegetação*, or ASV). The Instituto Centro de Vida (ICV) has pioneered a methodology that systematically crosses georeferenced PRODES deforestation data against ASV records held by SINAFLOR (the federal system for tracking the origin of forest products) and by state environmental agencies. Where cleared areas cannot be matched to a valid, georeferenced authorization, deforestation is classified as unauthorized — a reasonable operational proxy for illegality under the Brazilian Forest Code.

Applied to the most recent PRODES monitoring cycle (August 2024 to July 2025), the analysis found that **approximately 90% of deforestation in the Brazilian Amazon — around 4,400 km<sup>2</sup> — occurred without a recorded authorization**. The ten municipalities with the highest share of unauthorized clearance are concentrated in Pará, Amazonas, and Mato Grosso, consistent with longstanding frontier deforestation patterns (See Figure 1 below).

The robustness of this approach depends entirely on the quality and accessibility of ASV data. ICV's own audits of state environmental agencies reveal that several states do not publish georeferenced authorization records at all, or publish them in non-machine-readable formats that preclude systematic cross-referencing. Only Pará and Mato Grosso currently maintain digitized, publicly accessible ASV databases at a quality that supports reliable illegality assessment.<sup>10</sup> In other states, the estimate of unauthorized deforestation should be treated as a lower bound, as some authorizations exist but cannot be matched due to data fragmentation. Recognizing this, IBAMA launched in 2025 a dedicated panel (SINAFLOR x PRODES) that automates the cross-referencing of federal authorization records against PRODES data, representing a significant institutional step toward systematic illegality monitoring across the Legal Amazon.<sup>11</sup> Despite lacking a map visualization similar to ICV's, the availability of this tool demonstrates the capacity of civil society initiatives to pave the way for official systems.

**Figure 1. Authorized deforestation in Amazon and Cerrado biomes in Brazil (Source: Instituto Centro de Vida, 2026).**



In most other Amazonian countries, one or more of these conditions is absent or insufficient.

- Colombia and Peru have functional deforestation monitoring systems but lack national clearance authorization databases of equivalent coverage and accessibility. None of the other Amazon countries currently has a fully equivalent, publicly georeferenced vegetation-suppression-authorization registry. Peru, Colombia and Bolivia maintain partial records of forestry and agricultural clearance permits within their respective environmental authorities, but these are not consistently geospatialized or published in machine-readable form. Ecuador, Guyana, Suriname and Venezuela do not publish equivalent registries at all.
- Bolivia's ABT360 platform does include an up-to-date layer of "Areas designated for controlled grassland burning by the Agricultural Superintendency." This information forms an integral part of Administrative Resolution No. 147-2005 issued by the Agricultural Superintendency. It could be used in conjunction with remote sensing fire detection data to qualify the legality of these events. However, coverage appears to be limited to pastureland, limiting its usefulness for analysis in conjunction with data on forest cover loss.

Closing these gaps would require both technical investment — in building interoperable ASV-equivalent registries — and legislative and regulatory reform to establish mandatory georeferenced reporting of clearance authorizations at national level. ICV's Brazilian model offers a proven template; adapting it regionally is a medium-term objective that the ASL program could support through targeted technical assistance to national environmental agencies.

### Manual qualification of deforestation alerts in Mato Grosso

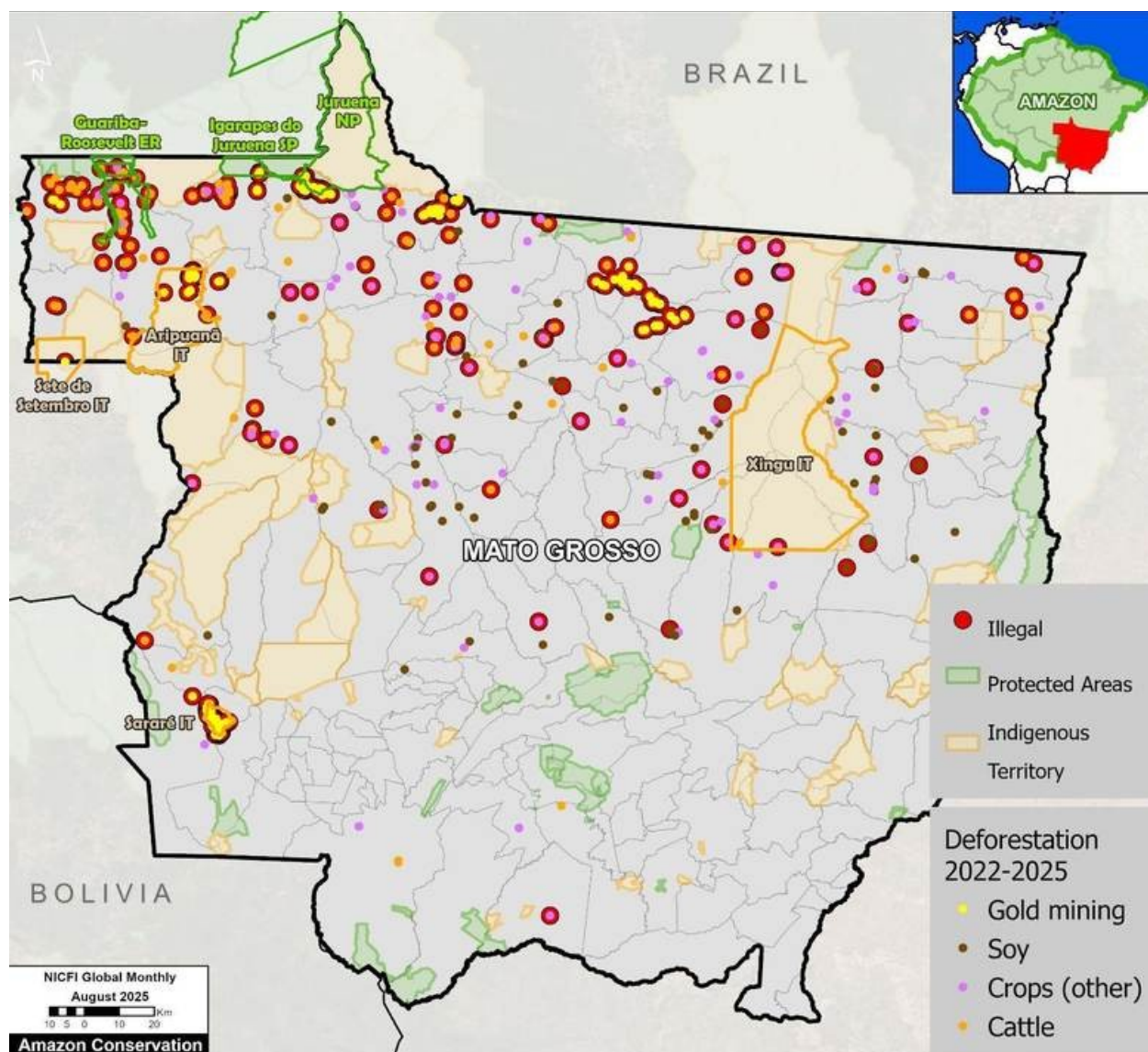
Between 2022 and 2025, Amazon Conservation conducted a four-year monthly monitoring program in Mato Grosso in collaboration with ICV, covering the entire state. Each month, Amazon Conservation identified major new forest loss detections from GLAD alerts (University of Maryland) and confirmed candidate cases as deforestation through visual interpretation of high-resolution satellite imagery.

Confirmed cases were entered into a shared tracking database and classified by driver. ICV then assessed the legal status of each case using land registry records — primarily the Rural Environmental Cadastre (CAR) — to determine whether the clearance occurred on land where deforestation was authorized under the Forest Code. For gold mining cases, legality was assessed by reference to valid mining concession records and the protected status of the land in question. The scope of driver categories tracked evolved across the monitoring period: the 2022 campaign covered soy and cattle; a third category (non-soy crops) was added in 2023; and gold mining was incorporated in 2024, producing a complete four-driver dataset from 2024 onward.

Across four years of monitoring, **479 cases of deforestation were confirmed in Mato Grosso**, covering a total area of 131,702 hectares. Of these cases, 67% (321) were illegal by count. Measured by area, 61% of cleared land — approximately 80,000 hectares — constituted potential manifestations of Nature crimes, with the remaining 39% attributable to legal clearance under Forest Code authorizations. The distinction between case count and area reflects the different scales of illegal and legal operations: legal clearances, which require prior authorization and are subject to procedural controls, tend on average to cover larger areas per case than the opportunistic, often small-scale incursions that characterize illegal activity.

For the two years with complete data across all four categories (2024–2025), **336 cases of deforestation were confirmed, of which 75% (252 cases) were illegal**. The 336 cases covered a total area of 86,615 hectares, of which 70% (60,553 hectares) was illegal.

**Figure 3. Deforestation events in Mato Grosso for the period 2022–2025, classified by driver and assessment of illegality (Source: Amazon Conservation/Instituto Centro de Vida, 2026).**



The driver breakdown of illegal areas reveals a contrast between case frequency and spatial impact (Table 3). Gold mining accounted for the largest share of illegal cases (70% of illegal cases) but cattle pasture expansion was responsible for the largest share of illegal deforestation (49% of illegal area, 29,854 ha), followed by non-soy crops (39%, 23,783 ha) and soy (1%, 862 ha). Illegal soy deforestation, while rare in absolute terms, is disproportionately significant from a supply chain accountability standpoint given the traceability mechanisms applied to Brazilian soy exports.<sup>12</sup>

Such disaggregation of both the drivers of deforestation and their legality opens new possibilities of advocacy. One example is pressure on government authorities from supply chain actors that may be bound by strict due diligence requirements. Replicated across the Amazon, it could provide a useful complement to supply chain traceability data such as [Trase.earth](https://trase.earth) and enable sector-specific, jurisdictional level assessments of illegal deforestation exposure risk.

**Table 3. Driver breakdown of illegal deforestation by case count and area, Mato Grosso, 2024–2025.**

| Driver        | Illegal cases (2024–25) | Illegal area (ha) | % of illegal cases | % of illegal area |
|---------------|-------------------------|-------------------|--------------------|-------------------|
| Gold mining   | 177                     | 6,053             | 70%                | 10%               |
| Cattle        | 41                      | 29,854            | 16%                | 49%               |
| Non-soy crops | 31                      | 23,783            | 12%                | 39%               |
| <b>Soy</b>    | 3                       | <b>862</b>        | 1%                 | 1%                |
| Total         | 252                     | 60,553            | 100%               | 100%              |

### Economic impact of illegal deforestation in the Brazilian Amazon

Illegal deforestation in the Brazilian Amazon generates short-term private benefits for perpetrators while imposing substantial, uncompensated socio-environmental costs on society. The Conservation Strategy Fund's deforestation impact calculator estimates the full socio-environmental cost of illegal clearance by monetizing carbon emissions, biodiversity loss, water-regulation services and other ecosystem-service values, and comparing these to the restoration and penalty costs that responsible parties would face under full enforcement. The tool was first developed for illegal gold mining and has since been extended to cover five Amazon countries. Economic valuation provides a foundation for assessing the severity of Nature crime across the Amazon through more than a strictly area lens. It can also help calibrate fines and damages to be paid by perpetrators as well as environmental restoration costs, strengthening accountability and environmental justice.

In 2023 alone, approximately 2.9 million hectares of forest and native vegetation were lost in the Brazilian Amazon, of which 2.4 million hectares were converted into pastureland, demonstrating the significant role of cattle ranching as a primary driver of illegal deforestation relative to other drivers of deforestation. Second was conversion for cropland (incl. soy), with 17,000 hectares. An estimated 90.8% of this deforestation is estimated to be illegal, as per the ICV study cited above.

The methodology integrates three valuation approaches:

1. **Opportunity Cost (Direct Values):** This approach estimates the foregone economic benefits from sustainable forest uses, specifically the responsible extraction of timber and non-timber forest products such as Brazil nuts and rubber.
2. **Loss of Ecosystem Services (Indirect Values):** This approach values the loss of environmental services provided by standing forests, including carbon sequestration (valued using the Social Cost of Carbon and REDD+ prices), erosion control, and biodiversity conservation.
3. **Replacement Cost:** This approach estimates the financial cost required to recover forest cover using different restoration techniques, ranging from lower-cost natural regeneration to more complex methods such as direct seeding.

The aggregation of these costs reveals the scale of economic liability associated with illegal deforestation. The total estimated socio-environmental cost of illegal deforestation in the Brazilian Amazon varies between **US\$ 26 billion and \$111 billion**, depending on the land-use conversion type, the carbon pricing model applied, and the chosen restoration strategy.

**Table 4. Cost of illegal deforestation in Brazilian Amazon (Source: CSF)**

| Land-Use Conversion               | Restoration Technique | Total Opportunity Cost (REDD Carbon Price) | Total Cost (Social Cost of Carbon) |
|-----------------------------------|-----------------------|--------------------------------------------|------------------------------------|
| Agricultural Cropland (17,000 ha) | Natural Regeneration  | US\$ 42 million                            | US\$ 651 million                   |
|                                   | Direct Seeding        | US\$ 111 million                           | US\$ 1.1 billion                   |
| Pastureland (2.4 million ha)      | Natural Regeneration  | US\$ 2.7 billion                           | US\$ 25 billion                    |
|                                   | Direct Seeding        | US\$ 7.7 billion                           | US\$ 110 billion                   |

The results indicate that while the conversion of forest to agricultural cropland generates higher per-hectare restoration costs due to greater soil disturbance and chemical inputs, the conversion to pastureland represents a substantially higher total financial burden due to the larger scale of converted areas. On a per-hectare basis, the cost is estimated at US\$ 2,476/ha for agricultural conversion compared to US\$ 1,097/ha for pastureland, assuming natural regeneration is used to restore the land to its original cover. If more costly direct seeding techniques for restoration are used, these costs increase to US\$ 6,532/ha and US\$ 3,125/ha, respectively.

One significant limitation of this analysis is that it assumes that restoration mandates will be enforced and that responsible parties will bear the full costs of environmental recovery. This assumption does not reflect current implementation realities in the Brazilian Amazon. According to the Termômetro do Código Florestal,<sup>13</sup> the Amazon contains 9.4 million hectares of “Legal Reserve” deficit (areas that should be conserved under the Forest Code but have been illegally deforested) and approximately 800,000 hectares of “Permanent Protection Area” deficit. The persistence of these substantial deficits reflects weak implementation capacity at state and federal levels and limited enforcement of restoration obligations. This implementation gap means that the restoration costs estimated in this analysis remain largely unrealized, and the economic liability of illegal deforestation continues to accumulate across the region.

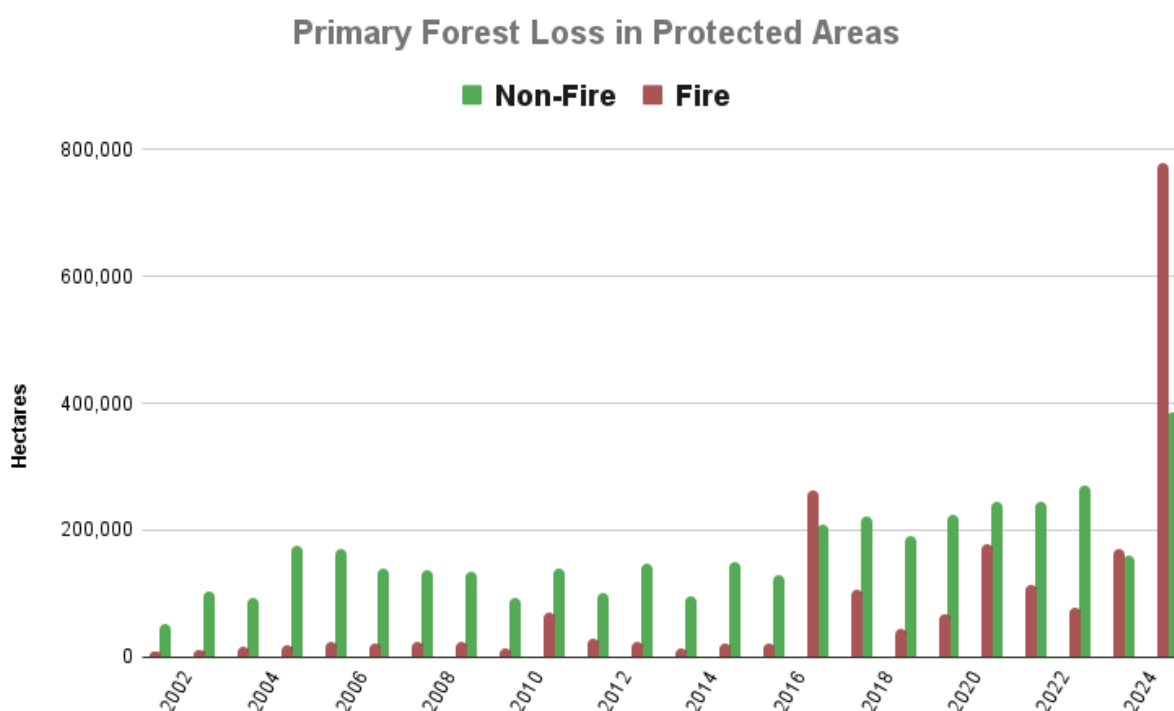
From a policy perspective, these findings indicate that preventing illegal deforestation is the most cost-effective strategy. The financial resources required for restoration, particularly for large-scale pastureland conversions, are substantial relative to public budgets. Additionally, because ecological recovery occurs over decades, these monetary estimates likely represent a partial accounting of the long-term losses in biodiversity and ecosystem services.

The deforestation impact calculator is well-suited to replication across Amazon countries, following the precedent of CSF’s mining impact calculator, now covering five countries. Its most important operational use-cases lie in prosecution (establishing quantified damages for criminal and civil proceedings) and in remediation planning (setting the scale and cost of restoration obligations for responsible parties). Expanding the tool to cover all eight ASL countries, with harmonized parameters, would strengthen accountability across the basin.

## Deforestation in Protected Areas and Indigenous Territories as a proxy for illegal deforestation across the Amazon: baseline for the year 2024

This section presents a pan-Amazon proxy for illegal deforestation that combines two widely available datasets: (i) the official cartographies of Protected Areas (PAs, here National Parks) and Indigenous Territories (ITs) compiled by RAISG for the eight Amazon countries;<sup>14</sup> and (ii) the University of Maryland's recently released Mapping Drivers of Primary Forest Loss (2001–2024) dataset, which attributes 1km forest-loss pixels to one of six direct drivers (wildfire, agriculture, hard commodities, logging, settlements and other natural disturbances).<sup>15</sup> Deforestation inside strictly protected PAs and titled ITs is, with limited exceptions such as subsistence agriculture, not authorized under national law and therefore provides a first-order proxy for illegal deforestation. Crossing these land designations with driver attribution allows the analysis to separate losses associated with Nature crime drivers (agriculture, mining, logging, settlements) from those linked to wildfire and natural disturbances.

Over 2001–2024 across the eight Amazon countries and territory, cumulative forest loss inside National Parks reached approximately 3.9 million hectares of non-fire loss and an additional 2.0 million hectares of fire-related loss. Inside Indigenous Territories, the corresponding figures were 2.4 million hectares of non-fire loss and 2.6 million hectares of fire-related loss. **2024 was a record-breaking year in both categories**, with fire emerging as the dominant immediate driver in the Brazilian, Bolivian and southern Peruvian Amazon — a pattern consistent with the exceptional drought of that year due to the El Niño phenomenon.



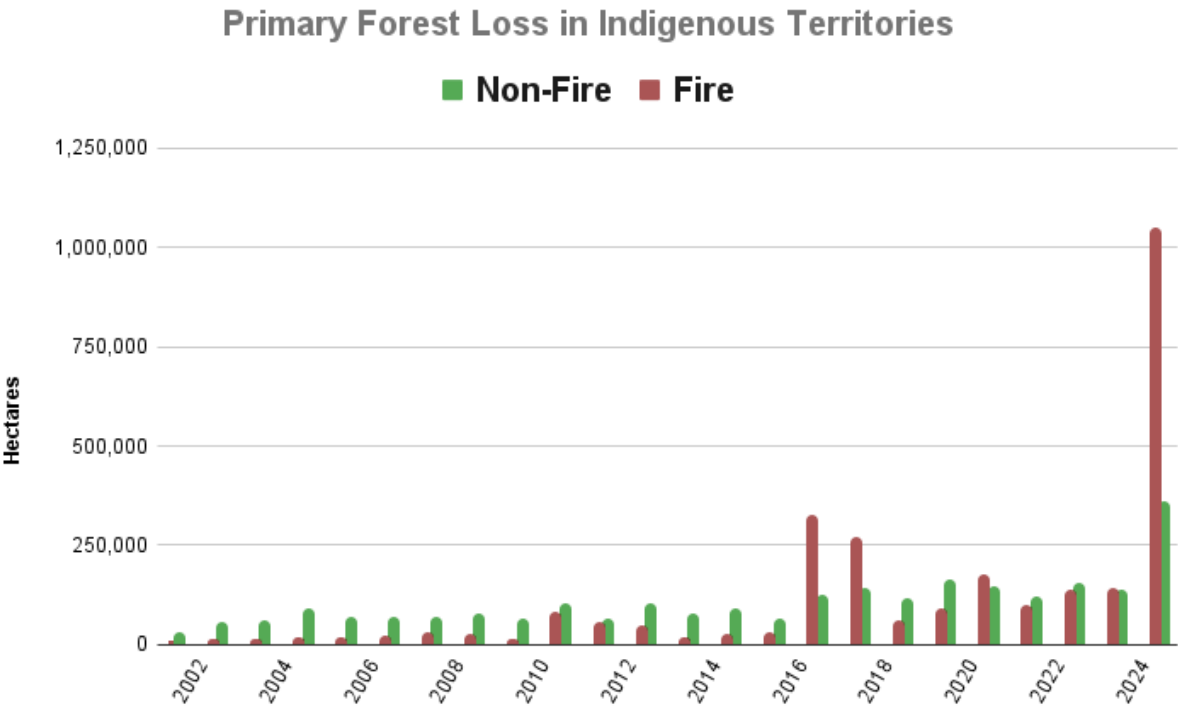


Figure 4. Annual forest loss (2001–2024) inside Protected areas and Indigenous territories across Amazon countries, disaggregated by fire and non-fire. Source: authors’ own analysis

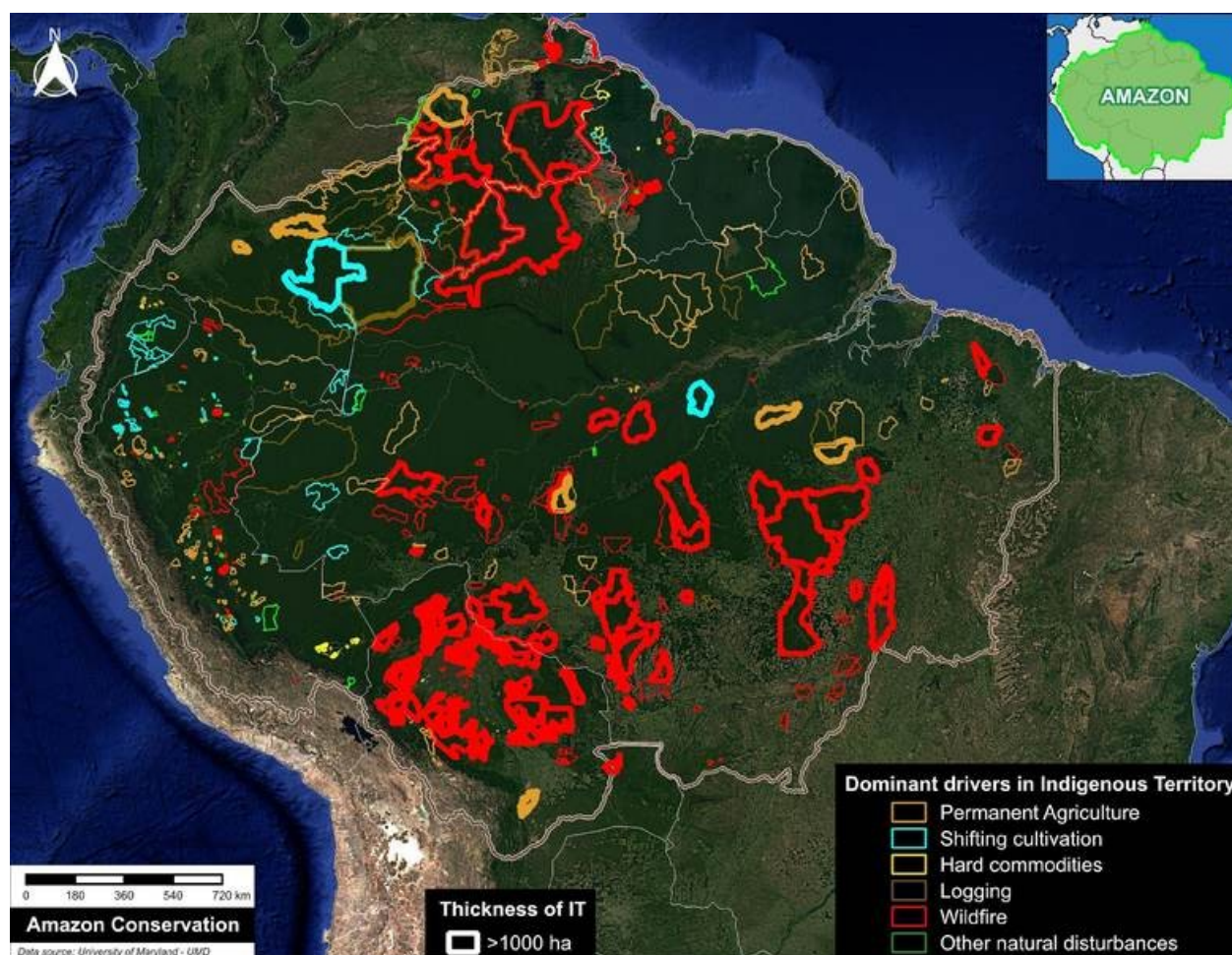
To produce a more tractable pan-Amazon illegality baseline, the analysis was restricted to the 23 National Parks and 86 Indigenous Territories that each recorded more than 1,000 hectares of cumulative forest loss for the year 2024. Within this filtered subset, **wildfire accounted for approximately 84.4% of forest loss in the most-affected National Parks** and a comparable share in the most-affected Indigenous Territories. The four drivers directly associated with Nature crime — agriculture, hard commodities (mining), logging and settlements — together accounted for approximately 13.2% of forest loss in National Parks and a similar share in Indigenous Territories.

Country-level patterns differ markedly. In Brazil and Bolivia, fire dominates forest loss in both PAs and ITs, with substantial agriculture-driven loss at IT boundaries. In Colombia, agriculture (notably cattle expansion in the northwestern Amazon) is the dominant non-fire driver inside National Parks and titled ITs. In Venezuela, hard commodities — overwhelmingly illegal gold mining — dominate forest loss inside PAs, with Canaima National Park, the Imataca Forest Reserve and Indigenous lands affected by the Arco Minero decree accounting for the bulk of losses. In Peru and Ecuador, agriculture and mining both register as significant drivers, with a marked expansion of mining-related loss in the Ecuadorian Amazon (Punino basin, Podocarpus) and in Madre de Dios (Peru) in 2024.

Figure 5. Dominant direct driver of forest loss inside the 23 National Parks of the Amazon with >1,000 ha cumulative loss (2001–2024). Source: authors’ analysis of UMD Mapping Drivers of Primary Forest Loss.



Figure 6. Dominant direct driver of forest loss inside the 86 Indigenous Territories of the Amazon with >1,000 ha cumulative loss (2001–2024). Source: authors' analysis of UMD Mapping Drivers of Primary Forest Loss.



High-resolution Planet satellite imagery was used to confirm the drivers in a sub-sample of detections. Agriculture-driven losses were visually confirmed in 12 National Parks and 38 Indigenous Territories, with distinct patterns of pasture expansion and mechanized clearing. Gold-mining-driven losses were confirmed in 6 National Parks and 15 Indigenous Territories. Logging-driven losses were confirmed in a smaller subset, generally along access roads and river networks. **As a first-order screening tool, this approach helps distinguish likely illegal forest loss from fire and natural disturbance in 2024, while recognizing that it does not substitute for case-level legal determination of potential Nature crimes.**

### 2.3 Conclusion on Amazon-scale data availability

Three conclusions emerge from this review:

**First, a direct aggregation of official national data is not feasible for pan-Amazonian analysis.**

No consistent, up-to-date deforestation baseline can be assembled from official sources alone, as these sources are often outdated or, in some cases, inexistent. Where they are up-to-date, their formats and methodologies vary, making them difficult to compare. Any Amazon-wide analysis will thus need to rely on civil society-generated data, which may then limit its acceptability for consideration in official decisions in intergovernmental cooperation fora, such as ACTO.

Consolidating a pan-Amazon deforestation figure will require closer cooperation between the national agencies responsible for these datasets. Aligning definitions of “forest” and “deforestation”, harmonizing minimum-mapping units and driver categories, and agreeing on a common reporting cycle are pre-conditions for aggregation of national datasets. The Amazon Cooperation Treaty

Organization (ACTO) is well-placed to broker this coordination, building on the 2023 ministerial decisions of the Belem Declaration and the forthcoming Strategic Cooperation Agenda.

**The legality assessment layer remains the main constraint.** Even where deforestation detection data is consistent and up-to-date, establishing illegality requires an equally consistent layer of georeferenced government permits (such as mining concessions), land designation data — distinguishing protected areas, Indigenous territories, and private properties and the rules that apply to each — across all eight countries. RAISG's geospatial platform provides the most comprehensive cross-country foundation for this layer, but supplementary national cadastral data is needed to establish illegality outside of protected areas and Indigenous territories.

**Driver-disaggregated data is a significant step up in data availability that helps refine assessments of legality across relevant regulations, bypassing the need for data on deforestation authorizations, for which there are not consolidated and spatially-explicit records in many countries.**

In the meantime, the most tractable near-term baseline for illegal deforestation combines UMD driver attribution with RAISG data on protected areas and Indigenous territories. Designations for conservation alone cannot capture the full legality context on private land, but they provide a common unit of analysis across the eight countries that is not available from any official pan-Amazonian system today. **Taken together, they represent a defensible proxy for the spatial footprint of illegal deforestation across the Amazon, across several drivers each of them indicative of specific potential manifestations of Nature crime.**

### 3. Illegal logging

#### 3.1 Review of national-scale data availability

Monitoring illegal logging presents methodological challenges that are fundamentally distinct from those of deforestation monitoring. Complete forest clearance — the focus of national and regional alert systems — is easily detected in medium-resolution satellite imagery. Selective logging, by contrast, removes individual trees while leaving the canopy largely intact, generating subtle signals that require very high-resolution (VHR) imagery or specialized detection algorithms to detect reliably. Establishing illegality adds a further layer of complexity: it requires cross-referencing detected extraction activity against timber management plan authorizations, concession boundaries, and protected area designations — data layers of uneven completeness and accessibility across the Amazon region. This section reviews the principal governmental and non-governmental data sources available for illegal logging monitoring in each of the eight Amazon countries.

#### Brazil

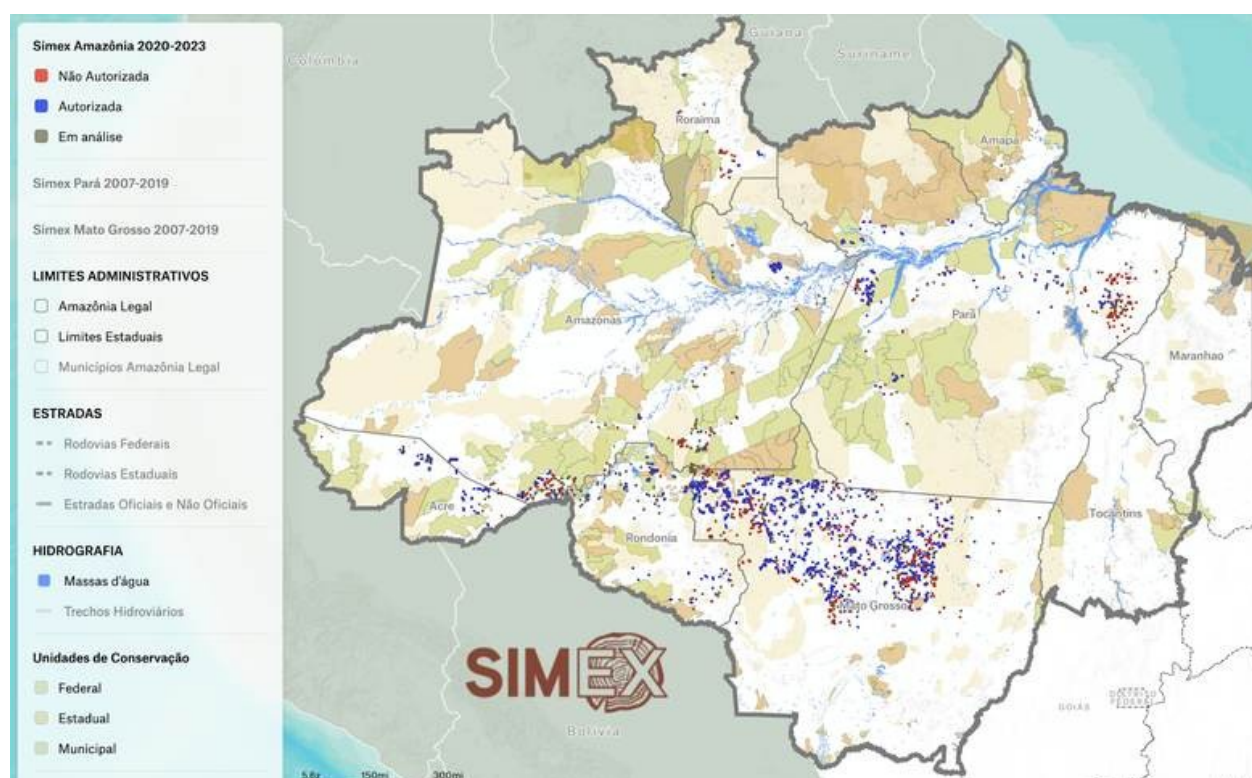
Brazil has the most developed institutional and civil society monitoring infrastructure for illegal logging in the Amazon. The federal timber traceability system, **SINAFLO** (Sistema Nacional de Controle da Origem dos Produtos Florestais), operated by IBAMA, is the primary legal instrument for tracking the origin of timber products across the production chain. As of 2023, SINAFLO is operational in 25 of Brazil's 27 states and records the issuance and utilization of timber transport documents (DOF — Documento de Origem Florestal), linking authorized volumes to specific management plans. In practice, however, SINAFLO's effectiveness is significantly undermined by the fraudulent issuance of timber credits: independent audits have documented that valid DOF credits can be used to launder

timber extracted illegally from unauthorized areas, including protected areas and indigenous territories, by attaching them to fictitious or exhausted management plans.<sup>16</sup>

The most authoritative independent monitoring system for logging in the Brazilian Amazon is **SIMEX** (Sistema de Monitoramento da Exploração Madeireira), produced by Imazon and published in collaboration with state environmental agencies. SIMEX uses medium-resolution satellite imagery to detect logging infrastructure — roads, log yards, and skid trails — rather than individual tree removal, and then cross-references detected activity against SINAFLOR authorization records to classify areas as authorized, unauthorized, or of uncertain status. The most recent published data estimate that approximately **35% of all active timber extraction areas in the Brazilian Amazon lack valid authorization**, with significant geographic variation by state: illegal extraction is particularly concentrated in Pará, where SIMEX documented a 22% year-on-year increase in illegal logging area in its most recent reporting cycle, reaching approximately 28,100 hectares of unlicensed extraction.<sup>17</sup> SIMEX data for Mato Grosso indicate that 46% of the total illegally exploited area in 2024 was located inside Indigenous Lands or Conservation Units, where commercial logging is prohibited regardless of authorization status.<sup>18</sup>

Together, SINAFLOR and SIMEX constitute the most complete publicly available national-level data infrastructure for illegal logging in the Amazon. Its principal weakness is the documented vulnerability of the authorization system itself to fraudulent credit generation, which means that even “authorized” extraction areas identified in SINAFLOR cannot be assumed to be fully legal without additional verification.

Figure 7. Simex Amazonia 2020-2030, SIMEX (Sistema de Monitoramento da Exploração Madeireira), produced by Imazon and published in collaboration with state environmental agencies



## Peru

Peru has two principal governmental bodies with mandates relevant to illegal logging monitoring. **OSINFOR** (Organismo de Supervisión de los Recursos Forestales y de Fauna Silvestre) is the independent forest supervision authority responsible for verifying compliance with forest management plans; its audit activities cover both concessionaires and Indigenous community forests and represent the primary source of official data on detected non-compliance. **SERFOR** (Servicio Nacional Forestal y de Fauna Silvestre) administers the national forest information system **SNIFFS** (Sistema Nacional de Información Forestal y de Fauna Silvestre), which is intended to centralize data on concessions, management plans, and timber transport authorizations nationwide. At the time of writing, the SNIFFS geoportal appeared functional but available data on illegal logging was limited, with only two locations presented.<sup>19</sup>

Research by the University of Sheffield, applying satellite-based canopy height and texture analysis to cross-reference against OSINFOR inspection records, found that approximately **37% of all sites reporting legal timber harvesting showed canopy damage patterns inconsistent with authorized selective logging**, suggesting that reported extraction volumes significantly understate actual offtake.<sup>20</sup> Amazon Conservation's Monitoring of the Andes Amazon Program (MAAP) has demonstrated the technical feasibility of detecting selective logging impacts using VHR imagery (Planet NICFI and Maxar), establishing a methodology applicable in Peru that could be extended to other countries, though it has not yet been applied systematically to produce national coverage for illegal logging as opposed to deforestation by mining.<sup>21</sup>

## Colombia

In Colombia, official monitoring of forest change is conducted by **IDEAM** through the Sistema de Monitoreamiento de Bosques y Carbono (SMBByC), which publishes annual deforestation alerts and end-of-year deforestation figures using a combination of Landsat and Sentinel-2 imagery. IDEAM attribution analyses identify illegal logging as contributing approximately **10% of total annual deforestation**, though this figure reflects clearance-scale events rather than selective extraction, and the methodology for attributing deforestation drivers is not fully standardized across reporting cycles.<sup>22</sup> For selective logging, no systematic national monitoring exists.

In 2021 Colombia developed its National Forest Traceability System (SNTFC) to track timber and other forest products across the entire supply chain by combining tagging, data registration, and digital monitoring tools. It integrates multiple national information platforms such as the National Environmental Information System (SIAC), Forest Information National System (SNIF), Biodiversity Information System (SIB), and traceability systems from the Instituto Colombiano Agropecuario (ICA), enabling authorities to verify the legal origin of forest products and identify actors involved.

Complementary tools further strengthen this ecosystem: the Single Environmental Procedures System (VITAL) centralizes environmental permits and administrative procedures, improving data consistency and traceability from the point of authorization, while the COVIMA app supports field-level verification and reporting of timber flows, enhancing real-time monitoring and enforcement. Key tools like the online transport permit system (SUNL) and the Forest Operations Logbook (LOFL) have improved transparency, generated updated national statistics on timber flows, and strengthened coordination between public agencies and the private sector. However, the system's effectiveness still depends heavily on uneven institutional capacity among regional environmental authorities (CAR) –particularly in terms of funding, staffing, turnover, and inter-agency coordination.

In Colombia, the Ministry of Environment designed the National Forest Traceability System (SNTF) to monitor the timber product supply chain from origin to final destination. The system records the legal origin of timber and is expected to integrate with tools such as the Single Environmental Procedures System (Ventanilla Integral de Trámites Ambientales, Vital) and other administrative registries. The aim is to facilitate the verification of timber origin and support producer formalization. Its implementation has progressed unevenly across regions and faces limitations in connectivity, resources, and coordination among platforms.<sup>23</sup>

This scheme is complemented by the platform Choose Legal Timber (Elija Madera Legal), which connects producers in compliance with regulations to buyers, with the purpose of facilitating the distinction between legal and illegal timber in the Colombian market. Its coverage and effective use have not yet been subject to systematic evaluation.

The broader picture of timber legality in Colombia is documented by a combination of NGO research and official enforcement data. Studies cross-referencing timber transport documentation against satellite-derived forest loss estimates find that approximately **47% of all wood sold commercially in Colombia originates from illegal sources**, with the illegal timber trade generating an estimated USD 750 million per year.<sup>24</sup> Analysis of official export records for the period 2008–2019 found that approximately 40% of Colombia's timber exports could not be verified as legally sourced.<sup>25</sup>

## Bolivia

Bolivia's forest governance is administered by the **ABT** (Autoridad de Fiscalización y Control Social de Bosques y Tierra), which issues forest management authorizations and has formal enforcement powers over illegal logging. However, the ABT's enforcement capacity is primarily administrative: Bolivian law does not provide for criminal sanctions for illegal logging, only for administrative penalties.<sup>26</sup> Between 2012 and 2018, ABT seized approximately 110,344 cubic metres of illegal timber, a figure that enforcement officials acknowledge substantially understates total illegal extraction given the size of the country's forested area and the remoteness of key production zones.<sup>27</sup>

## Ecuador

In Ecuador, the formal authority for forest management and timber control rests with the **MAE (Ministerio de Ambiente y Energía)**, which administers a timber transport permit system and conducts monitoring of forest change. However, MAE's monitoring and enforcement capacity in the Amazon region is limited, and no national timber traceability system equivalent to Brazil's SINAFLORES has been established. Estimates drawn from national enforcement data and NGO investigations suggest that up to 70% of timber extracted from some Amazon provinces is of illegal origin, with an annual illegal timber trade value estimated at approximately USD 100 million.<sup>28</sup>

## Suriname

In Suriname, the principal implementing body is the **SBB** (Stichting voor Bosbeheer en Bostoezicht/Foundation for Forest Management and Forest Supervision), a semi-autonomous statutory foundation that administers forest concessions, issues timber harvesting authorizations, and conducts compliance monitoring. In 2019, SBB introduced the **SFISS** (Suriname Forest Information and Supervision System), a platform addressed to individuals or companies involved in the timber logging industry. As such, only registered companies or people get an account to log in the system,

while the registration process requires a previous permit and must be done in person at the physical Office SBB. SFISS provides a digital platform for recording concession boundaries, management plan approvals, and timber volumes, enabling more systematic cross-referencing of extraction activity against authorizations.<sup>29</sup> However, the user has only access to their own information according to what is defined in the acquired permit.

The Gonini system is Suriname's National Land Monitoring System (SLMS) geoportal to provide transparent, geospatial data on the country's vast forest cover and is also managed by the SBB. As a core component of the National Forest Monitoring System (NFMS), it integrates satellite imagery, near real-time deforestation alerts, and land-use maps to track changes in the forest landscape. Civil society organizations can leverage this platform to monitor illegal logging by analyzing these open-access deforestation layers to identify hotspots, verifying the legality of timber operations through the Sustainable Forestry Information System (SFISS), and collaborating with Indigenous communities to ground-truth satellite alerts. By synthesizing Gonini's data with community-led monitoring and statistical insights from the KOPI portal ([kopi.sbb.sr](http://kopi.sbb.sr)), NGOs can build robust, evidence-based cases for advocacy, hold authorities accountable, and support national enforcement efforts against illicit logging activities.

## Guyana

Guyana's forest sector is regulated by the **GFC** (Guyana Forestry Commission), which issues timber harvesting licenses, maintains a central database of concession records, and operates a log tagging and tracking system to monitor timber flows from forest to processing facility.<sup>30</sup>

## Venezuela

Venezuela lacks any functioning national forest monitoring and enforcement system for illegal logging. The institutional collapse of **MINEA** (the Ministry of Ecosocialism, formerly MARN) has eliminated the institutional capacity for systematic forest governance, and no timber traceability or remote sensing monitoring programme has been operational in recent years.

The particular challenge in Venezuela is that the Arco Minero del Orinoco decree, while primarily directed at mining, has also facilitated the expansion of other extractive activities including logging into areas that were previously more effectively protected. The intersection of state-sanctioned extraction, armed non-state actor control of forest territories, and institutional collapse creates conditions under which any legality assessment framework cannot meaningfully be applied.

## 3.2 Regional Datasets and conclusion on Amazon-scale data availability

While for deforestation MapBiomas Amazonia and the UMD forest-loss layers provide harmonised pan-Amazon coverage, selective logging, which removes individual trees while leaving the canopy largely intact, is not represented in supra-national datasets.

Taken together with the national-scale review in Section 3.1, three tiers emerge across the eight Amazon countries. **Brazil** operates the most developed national infrastructure (SINAFLO combined with Imazon's SIMEX), albeit undermined by documented fraud in the issuance of timber credits that weakens the "authorised" classification at its source. **Guyana and Suriname**, and Colombia to some extent, have functional concession-management and log-tracking systems — SFISS in Suriname, the GFC's log-tagging system in Guyana — but do not publish independent detection layers that can be cross-referenced against them at national scale. **Peru, Colombia, Bolivia, Ecuador and Venezuela**

lack systematic, publicly available data on selective-logging extraction and its legality status: the most granular available evidence in these countries comes from audit samples (OSINFOR's inspections in Peru), trade-flow comparisons (the 47% illegal-share estimate for Colombia; the 40% unverifiable share of export records for 2008–2019), and one-off research studies (the Sheffield canopy-disturbance analysis in Peru).

Thus, a consistent Amazon-wide measure of illegal logging is not achievable from existing data, and closing the gap is a longer-horizon undertaking than for the other manifestations reviewed in this report. It would require two parallel investments: scaling a SIMEX-type logging-infrastructure detection methodology (roads, log yards, skid trails) to the remaining seven countries, and building interoperable concession and authorisation registries of coverage comparable to Brazil's SINAFLO in each.

In the interim, comparability between countries could come from country-level estimates of the illegal share of extraction or through proxy indicators such as GFW-detected road expansion and canopy disturbance inside concessions.

## 4. Illegal Artisanal and Small-Scale Gold Mining

### 4.1 Review of Available Data from Governmental and Non-Governmental Sources

Monitoring illegal artisanal and small-scale gold mining (ASGM) presents a distinct set of challenges compared to fully land-based manifestations of Nature crime. While land-based mining scars can be detected through satellite imagery, much of the activity occurs on or close to river banks, which are naturally dynamic in the Amazon and complicate the interpretation of remote sensing evidence. Establishing illegality requires cross-referencing detected activity against mining concession records, protected area boundaries, and Indigenous territory designations, for which consistent and updated data across all 8 countries is difficult to obtain. Fully river-based, dredge mining adds a further layer of complexity, as its mobile, small-footprint often falls below the detection threshold of medium-resolution satellites (see below in Section 6). This section reviews the principal data sources available at national and regional level for land-based ASGM monitoring, organized by country and then by regional platform.

#### Brazil

Brazil has the most developed monitoring infrastructure for ASGM in the Amazon. The **BrasilMAIS** detection platform, while only available to Brazilian civil servants, disaggregates between deforestation alerts by driver, including gold mining. **MapBiomass Brasil's** dedicated “mining” class shows that small-scale mining area more than doubled between 2012 and 2022, reaching approximately 264,000 hectares before declining by 35% in 2023 and a further 45% relative to the peak in 2024.<sup>31</sup> Legality assessment indicates that in 2022, **77% of detected garimpos showed explicit signs of illegality**, based on location outside valid concession boundaries or within protected areas.<sup>32</sup>

Near-real-time monitoring by Amazon Mining Watch (AMW) points to a more complex picture beneath that aggregate trend. In the fourth quarter of 2025 alone, Brazil registered the largest new mining expansion of any Amazonian country at approximately 2,000 hectares.<sup>33</sup> AMW's resurgence analysis — which flags areas where mining had previously abated but has recently reappeared — identified new mining scars in two protected areas in Mato Grosso: the Igarapés do Juruena State

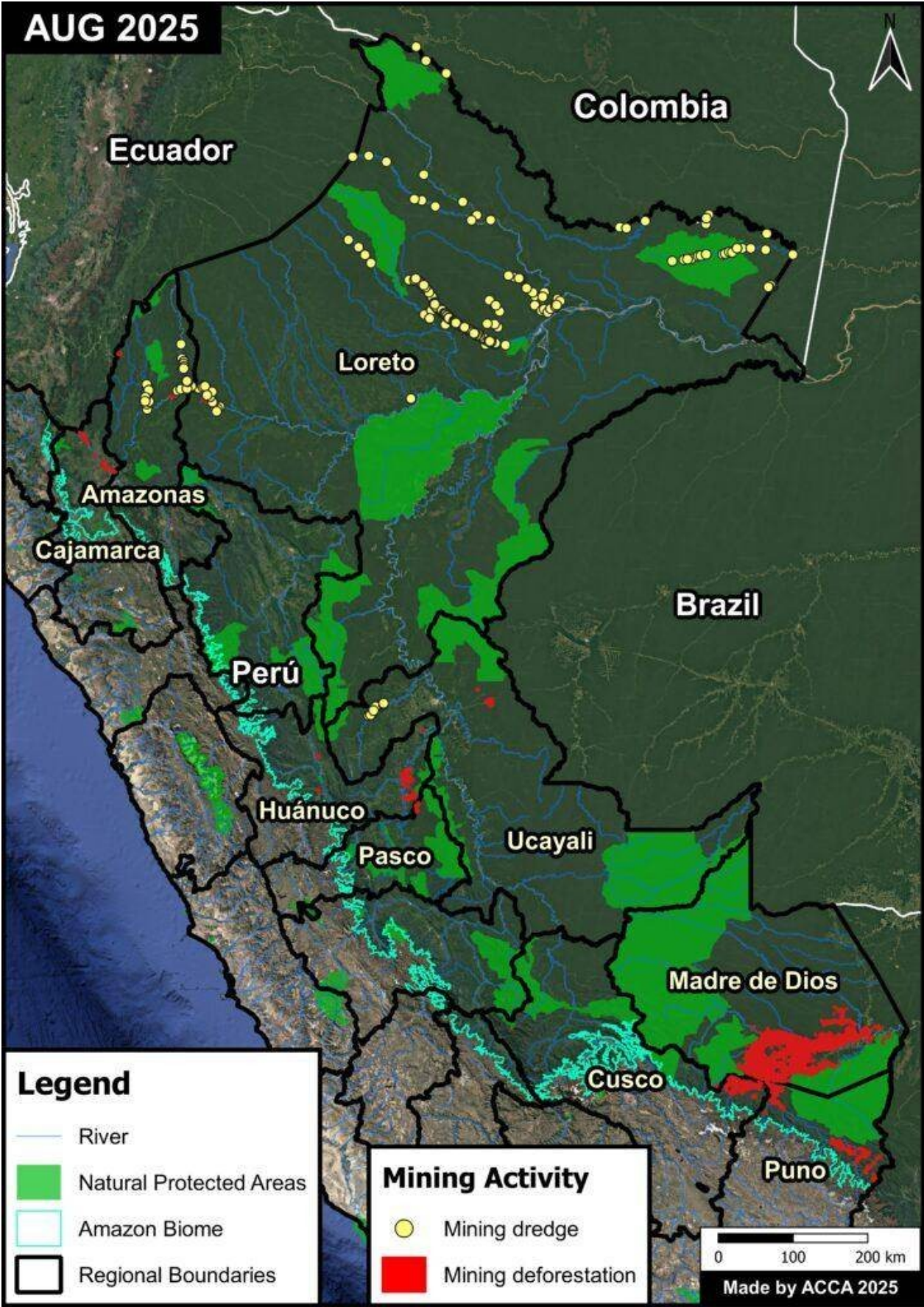
Park, where 2.83 hectares appeared after a three-quarter pause, and the Aripuanã Indigenous Territory, where nearly 60 hectares were recorded in a single quarter.<sup>34</sup> These case-level detections illustrate what aggregate annual data can obscure: enforcement suppresses mining in the short term, but without sustained pressure, criminal networks return — often to the same sites.

## Peru

Conservación Amazónica – ACCA implements the Monitoring of the Andes Amazon Program (MAAP), in Peru, where it has produced the most comprehensive country-level dataset on gold mining deforestation in the country. Its most recent report ([MAAP #233, February 2026](#)) documents gold mining activity across all nine affected regions of the Peruvian Amazon (Amazonas, Cajamarca, Cusco, Huánuco, Loreto, Madre de Dios, Pasco, Puno, and Ucayali), covering both land-based and river-based operations. Cumulative gold mining deforestation in Peru reached **139,169 hectares by mid-2025**, with 97.5% of this total concentrated in the Madre de Dios region.

MAAP's Peru data represents the most spatially complete and methodologically documented national ASGM dataset in the Amazon, and its multi-source approach is explicitly designed to bridge the gap between satellite detection and ground truth.

**Figure 8. National-scale map of ASGM sites (land and river-based) in Peru**



## Ecuador

MAAP also conducts systematic monitoring of gold mining in Ecuador in partnership with Fundación Ecociencia, with particular focus on the Andes-Amazon transition zone where mining activity has expanded rapidly in recent years. Reports cover both the northern and southern sectors of the Ecuadorian Amazon.

In the northern sector (Punino River Basin), MAAP's [MAAP #227](#) documents cumulative mining deforestation of 1,422 hectares since 2019, with an increase of 420 hectares in 2024 alone. Critically, **approximately 90% of this mining deforestation is likely illegal**, occurring outside the boundaries of authorized mining areas. In the southern sector (Morona Santiago Province), [MAAP #238](#) documents 856 hectares of affected area by 2024 — a doubling of the impacted area in just four years. Illegal mining has also penetrated formally protected areas: in Sumaco Napo-Galeras National Park, mining deforestation expanded by 125% between July 2023 and September 2024, from 22 to 50 hectares.

## Colombia

In Colombia, the Fundación para la Conservación y el Desarrollo Sostenible (FCDS) is the principal civil society organization conducting field-validated mining monitoring in the Colombian Amazon. FCDS works in close collaboration with MAAP, combining overflight surveys with satellite imagery analysis to document mining activity in remote river corridors.

[MAAP #228](#) reports 29 dredges operating on the Puré River in November 2024 and 27 in March–April 2025, entirely within the Puré National Park, where no mining is permitted. Low-altitude overflights conducted by FCDS in September 2024 provided additional detail on mining methods and infrastructure not visible in satellite imagery. Research drawing on FCDS data and social cartography methodology documented a 1.8% loss of forest cover (990 hectares) in conservation areas between 2020 and 2023, with 70% of forest loss hotspots coinciding with new mining openings. FCDS has also collaborated with Conservation Strategy Fund on applying the Mining Impacts Calculator to Colombian territories, producing socioeconomic cost estimates for affected Indigenous communities.

## Bolivia

Bolivia's ASGM monitoring is less institutionally developed than that of Brazil, Peru, or Colombia. River-based dredge monitoring on the Bolivian Madre de Dios is being developed by Conservación Amazónica – ACEAA, which has built a barge-tracking workflow based on Planet imagery and manual digitization, producing monthly monitoring reports used as evidence in coordination with the Fiscalía Departamental de Pando. Land-based ASGM in Bolivia is not yet subject to systematic civil society monitoring equivalent to that available in Brazil, Peru, or Ecuador.

## Suriname

For Suriname, the most comprehensive analysis of gold mining deforestation has been produced through a collaboration between the Amazon Conservation Team (ACT) and MAAP, combining 24 years of satellite data with Amazon Mining Watch's near-real-time AI detection results ([MAAP #237](#)). The analysis finds that **gold mining has impacted approximately 92,000 hectares of forest in Suriname over the past 24 years**, with roughly 25,000 hectares — 28% of the cumulative total — occurring in the four-year period from 2021 to 2024, indicating rapid recent acceleration. Protected areas are increasingly affected: mining deforestation within Brownsberg Nature Park reached 1,274

hectares (8.8% of the park's area) between 2001 and 2024, and a new mining front appeared inside Brinckheuvel Nature Reserve in March 2025. A confidential version of this analysis was shared directly with the Surinamese government to inform policy discussions.

## Guyana

Dedicated country-level civil society monitoring of ASGM for the country is not available, and data for the country is limited to regional datasets (see below Section 5.1.2)

## Venezuela

Venezuela presents the most complex monitoring environment in the Amazon due to the institutional collapse of its environmental agencies and the active role of the state in promoting extractive activities within the **Arco Minero del Orinoco** — a decree-defined zone covering approximately 12% of the country's territory. In this context, **SOS Orinoco**, a Venezuelan civil society organization, has become the principal source of documented evidence on mining impacts.

SOS Orinoco's monitoring relies on satellite imagery analysis combined with field reports from affected Indigenous communities. Its data documents sustained and accelerating environmental destruction: within Canaima National Park (a UNESCO World Heritage Site), mined areas grew by more than 1,300% between 2000 and 2023, from 122 to 1,582 hectares, with a further 73 hectares added in 2024<sup>35</sup>. In the four years following the Arco Minero decree (2016), over 2,821 km<sup>2</sup> of forest were destroyed, half of it in protected territories.<sup>36</sup>

## Regional Datasets

**Amazon Mining Watch (AMW).** [Amazon Mining Watch](#) is a partnership between Earth Genome, the Pulitzer Center's Rainforest Investigations Network, and Amazon Conservation. It is the first platform to provide near-real-time, AI-powered detection of land-based gold mining deforestation across all eight Amazonian countries. The platform updates quarterly, enabling systematic monitoring of new mining fronts. In 2025, it detected **37,109 hectares of recent gold mining expansion** across the Amazon, with Brazil (15,538 ha), Peru (6,511 ha), and Guyana (4,942 ha) recording the largest areas, and Venezuela, Suriname, Ecuador, and Bolivia each exceeding 2,000 hectares ([MAAP #235](#)).

Accuracy assessments are ongoing to refine the model based on known high-accuracy national datasets such as those maintained by Conservación Amazónica – ACCA in Peru and Fundación Ecociencia in Ecuador, and revised data for the entire annual series from 2018 to 2025 is set to be published in 2026. Regular updates alerting of new incursions into Protected Areas and Indigenous Territories previously untouched by mining, cases of resurgence of mining in areas where mining had stopped, and areas with persistent and accelerating mining deforestation will continue to be provided in 2026.<sup>37</sup>

A key feature of AMW is its legality assessment layer, which cross-references detected mining areas against protected area and Indigenous territory boundaries and, in five countries (Bolivia, Brazil, Colombia, Ecuador, and Peru), against mining concession records to produce a presumption-of-illegality classification.<sup>38</sup>

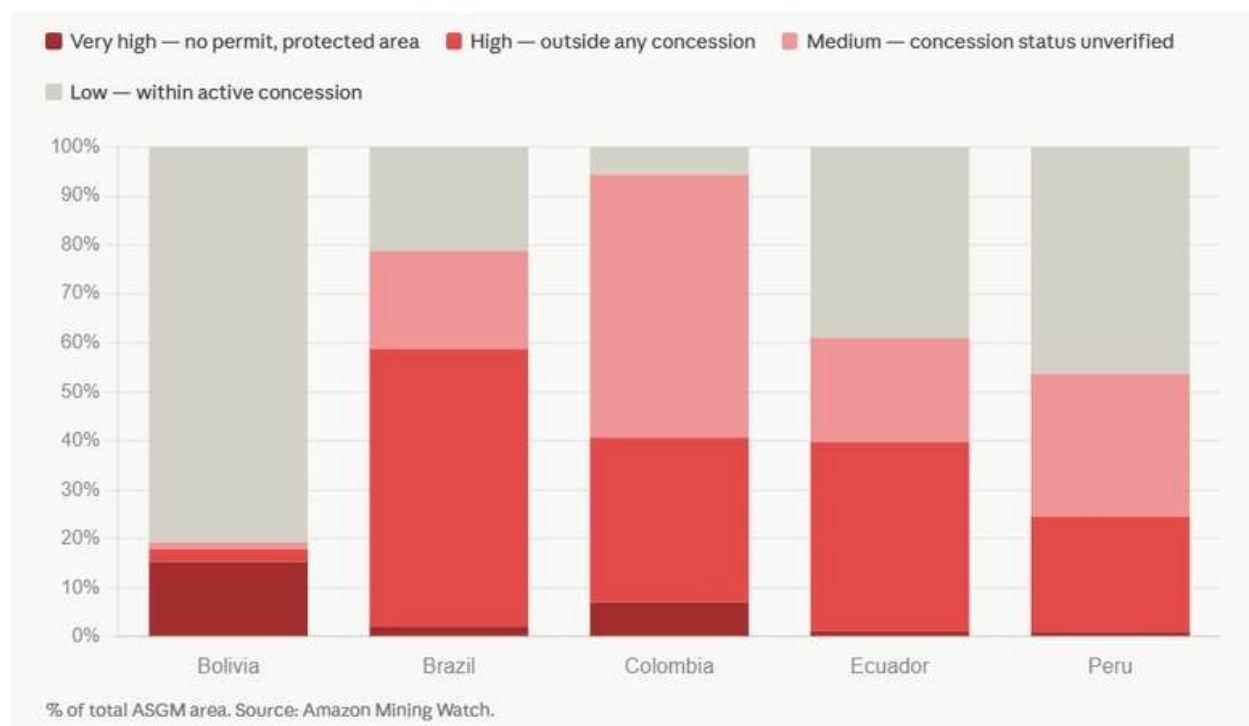
**According to this analysis, Colombia and Brazil are the countries with the highest rates of illegality in ASGM, followed by Ecuador and Peru** (See Table 5). Taken together, MapBiomass'

mining class and the SOS Orinoco, MAAp and WWF/ACTO datasets constitute the most complete available baseline of the extent and distribution of illegal ASGM across the Amazon. Maintaining these datasets on an annual cycle and consolidating them into a common time series is essential for assessing the robustness of policy efforts to curb illegal ASGM, tracking enforcement strength, and monitoring displacement effects across the basin.

**Table 5. Presumption of illegality of ASGM in 5 countries of the Amazon, in % of total area (Source: Amazon Mining Watch)**

| <b>Presumption of illegality:</b> | <b>Very High</b><br>Activity is occurring without permit and within a protected area that doesn't allow for any kind of resource exploitation | <b>High</b><br>Activity is occurring outside of any explicit concession for doing so | <b>Medium</b><br>Activity is happening within a concession, but active status of the concession could not be verified. | <b>Low</b><br>Activity is happening within an active concession (assuming compliance with all applicable exploration requirements) | <b>Indices of illegality – all categories</b> |
|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|
| <b>Bolivia</b>                    | 15.3%                                                                                                                                         | 2.6%                                                                                 | 1.4%                                                                                                                   | <b>80.8%</b>                                                                                                                       | <b>19.2%</b>                                  |
| <b>Brazil</b>                     | 2.1%                                                                                                                                          | <b>56.7%</b>                                                                         | 20.0%                                                                                                                  | 21.2%                                                                                                                              | <b>78.8%</b>                                  |
| <b>Colombia</b>                   | 7.0%                                                                                                                                          | 33.7%                                                                                | <b>53.6%</b>                                                                                                           | 5.7%                                                                                                                               | <b>94.3%</b>                                  |
| <b>Ecuador</b>                    | 1.1%                                                                                                                                          | 38.7%                                                                                | 21.2%                                                                                                                  | <b>39.0%</b>                                                                                                                       | <b>61%</b>                                    |
| <b>Peru</b>                       | 1.0%                                                                                                                                          | 23.5%                                                                                | 29.2%                                                                                                                  | 46.3%                                                                                                                              | <b>53.7%</b>                                  |

Figure 9. Graph representing the presumption of illegality in 5 countries of the Amazon in % of total area.



**MapBiomias Amazonia.** [MapBiomias Amazonia](#) produces annual land cover and land use maps at 30-meter resolution from 1985 to 2023 across all eight Amazon countries. The platform includes a dedicated “mining” class that covers both artisanal and industrial operations. The most recent year available is 2023 and the data cannot be filtered for ASGM, limiting its usefulness for an assessment of recent ASGM extent and distribution across the Amazon, and legality analysis against known ASGM concessions.

**WWF also partnered with ACTO** on a basin-wide study that identified more than 4,000 illegal mining sites across all nine Amazonian countries — one of the first attempts at a comprehensive Amazon-wide illegal mining count.<sup>39</sup> The study is from 2023 and has not been repeated since.

**RAISG.** The Amazon Network of Georeferenced Socio-environmental Information ([RAISG](#)) maintains the most comprehensive pan-Amazonian spatial dataset on protected areas, Indigenous territories, and mining concessions, an essential input to legality analysis of known ASGM extent. The network also produced a layer of illegal ASGM in 2020, based on a combination of mining concessions and MapBiomias data on mining areas. At the time of writing, this Amazon-wide layer was in the process of being updated based on different data sources, including MapBiomias and Amazon Mining Watch, with a view to provide authoritative data on the issue.

## 4.2 Challenges in consistent detection of river-based mining

River-based artisanal and small-scale gold mining (ASGM) — using dredge platforms anchored directly on Amazonian rivers — has emerged as one of the most rapidly expanding forms of Nature crime in the basin.

Unlike land-based ASGM, which leaves visible scars on forest cover detectable through satellite-based deforestation monitoring, river-based dredge mining presents a fundamentally different detection challenge. The physical footprint of a mining dredge — a floating barge or raft operating on a watercourse — may be as small as a few square meters and, critically, is mobile. Dredges move

along river systems daily, following seasonal hydrological patterns, relocating in response to gold concentrations, or dispersing in the wake of enforcement operations.

These structural monitoring gaps carry direct implications for enforcement. The return of approximately 130 dredges to the Madeira River just five months after a major enforcement operation in August 2024<sup>40</sup> illustrates both the resilience of criminal networks and the limits of enforcement cycles not grounded in continuous monitoring.

In January 2026, Amazon Conservation convened a workshop in Bogotá with representatives of civil society organizations across seven countries of the Amazon<sup>41</sup> to discuss, among other topics, the availability of consistent monitoring data on river-based mining and potential ways forward. The discussion identified persistent monitoring gaps, available technologies, and priority investments for a regional monitoring architecture.

The workshop confirmed four persistent monitoring gaps:

- **Dredge mobility and counting methodology:** near-daily monitoring cadence is needed for reliable dredge counts, but no standard methodology exists to reduce counting error for mobile objects, and recording practices remain inconsistent across organizations and jurisdictions.
- **Image resolution and satellite tasking:** VHR optical imagery (sub-0.5 m) is essential for smaller dredges but expensive and dependent on advance tasking — which presupposes prior intelligence about mining locations, systematically excluding undocumented fronts.
- **Seasonal hydrology:** dry-season operations cluster around exposed sandbars while wet-season activity disperses into floodplains, requiring monitoring protocols adapted to shifting river morphology that are not yet standardized at regional level.
- **Cross-border displacement:** dredging networks routinely cross jurisdictional boundaries to evade enforcement — a dynamic documented in the Yanomami Indigenous Territory, where miners displaced by Brazilian operations migrated toward Venezuelan and Surinamese river corridors — yet cross-border monitoring coordination remains absent.

Participants also identified a number of available and emerging detection technologies:

- **Synthetic Aperture Radar (SAR) imagery** — notably the European Space Agency (ESA)'s Sentinel-1 constellation — represents a significant technical advance for dredge detection. SAR penetrates cloud cover and operates day or night, addressing two critical constraints on optical monitoring in the humid tropics. U.S. Geological Survey research demonstrated that semi-automated detection of riverine dredges using Sentinel-1 SAR is technically feasible on the Madeira River, with a local detection method offering the best balance between sensitivity and precision; the strong radar backscatter of metallic dredge structures on water allows them to be extracted using statistical thresholds adapted from ocean vessel detection.<sup>42</sup>
- **Automated object detection algorithms** applied to satellite imagery offer a scalable complement. Amazon Mining Watch's AI-powered quarterly detection of land-based mining scars has demonstrated regional-scale feasibility;<sup>43</sup> A comparable approach for river-based dredges requires labelled training datasets across diverse river environments and seasons, identified by workshop participants as a high-priority technical investment.
- **Drone and light aircraft overflights** provide high-resolution ground-truth for satellite analyses and are well-established among several participating organizations. Their limitation is scalability:

they are resource-intensive, cannot be deployed continuously, and carry security risks in areas controlled by criminal networks.

- **Mobile applications** allow community members and field monitors to log dredge observations with GPS coordinates in near-real-time — valuable for river segments inaccessible to aerial or satellite observation. A key constraint is interoperability: current apps used by different organizations cannot share data, preventing regional aggregation of what are individually substantial national datasets.
- **Among newer satellite capabilities**, Planet's Pelican constellation — capable of 0.3-m VHR optical imaging with onboard AI object detection —<sup>44</sup> was identified as potentially transformative if access costs can be reduced for civil society organizations. Planet's Tanager hyperspectral constellation (400–2,500 nm)<sup>45</sup> offers additional potential for detecting the spectral signatures of mercury contamination and suspended sediment plumes associated with dredge operations.<sup>46</sup> ESA's forthcoming BIOMASS mission and thermal infrared detection — exploiting the heat signatures of diesel engines powering dredges — were also flagged as candidate complementary approaches.
- **River sedimentation and water turbidity monitoring** represents a methodologically distinct approach that can serve as an indirect proxy for dredge activity. Research has shown that artisanal gold mining causes measurable, satellite-detectable changes in riverine suspended sediment concentrations, including seasonal inversions distinguishable from natural variability.<sup>47</sup> While this approach does not identify individual dredges, it can flag disturbed river segments and guide targeted VHR tasking. Combined with nighttime light detection — useful where dredges operate after dark to evade daytime coverage — sedimentation screening could serve as a first-filter layer in a multi-source monitoring architecture.

The workshop converged on four priority investments for moving from fragmented, nationally-specific monitoring toward a consistent Amazon-wide baseline:

- **Standardized reporting framework:** agreed definitions of dredge types and operational status, common georeferencing protocols, and interoperable data formats allowing field observations, drone surveys, and satellite analyses to feed a single regional monitoring layer.
- **Security protocol** with standardized program guidelines about public appearances and comments about mining detection work, which can generate threats.
- **Regional geodatabase:** a rolling, multi-source database of river-based mining activity accessible to all contributing organizations, governed by information security protocols to prevent mining location data from being exploited by criminal networks.
- **Dredge movement analysis:** systematic modeling of daily and seasonal displacement ranges by river type, with explicit cross-border tracking for frontier river systems shared by two or more countries.
- **Technical training:** investment in satellite image analysis (optical and SAR), mobile app deployment, and standardized data protocols to broaden the network of national and subnational organizations contributing to a common monitoring system.

### 4.3 Assessment: Coverage Gaps and Implications for a Regional Baseline

Taken together, the national and regional data sources reviewed above represent a substantially more developed monitoring landscape for ASGM than existed five years ago, driven largely by civil

society investment in satellite-based detection and the launch of Amazon Mining Watch as a regional platform. However, significant gaps remain.

At national level, systematic monitoring coverage is concentrated in Brazil and Peru, with increasingly credible civil society datasets emerging for Ecuador, Colombia, and Suriname. Bolivia lacks a land-based ASGM monitoring system equivalent to those in neighboring countries. Venezuela is monitored almost exclusively by SOS Orinoco under conditions of severely constrained access, and the state's active promotion of the Arco Minero makes standard legality assessment frameworks difficult to apply. Guyana has no dedicated civil society monitoring capacity for ASGM despite being identified as a high-impact country by regional satellite data.

At regional level, Amazon Mining Watch provides the most promising foundation for a consistent pan-Amazonian ASGM baseline, combining broad coverage, near-real-time frequency, and a nascent legality assessment layer. While useful to assess overall trends at large scales and detect new incursions given the high frequency of updates, the platform is not accurate or high-resolution enough to be used as evidence in reports to authorities, showing the complementarity with national systems maintained by civil society organizations with strong local bases and direct rapport with enforcement agencies.

With regards to river-based mining the priorities identified at the Bogota workshop shed light on the challenge of monitoring this fast-growing and destructive manifestation of Nature crime. Translating that expertise into a formal regional monitoring architecture will require substantial institutional support and deliberate mechanisms for integrating civil society monitoring data into governmental enforcement and prosecutorial workflows.

## 5. Mercury pollution

Mercury pollution from artisanal and small-scale gold mining (ASGM) represents one of the most pervasive and least visible manifestations of Nature crime in the Amazon. Unlike deforestation — which leaves a permanent, satellite-detectable scar — mercury enters river systems as an invisible contaminant, cycling through water, sediment, and living organisms, across national boundaries and with no regard for jurisdictional divides. Estimates of annual mercury releases from ASGM in the Amazon range from 200 to over 500 tonnes, with cumulative releases over four decades potentially exceeding 8,000 metric tonnes<sup>48</sup>.

### 5.1 Available datasets

Existing datasets on mercury in the Amazon can be grouped into three categories: peer-reviewed scientific studies, institutional monitoring programs, and regulatory national inventories. Taken together, they constitute a substantial but geographically uneven and methodologically inconsistent body of evidence.

**Peer-reviewed datasets** provide the most rigorous available data but are heavily concentrated in Brazil and, to a lesser extent, Peru. A 2025 meta-analysis of mercury contamination across social groups and environmental contexts in the Amazon basin identified 25 peer-reviewed studies covering Brazil, 13 covering Peru, and 6 covering Colombia; Ecuador and Venezuela had no representation in that review, and the available literature more broadly contains little published data from Guyana, Suriname, and Bolivia.<sup>49</sup> The most spatially comprehensive scientific dataset is the SERAFM probabilistic model, applied to 8,259 sub-basins across the Branco, Tapajós, and Xingu river

systems, which generates projected mercury distribution and fish bioaccumulation estimates at sub-basin resolution.<sup>50</sup>

Mercury bioaccumulates through the food chain, reaching its highest concentrations in large, long-lived carnivorous fish. Mean mercury concentrations in fish across key basins illustrate the scale of contamination: 0.47 µg/g in the Madeira, 0.69 µg/g in the Tapajós, and 0.72 µg/g in the Madre de Dios (Peru) — the latter two substantially above the WHO guideline of 0.5 µg/g for most species.<sup>51</sup>

A risk assessment covering the Branco and Tapajós basins found that approximately 49.8 percent of the assessed population faces extremely high mercury exposure risk through fish consumption.<sup>52</sup> In the city of Santarém, at the confluence of the Tapajós and the Amazon, 75 percent of residents show elevated blood mercury levels, with some carrying four times the WHO safety threshold.<sup>53</sup>

**At the institutional level**, the most significant ongoing effort to map mercury contamination is the regional mercury overview study coordinated by the Amazon Cooperation Treaty Organization (OTCA/ACTO) through its Amazon Basin Project.<sup>54</sup> Covering all eight Amazon countries, this study applies the UNEP Mercury Inventory Toolkit to develop a standardized, multi-country assessment of mercury sources and contamination levels — the first systematic attempt at a truly Amazon-wide baseline.<sup>55</sup> OTCA's Amazon Regional Observatory (ORA) is developing an integrated regional information platform that will aggregate environmental and social data across member countries, including water quality indicators relevant to mercury monitoring.

In addition, PAHO/WHO tracks health-side mercury exposure through national health systems and signed a dedicated cooperation agreement with OTCA in October 2024 covering Indigenous health, climate-related health risks, and access to health services in the Amazon region.<sup>56</sup>

Finally, the World Bank's Amazon Sustainable Landscapes Program and Alianza Amazonica para la Reduccion de los Impactos de la Minería de Oro (AARIMO) bring together Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Suriname around shared evidence generation and multi-country dialogue on gold mining impacts, serving as a practical platform for translating scientific data into policy recommendations.<sup>57</sup>

**National regulatory inventories under the Minamata Convention on Mercury** provide a third layer of data. All Amazon countries, with the notable exception of Venezuela, are parties to the Convention and have ratified it. The convention requires any country where ASGM is “more than insignificant” to develop a National Action Plan (NAP) containing national mercury inventories, sector-specific emission estimates, and reduction targets.<sup>58</sup> In practice, however, the quality, completeness, and methodological consistency of these NAPs vary considerably across the region. They represent a floor of nationally self-reported data rather than an independently verified regional baseline, and their utility for cross-country comparison is limited by differing scope and update cycles.

Amazon Conservation's Amazon Targets Tracker platform monitors the implementation status of several international conventions across the 8 countries of the Amazon, including the Minamata Convention. This simple criteria-based analysis reveals large disparities, with Brazil, Bolivia and Ecuador having yet to present a NAP, despite significant ASGM activity on their territory. Both initial assessments and National Action Plans may provide useful data for aggregation into a regional baseline, but remain unavailable for 2 countries, including Brazil.

**Table X. Status of implementation of the Minamata Convention across countries of the Amazon**

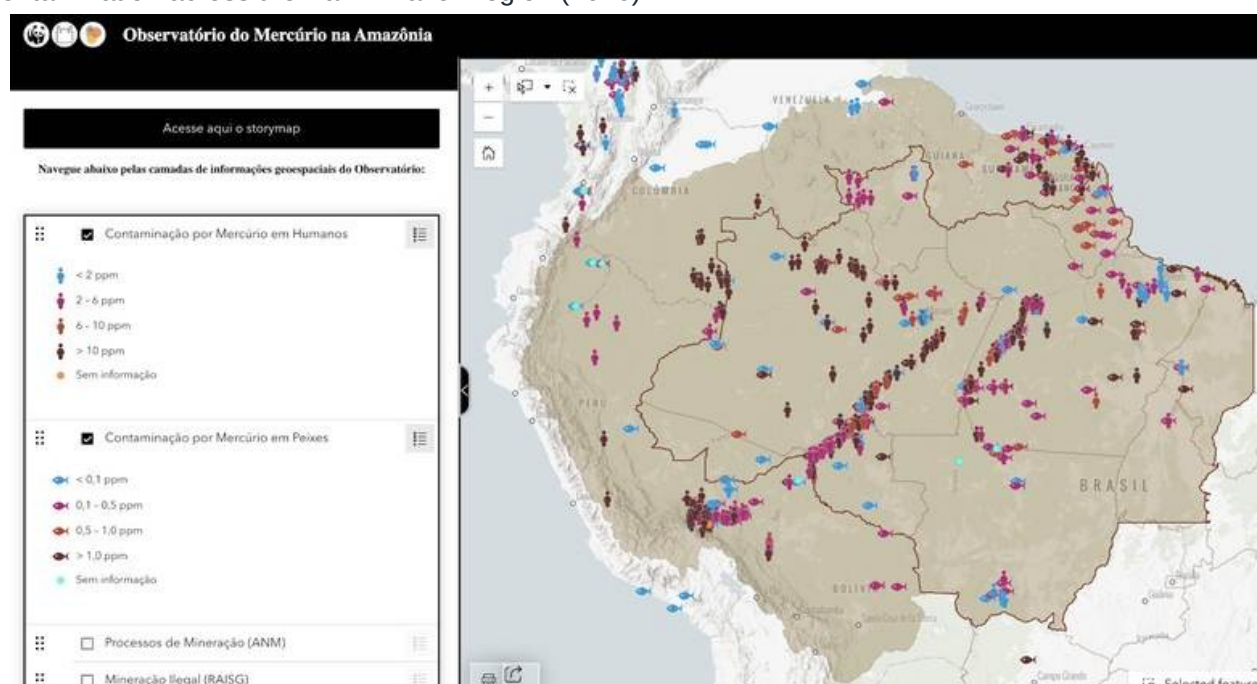
The following table summarizes the implementation status of the Minamata Convention across eight Amazonian countries. The assessment is based on six criteria: Party Status, Ratification, Initial Assessment, Action Plan, Forest Targets, and Amazon Targets. The full results can be found on the [Amazon Targets Tracker](#).

| Country  | Total Score out of 6 criteria | Justification / Implementation Details                                                                                                                                                                                                       |
|----------|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Colombia | 6/6                           | <b>Full implementation.</b> Ratified on 26/08/2019. Initial assessment completed in 2017. Action plan established in 2024. Both forest-specific and Amazon-specific targets are available.                                                   |
| Guyana   | 5/6                           | <b>Full implementation.</b> Ratified on 24/09/2014. Initial assessment completed in 2016. Action plan established in 2021. Forest targets are available. No Amazon-specific target is available but the whole country is part of the Amazon. |
| Peru     | 4/6                           | <b>Advanced implementation.</b> Ratified on 21/01/2016. Initial assessment completed in 2020. Action plan established in 2019. Forest-specific targets and Amazon-specific targets are not specified.                                        |
| Suriname | 4/6                           | <b>Advanced implementation.</b> Ratification date N/A. Initial assessment completed in 2020. Action plan established in 2024. Forest-specific targets and Amazon-specific targets are not specified.                                         |
| Bolivia  | 3/6                           | <b>Moderate progress.</b> Ratified on 26/01/2016. Initial assessment completed in 2017. Action plan, forest targets, and Amazon targets are not specified.                                                                                   |
| Ecuador  | 3/6                           | <b>Moderate progress.</b> Ratified on 29/07/2016. Initial assessment not available.                                                                                                                                                          |

|                  |     |                                                                                                                                                                   |
|------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                  |     | Action plan established in 2020. Forest targets and Amazon targets are not specified.                                                                             |
| <b>Brazil</b>    | 2/6 | <b>Limited progress.</b> Ratified on 08/08/17. Initial assessment, action plan, forest targets, and Amazon targets are not specified.                             |
| <b>Venezuela</b> | 0/6 | <b>No implementation.</b> Not a party to the convention. Ratification, initial assessment, action plan, forest targets, and Amazon targets are all not available. |

**On the civil society and research side**, Brazil's FIOCRUZ has produced extensive community-level exposure data. This data is published, alongside other sources, on the Observatorio do Mercúrio na Amazônia, an online tool developed by WWF-Brazil, FIOCRUZ and Cincia. The Mercury Observatory is an online platform that compiles data on mercury contamination across the Pan-Amazon region, launched to monitor the impacts of illegal gold mining. It georeferences all available studies on mercury emissions, fish contamination and risks to human health, highlighting high levels of contamination in Indigenous and riverine communities.<sup>59</sup>

Figure 10. Mercury-Observatory portal, an online platform that compiles data on mercury contamination across the Pan-Amazon region (2026).



## 5.2 Conclusion on potential for Amazon-wide, consistent monitoring

**The data gap remains significant on mercury pollution.** No systematic, long-term monitoring network exists on the basin's major transboundary rivers that would enable consistent tracking of

mercury flux across national borders and no integrated database currently exists that combines data on pollution through water-column mercury measurements and sediment concentrations, as well as contamination through fish tissue data, human blood or hair mercury levels, across all eight Amazon countries using consistent methodologies.<sup>60</sup>

The institutional foundations for such a system are partly in place: the OTCA regional overview study will establish the first shared multi-country methodological baseline<sup>61</sup> and Minamata Convention NAPs, if strengthened with harmonized reporting requirements, could anchor national contributions to a regional platform. The Conservation Strategy Fund, with support from the World Bank's Amazon Sustainable Landscapes program, has developed the Gold Mining Impact Calculator — a tool that estimates socio-environmental costs of mining damage, including from mercury contamination.<sup>62</sup> This tool has been used by Brazilian prosecutors to estimate damages from illegal ASGM operations and set fines or reparations, and could pave the way for an Amazon-wide assessment of the social and environmental cost of Mercury pollution as a Nature crime, building on the example provided in 2.2.3 with illegal deforestation in the Brazilian Amazon.

## 6. Violence against environmental defenders

Environmental defenders play an important role in monitoring environmental conditions and reporting illegal activities in the region. Retaliation against them has often been associated with the expansion of environmental crimes, including those perpetrated by organized criminal groups.

The connection between environmental protection and public safety has been increasingly highlighted by different authorities in the region. Notably, in June 2025, the Amazon Cooperation Treaty Organization (ACTO) established the Special Commission on Public Security and Transnational Illicit Activities in the Amazon Region (CESPIT), dedicated to strengthening regional safety and cooperation against transnational crimes affecting the integrity of the Amazon. The move is part of OTCA's wider security agenda, which explicitly links the protection of the Amazon to the defense of human rights and the safety of the region's populations.<sup>63</sup>

Improved monitoring of attacks against defenders allows governments, local and crossborder authorities to understand the pressures associated with environmental crimes and to support evidence-based policy interventions to both protect the biome and those who defend it. Such monitoring also helps identify how different groups of defenders (including women, indigenous peoples and children) may be disproportionately affected.

### 6.1 Data availability

Data for this type of manifestation of Nature crime typically originates from government agency or civil society records, often including GPS coordinates or jurisdiction names that allow mapping. Illegality is treated as inherent to the act — which is also likely to be directly connected to the illegal extractive activities the defender was reporting or resisting. The principal analytical challenge in this category is not establishing that an act was unlawful but confirming that it was specifically motivated by the victim's environmental work: a determination that requires careful, case-by-case qualification of each recorded incident.

This qualification and the compilation of cases of violence against environmental defenders is largely developed and organized by civil society organizations. The table below outlines the datasets available in each country and organizations that maintain them:

| Country | Local coverage |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|---------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bolivia | Medium         | <p>Locally, non-profit organizations, <i>Centro de Documentación y Información Bolivia</i> (CEDIB) and <i>Coordinadora Nacional de Defensores de Territorios Indigenas Originarios, Campesinos y Áreas Protegidas</i> (CONTIOCAP), maintain a dataset documenting events from 2017 to present.</p> <p>Although the dataset provides detailed information regarding each recorded incident, the data is not publicly available in open format.</p>                                                                                                                                                                                                                                                                                                                                                                              |
| Brazil  | Medium         | <p>The country has relatively well-established initiatives dedicated to collecting data about violations against human rights defenders in general, with indirect reference to environmental defenders. <i>Comissão Pastoral da Terra</i> (CPT), a Catholic-affiliated civil-society organization that monitors rural land conflicts, has been gathering historic data on rural violence since the 1980s. <i>Conselho Missionário Indígena</i> (CIMI), an Indigenous rights organization also linked to the Catholic Church, has focused on documenting cases of violence against Indigenous peoples since the 1990s.</p> <p>While both datasets provide a similar level of detail, in the case of CIMI the absence of data in an open, machine-readable format limited its potential for further analysis or compilation.</p> |

|          |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Colombia | Medium | <p>The country has relatively well-established initiatives dedicated to collecting data about violations against human rights defenders in general, with indirect reference to environmental defenders. Historic data mostly concern conflicts involving armed groups. One non-profit organization, <i>Instituto de Estudios para el Desarrollo y la Paz</i> (INDEPAZ), reports on the assassinations of social leaders, including a specific category for environmental defenders, from 2016 to present.</p> <p>In some of its publications, INDEPAZ classifies additional groups under the broader umbrella of environmental defenders (such as local leaders and indigenous groups). As a result, it creates a potential overlap between categories and limits the comparability of the data from a regional perspective.</p> |
| Ecuador  | Low    | <p>Country-specific data is limited. Local initiatives are not systematic or comprehensive, and focus on qualitative analysis but lack systematic quantitative datasets.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Peru     | Medium | <p>Locally, two organizations independently document cases: <i>Instituto del Bien Común</i> (IBC) and <i>Coordinadora Nacional de Derechos Humanos</i> (CNDDHH). CNDDHH, an institution comprised of several human rights organizations, documents cases since 2002 and has a specific category for</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                   |     |                                                                                                                                                                                                                                                                                                                                                                                                    |
|-------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   |     | <p>environmental and Indigenous rights defenders. IBC, on the other hand, provides information on broader trends and aggregated data starting in 2000. Similarly, the Peruvian Ombudsman's Office publishes information on broader numbers rather than providing details on each specific case.</p> <p>Both sources provide aggregated data and do not detail information about each incident.</p> |
| Guyana & Suriname | Low | <p>The countries lack country-specific, quantitative data on violence against environmental defenders. Research for these countries largely relies on the information compiled by global organizations.</p>                                                                                                                                                                                        |
| Venezuela         | Low | <p>The country faces significant limitations in the availability of data. Local non-profit groups, namely SOS Orinoco, VE360 and Infove360, have documented cases since at least 2013, though they are not presented in detail, with figures being presented broadly, without individual details.</p>                                                                                              |

In addition to these locally-managed datasets, Global Witness and *Tierra de Resistentes* maintain global datasets whose coverage include Amazon countries.

**Global Witness** defines land and environmental defenders as people who take a stand and carry out peaceful action against unjust, discriminatory, corrupt or damaging exploitation of natural resources or the environment. The dataset documents attacks where there is a reasonable and suspected link to an individual's activism. The database also includes forced disappearances of land and environmental defenders where the individual remains missing after at least six months.

**Tierra de Resistentes** similarly documents episodes of violence against land and environmental defenders, understood as individuals or groups who strive to protect and promote human rights related to the environment. Covering the period between 2009 and 2018, the database was built through information requests, desktop research and on-the-ground reporting, ensuring that information provided by different sources was adequately corroborated.

Amazon Conservation compiled both datasets, in addition to Comissão Pastoral da Terra's for Brazil – the only national dataset readily available for data analysis – and reconciled records to remove duplicates and standardize categories used by each database. **The result, presented in more detail in the next section, is the first known attempt at a pan-Amazonian, consolidated and spatially explicit record of violence against environmental defenders.**

## 6.2 A consolidated Amazon-wide database of violence against environmental defenders

The data presented in this section examines incidents of violence against environmental defenders within the Amazon bioregion, from three data sources spanning 2016-2024. The data reveals concentrated geographic hotspots, predominantly lethal violence driven by land disputes, and disproportionate impacts on Indigenous Peoples and small-scale rural producers.

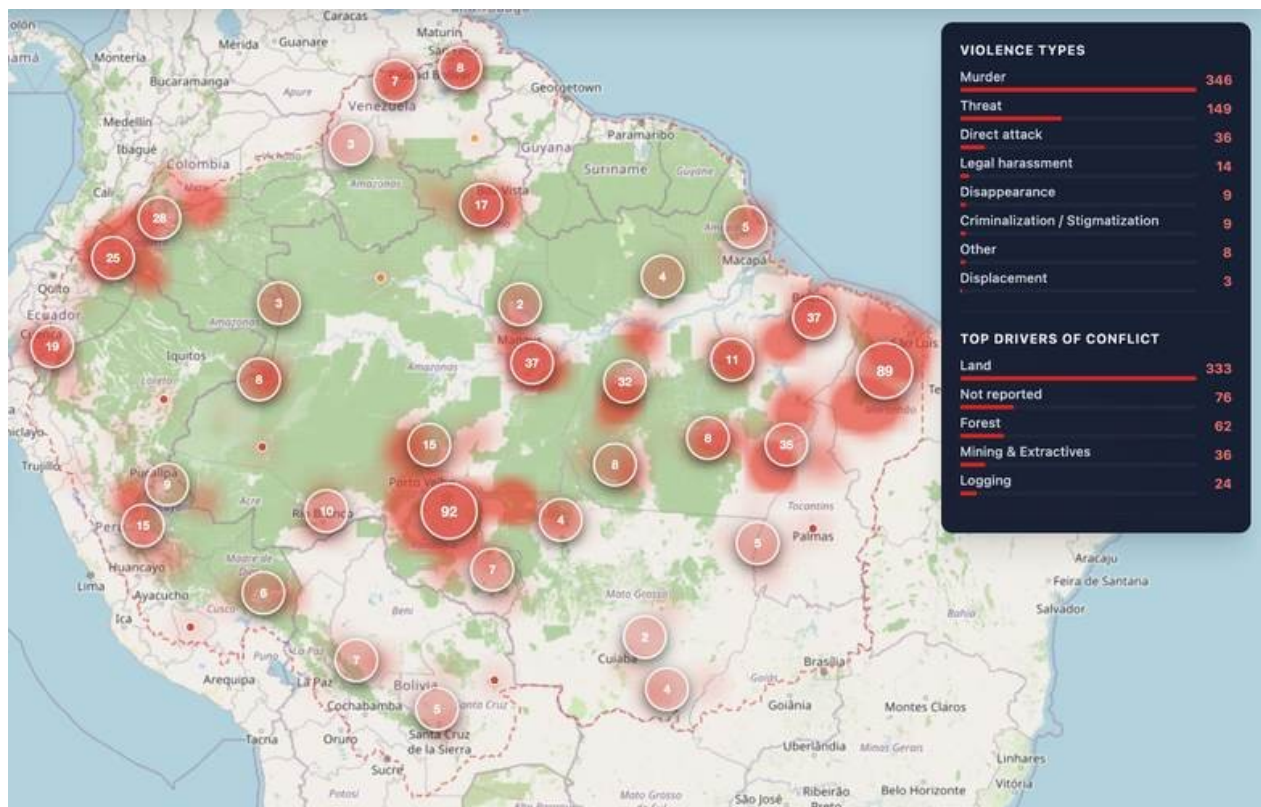
The spatial clustering observed in the data reflects the geography of resource extraction pressures, particularly in frontier zones where agribusiness expansion, illegal mining, and logging operations intersect with Indigenous territories and protected areas. The spatial pattern observed confirms that violence functions as a deliberate mechanism to facilitate resource extraction and land appropriation, targeting those who resist these processes. Unsurprisingly, land disputes account for 333 incidents (58%), making it by far the dominant driver of violence, before forest, mining and water-related disputes.

The dataset documents 574 incidents across eight categories of violence, with murder representing the most severe form (346 incidents, 60% of total), followed by threats (149 incidents, 26%), direct attacks (36 incidents, 6%), legal harassment (14 incidents, 2%), disappearance (9 incidents, 2%), criminalization/stigmatization (9 incidents, 2%), displacement (3 incidents, 1%), and other forms (8 incidents, 1%). The dominance of murder as a documented form of violence reflects the extreme danger faced by environmental defenders in the Amazon. However, it is important to note that threats—the second most common form—likely represent only a fraction of actual intimidation and harassment incidents, as many incidents go unreported or unrecorded. This suggests that the true scope of violence against defenders is substantially larger than the documented figures indicate.

The violence documented in this dataset disproportionately affects specific communities, with Indigenous Peoples representing 227 incidents (40%) of the total, followed by small-scale rural producers (182 incidents, 32%). Indigenous territories have been recognized as valuable figures for Amazon conservation but this role comes at a cost, with Indigenous leaders and communities facing systematic violence from those seeking to exploit the resources within their territories.

**Figure 11. Record of violence against environmental defenders across the Amazon. Source: authors own analysis, based on consolidation of data from Global Witness, Tierra de Resistentes and Comissão Pastoral da Terra.**

*This data is also available as a [dynamic geoportal](#), which allows filtering by categories and consultation of the details of specific data points*



### 6.3 Conclusion on potential for Amazon-wide consistent data collection

Data availability varies across jurisdictions as the report of incidents is contingent on other factors. For instance, countries that face heightened levels of violence or are subject to a biased judicial system may record a smaller number of offenses given the uncertainty that filing a complaint represents for the victims. Underreporting may also stem from difficulty of data verification and the

remoteness of many attacks. Data collection initiatives thus usually focus on assassinations, as these are more easily identified and verified, with non-lethal attacks, threats and harassment often underreported.

Data is also limited by time-related constraints, and historic information rarely extends beyond the 2000s. Other challenges include restraints associated with data accessibility, as information is often published in non-machine-readable formats, such as PDF or Word files, which limits the potential for large scale data analysis and cross-referencing.

The data architecture needed for a sustained regional layer on violence against defenders is lighter than for the other manifestations reviewed in this report: there is no remote-sensing barrier, and the consolidated 574-incident database already functions as a working prototype. What would be required is a shared case-definition protocol adopted across participating civil-society organizations — an effort that could build on the Escazú Agreement's 2025–2026 Action Plan<sup>64</sup> commitments on defender monitoring and on ACTO's CESPIT — together with sustained resourcing for the verification and reconciliation work currently carried out on a project basis.

## 7. Conclusion

The five manifestations of Nature crime reviewed in this report — illegal deforestation, illegal logging, illegal artisanal and small-scale gold mining, mercury pollution, and violence against environmental defenders — share an underlying physical geography and a common set of criminal networks, but they are tracked today by largely separate data systems, on different cadences, with uneven country coverage.

This fragmentation is the single most important finding of this technical assessment. It means that even where individual manifestations can be credibly documented — illegal deforestation in the Brazilian Amazon at roughly 90% of total clearance (Section 2.2.1), gold mining in Peru's Madre de Dios at 139,169 cumulative hectares (Section 4.1), a consolidated record of 574 incidents of violence against defenders (Section 6.2) — the aggregate scale and spatial distribution of Nature crime across the basin cannot be read from any single source, official or otherwise.

### Four patterns emerge from the review and point to what must change.

While the five manifestations share an underlying geography and a common set of transnational criminal networks, they are tracked by largely separate systems, on different timescales and frequencies, with coverage that reflects institutional capacity rather than the severity of the problem. Four patterns emerge consistently from the evidence:

***The monitoring map is the inverse of the crime map.*** Brazil and Peru — the two countries with the most developed monitoring infrastructure — are not the countries where Nature crime is most out of control; they are the countries where sustained civil society and institutional investment has made the problem legible. Venezuela, where environmental institutions have effectively ceased to function since 2011, is simultaneously the country with the most acute and accelerating mining-driven destruction and the one generating the least reliable data about it. Bolivia and Guyana sit in the same blind spot. The practical consequence is that the Amazon's most dangerous criminal frontiers are also its least monitored — a pattern that enforcement resources, donor priorities, and intergovernmental attention all risk reproducing.

**Criminal networks, unlike monitoring systems, are transboundary.** Criminal networks routinely operate across national borders. Yet, every national dataset reviewed in this chapter stops at the border. The responsibility for tracking these displacements — and for maintaining any coherent picture of basin-wide dynamics — has fallen to civil society organizations operating without a formal regional mandate or stable funding to match that responsibility.

**Civil society is providing the data that governments cannot — or will not.** MapBiomias Amazonia, RAISG, Amazon Mining Watch, MAAP, the Observatório do Mercúrio, and the Global Witness and Tierra de Resistentes databases are all civil-society products. Across every manifestation reviewed here, civil society monitoring is more consistent, more current, and more spatially complete than official systems — not because governments lack interest, but because they lack capacity, face political constraints on what they can publish, or operate systems that were never designed for cross-border aggregation. This is a significant institutional vulnerability: the basin-wide picture depends on organizations that are project-funded, understaffed relative to the territories they cover, and whose data carries uncertain standing in intergovernmental decision-making forums where national delegations may be reluctant to accept that better data is available from civil society than from their official institutions.

**Legality assessment remains the main bottleneck.** Detection has improved dramatically over the past decade. The harder problem is establishing what is illegal; that requires georeferenced, up-to-date cartographies of protected areas, Indigenous territories, mining and forestry concessions, and private-property authorisations — a combination that is most closely achieved in Brazil, and there only partially, given documented fraud in authorization systems. Outside Brazil, the operational proxy for illegality often reverts to simplification of occurrence inside protected areas and Indigenous territories. The five-country ASGM assessment in Section 4 demonstrates that aggregation of legality data is possible using overarching categories of presumption rather than definitive judgement, which materially changes what the data can say to enforcement agencies, prosecutors, supply chain actors, and financiers.

Together, these four patterns define both the problem and the opportunity. The data exists — imperfect, uneven, and largely civil society generated — to establish a credible regional baseline for Nature crime across the Amazon. What does not yet exist is the architecture to make it consistent, sustained, and authoritative enough to drive policy. Chapter 2 examines the civil society organizations that are building that architecture from the ground up: who they are, what they have achieved, where they are under-resourced, and where the gaps in coverage are greatest.

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## Annex 1. Case study of illegal deforestation in the Brazilian Amazon

### Background and Context

Nature crimes, which refer to illegal forms of logging, fishing, mining, forest conversion and wildlife trade (WRI, 2025), exploitpose a profound and complex threat to conservation, impacting not only forests but also local communities, Indigenous Peoples, civil society organizations, and governments. In the Brazilian Amazon, deforestation has sharply increased since 2012, largely driven by illegal activities such as logging, gold mining, land grabbing, and especially cattle ranching. The livestock sector, for example, closely tied to the meat industry, is estimated to be responsibleAccording to the study used in this analysis, 91% of deforestation in the Brazilian Amazon occurred between 2008 and 2021, within the potential cattle purchasing zones of active slaughterhouses, indicating a strong spatial and functional linkage between deforestation dynamics and the cattle/meat supply chain (Imazon, 2023). While the Ilamazon study does not attribute deforestation causality exclusively to livestock production, it provides robust evidence of the sector's central role in areas where deforestation effectively occurs. (Imazon, 2023), The conversion of native vegetation into pasture often marking the first step in broader land speculation and claims of ownership in undesignated public lands (Alvarenga, 2018; Silva et al., 2021).

he literature on nature crime in the Brazilian Amazon presents a coherent analytical framework in which governance weaknesses lie at the core of deforestation dynamics. Weak law enforcement capacity, insecure land tenure, limited institutional coordination, and data constraints create conditions that enable illegal activities—most notably cattle ranching—to expand at the forest frontier. These activities, in turn, drive observed patterns of deforestation and forest degradation. A related strand of the literature quantifies the economic consequences of this process, valuing forest loss and estimating the fiscal and social costs associated with enforcement failures and policy responses. Together, these strands show that deforestation outcomes, economic losses, and policy effectiveness are jointly determined by underlying governance structures and cross-border dynamics.

While this study focuses on Brazil, the choice is not merely national in scope. Brazil contains the largest share of the Amazon biome and concentrates much of the region's deforestation pressure, meaning that governance failures and policy responses within its borders have direct spillover effects on cross-border dynamics of nature crime across the Amazon basin.

A key finding across Cunha et al (2016) is the strong linkage between the livestock sector and forest conversion. In Brazil, deforestation is overwhelmingly driven by agricultural expansion, which accounts on average for 97% of total forest loss, whereas illegal mining represents 0.4% and other unspecified causes account for 1.8% (Mapbiomas Alerta, 2024). The expansion of pasture often marks the initial step in land speculation and the assertion of ownership in undesignated public lands, thereby facilitating broader illegal activities at the forest frontier. This linkage reflects governance failures at multiple scales—from local land-tenure disputes to national policy implementation gaps—that together sustain deforestation pressures. Empirical work such as Cunha et al (2016) indicates that improvements in enforcement and the expansion of protected areas have contributed to changes in deforestation patterns, suggesting that policy design and implementation are central to shaping outcomes in the Amazon region.

Illegal deforestation involves a fundamental economic trade-off between the private benefits of nature crime and the social value of keeping forests standing. For perpetrators, activities such as illegal logging, cattle ranching, and land speculation generate short-term, liquid gains with relatively low expected penalties. From a social perspective, however, deforestation entails a substantial opportunity cost: the loss of ecosystem services provided by standing forests, including climate regulation, carbon storage, water cycling, biodiversity, and other non-market benefits that underpin long-term economic welfare. While these benefits have clear and measurable monetary value, they are largely external to private decision-making and remain uncompensated. As a result, illegal forest conversion yields private profits for a few actors but generates large net economic losses for society as a whole.

Nature crime globally is estimated to generate between USD 110–281 billion (FACT Coalition, 2024), underscoring the magnitude of illegal extraction and the associated opportunity costs of forest loss. High commodity prices—e.g., for gold and cattle products—continue to incentivize illegal activities in the Amazon basin, while governance weaknesses in Brazil amplify domestic costs and constrain policy responses.

A comprehensive cost assessment for Amazon deforestation must integrate multiple valuation channels. The valuation of ecosystem services—particularly carbon storage—provides a crucial dimension of these costs. The climate-regulation benefits of standing forests imply substantial global and regional monetary values that should be incorporated into any comprehensive cost estimate, complementing direct revenue losses from timber, minerals, and other illegal rents. Direct damages include illegal extraction rents and the foregone rents from land converted to pasture or other uses, while indirect damages encompass losses in ecosystem services such as water regulation, biodiversity, soil stability, and pollination, along with climate-related damages from carbon emissions and storage losses. Monetary valuation serves not only to communicate social costs but also to inform enforcement, fines, and reparations, reinforcing environmental justice objectives.

Andersen (1997), for example, conducted one of the earliest comprehensive cost–benefit analyses of deforestation in the Brazilian Amazon. The study compared the total economic value of standing forests with the net present value (NPV) of alternative agricultural uses. At a 2% social discount rate, the economic value of an intact rainforest was estimated at about US\$18,000 per hectare in 1990, equivalent to roughly US\$41,000/ha in 2024. This included local and global benefits such as sustainable timber and non-timber products, water and fire regulation, watershed protection, carbon storage, biodiversity, recreation, and existence values. By contrast, the optimal agricultural land-use sequence (logging, followed by shifting cultivation and later perennial crops) yielded an NPV of US\$24,000/ha ( $\approx$  US\$55,000/ha in 2024), rising to US\$120,000/ha ( $\approx$  US\$275,000/ha in 2024) when urban spillover effects were considered. Andersen concluded that while the private benefits of deforestation then exceeded its social costs at about 10% forest loss, global costs would rise nonlinearly with additional clearing. The study thus argued that international transfers above US\$9,000/ha ( $\approx$  US\$20,000/ha in 2024) would be needed to maintain the forest at its globally optimal level.

Moreover, deforestation in Brazil is not only a domestic issue. Much of the illegal activity occurs in transboundary areas and contributes to broader regional dynamics of nature crime. However,

cooperation between Amazonian countries remains limited, and there is a lack of aggregated data on cross-border impacts (UNODC, 2023; Crisis Group, 2023).

The impacts of deforestation extend far beyond vegetation loss. They include severe consequences for water availability and quality, regional biodiversity, and global climate. These damages diminish local and global well-being, making the monetary valuation of such losses essential. Economic valuation not only helps communicate the social costs of environmental crimes but also supports the design of enforcement mechanisms, fines, and reparations, strengthening accountability and environmental justice (Hanusch, 2023). Developing robust methodologies for estimating these impacts is thus critical for strengthening legal accountability and ensuring environmental justice.

## Objectives of the Study

The objective of this study is to assess illegal deforestation in the Brazilian Amazon and to estimate, in monetary terms, the associated losses in ecosystem services and socio-environmental benefits,, based on high-resolution land-use data. By quantifying these impacts, the study aims to provide an evidence-based foundation to inform policy design, enforcement strategies, and decision-making processes related to nature crime.

Given these implications, Conservation Strategy Fund (CSF – Brazil), in partnership with Amazon Conservation (ACA) funded by the World Bank-led, GEF-funded Amazon Sustainable Landscapes Program (ASL), intends to address the World Bank's strategic objectives to work in a coordinated manner with governments, ACTO, cooperators, civil society organizations, and especially, with local communities to support awareness raising, capacity building, and knowledge management so as to prevent and mitigate the impacts of nature crimes.

## Methodology for estimating the socio-environmental impact of illegal deforestation in Brazil

### Brazilian Amazon - Focus área

The Amazon rainforest is one of the most biodiverse biomes in the world. Spanning across nine countries in Latin America, some areas of the forest contain more than 20% of all known terrestrial species and store approximately 100 billion tons of carbon. Moreover, it plays a critical role in regulating the continental climate due to its influence on moisture recycling and distribution (Yao et al., 2024). In addition, the Amazon is essential for global carbon sequestration and maintenance, making it a strategic biome in the fight against climate change (Boulton et al., 2022).

Despite recent downward trends, deforestation rates in the Amazon continue to reach alarming levels annually. In 2023 alone, more than 2,9 million hectares<sup>1</sup> of forest and other native vegetation formations were lost in the Brazilian Amazon (Mapbiomas, 2024). As shown in Figure 1, municipalities in the state of Maranhão and Pará registered the highest deforestation rates, particularly Altamira municipality, which recorded 20,000 hectares of forest loss. This spatial concentration highlights that municipalities, such as Altamira and its neighbours, are hotspots, where targeted enforcement and restoration efforts could yield larger impacts.

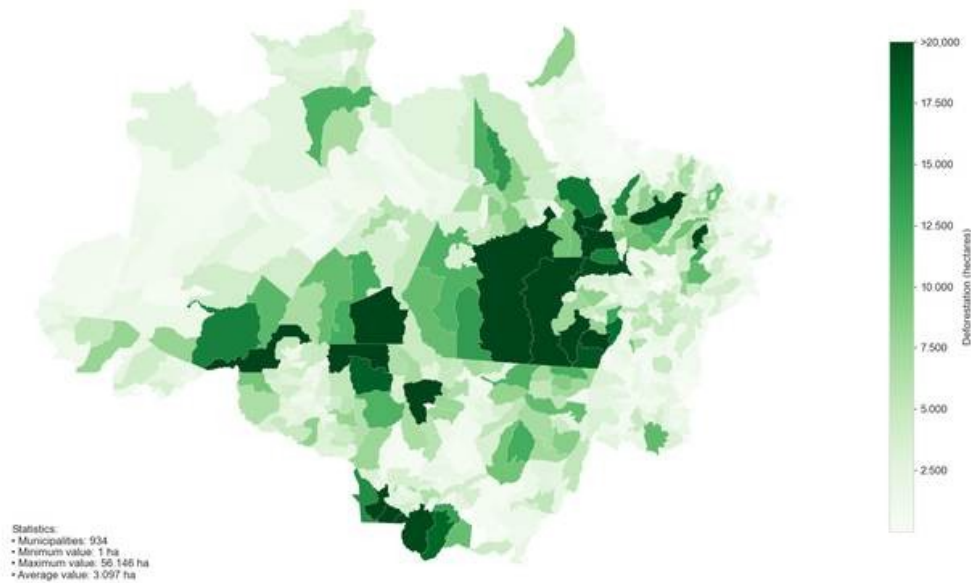


**FIGURE 1: DEFORESTATION MAP FOR 2023, PER MUNICIPALITY IN THE BRAZILIAN AMAZON. DATA FROM MAPBIOMAS (2024)**

The Brazilian Amazon is under intense and multifaceted pressure from environmental crimes and unsustainable land-use changes, including illegal mining, soybean cultivation, cattle ranching expansion, and real estate speculation. These activities, combined with degradation drivers such as forest fires, are accelerating the loss of native vegetation and the fragmentation of ecosystems.

Drawing on high-resolution land-use data from MapBiomas platform, it is possible to quantify the extent and nature of these transformations, identifying the specific land uses that replace forested areas. For this analysis, we used data from the MapBiomas Collection 9 dataset (MapBiomas, 2024), which provides information on forest cover and its transitions to other land uses, such as agriculture and pasture<sup>2</sup>. The dataset includes land-use transitions between 2022 and 2023 and was the only data source available at the time this study was conducted. Given that this report considers two land-use change scenarios—conversion of forest to pasture and to agriculture—the transition data are essential for conducting the valuation analysis. These data and their application will be described in greater detail in the following sections.

In 2023 alone, MapBiomas data show that approximately 18.7 thousand hectares of forest and other native vegetation formations were converted into pastureland, while about 2.7 million hectares were transformed into agricultural cropland. These figures highlight the disproportionate role of cattle ranching as a driver of deforestation compared to other agricultural uses, underscoring the structural challenge of aligning land-use practices with conservation goals. It is important to highlight that, since this study focuses exclusively on illegal deforestation, we adopt the estimate from Instituto Centro da Vida (ICV, 2024) indicating that 90.8% of deforestation in the Brazilian Amazon is illegal. To assess illegal deforestation, we apply the ICV estimate that 90.8% of deforestation in the Brazilian Amazon is illegal as a proportional adjustment to the 2023 MapBiomas land-use transitions, multiplying the total areas converted to agriculture and pasture by this share to derive the illegally converted hectares. Based on this assumption, the present analysis evaluates the impacts of the illegal conversion of approximately 17 thousand hectares into agricultural cropland and 2.4 million hectares into pastureland.

**TABLE 1: LAND-USE TRANSITIONS BETWEEN 2022 AND 2023 IN THE BRAZILIAN AMAZON. SOURCE: MAPBIOMAS, COLLECTION 9 (2024)**

| State       | Forest area converted to pastureland (in hectares) | Forest area converted to agriculture (in hectares) |
|-------------|----------------------------------------------------|----------------------------------------------------|
| Acre        | 58,271                                             | 0                                                  |
| Amazonas    | 190,184                                            | 384                                                |
| Amapá       | 18,087                                             | 442                                                |
| Maranhão    | 442,468                                            | 592                                                |
| Mato Grosso | 665,555                                            | 13,329                                             |
| Pará        | 818,042                                            | 2,136                                              |
| Rondônia    | 213,825                                            | 338                                                |
| Roraima     | 65,877                                             | 1.022                                              |
| Tocantins   | 260,040                                            | 475                                                |
| TOTAL       | 2,732,349                                          | 18,718                                             |

### Methods to Estimate the Socio-Environmental Impact of Deforestation

Before presenting the estimate of the socio-environmental impact of illegal deforestation, it is necessary to explain the conceptual bases for the definition of value. Value is a measure of well-being that can be represented according to socially defined “trade-offs” through relative importance to an economic agent. In the context of illegal deforestation in the Brazilian Amazon, these agents include those who gain private benefits from forest conversion, such as illegal loggers, land grabbers, and cattle ranchers, as well as those who bear the costs, including local and Indigenous communities, governments, and society at large. While some actors capture short-term private gains, the aggregate impact represents a significant net loss of value for society as a whole. Accordingly, this study adopts a social welfare perspective, quantifying the overall economic damage caused by illegal deforestation rather than the private profits of the perpetrators.

In other words, value is relative since it is related not only to the characteristics of the object in question but also to the context in which it is inserted, its relative scarcity (supply) and the pressure for the use of resources (demand). In other words, value is socially defined and depends on how changes in resource conditions affect people’s well-being. The assessment of what is lost or gained from a change - such as deforestation - therefore, depends on a reference point or baseline, which represents the current situation and allows us to measure variations in individual preferences.

The monetary measurement of the loss of social welfare aims to bring information to society and, mainly, to decision-makers, about the effects of changes in environmental attributes. In this perspective, the analysis adopts a predominantly national welfare perspective for ecosystem services whose benefits accrue primarily within Brazil. This type of instrument can arise with different objectives, such as the definition of ecological compensation, the evaluation, and prioritization of investments, or the calibration of economic incentives such as payment programs for environmental services. Given the focus of this report on illegal deforestation, our assumption is that the use of economic incentives is not pertinent, and that compensation of lost value must instead be enforced, alongside the application of penalties as deterrent (in the form of fines or other sanctions).

In this sense, economic valuation compares and weighs what can be gained or lost in different scenarios exemplified here:

- a) Maintenance of the standing forest and preservation of the economic value arising from the provision of environmental services;
- b) Deforestation with the loss of environmental services in which an area of native vegetation is converted into pasture for cattle production.
- c) Deforestation with the loss of environmental services in which an area of native vegetation is converted into agriculture.

The measurement of impact categories makes use of different valuation methods that can be divided into three approaches:

- Opportunity cost of land or lost benefits (direct values): these are the benefits Amazonian and global society lost as a result of deforestation. The opportunity cost is calculated based on the expected economic return from the land use alternatives of those who have the ownership to the land. The options related to the opportunity cost are providing wood and non-timber resources from the forest. In addition to the economic return, lost well-being values that are not marketed in the market are also considered, such as cultural and recreational services.
- Area replacement or recovery cost: represents the cost of the appropriate techniques to recover the damaged environment and human well-being.
- Loss of ecosystem services (indirect values): deforestation generates a loss of well-being as the standing forest provides several ecosystem services that would be affected, such as carbon sequestration, water regulation, and erosion control.

Each approach described above makes it possible to value the loss of well-being differently. Table 2 summarizes the various impacts measured in this methodology.

**TABLE 2: APPROACHES FOR VALUING THE IMPACT OF DEFORESTATION AND THE RESPECTIVE MEASURED ACTIVITIES**

| Economic valuation approach                          | Specific impact                             |
|------------------------------------------------------|---------------------------------------------|
| Opportunity cost (Direct value approach)             | Timber and non-timber products <sup>3</sup> |
| Loss of ecosystem services (Indirect value approach) | Carbon removal <sup>4</sup>                 |
|                                                      | Bioprospecting <sup>5</sup>                 |
|                                                      | Erosion control <sup>6</sup>                |
| Replacement cost                                     | Forest recovery <sup>7</sup>                |

Source: Own elaboration

It is essential to consider that the approaches are complementary and must be addressed together. In other words, it is assumed that there may be a hypothetical recovery in the year after deforestation. However, even if recovery takes place, there is a time until the environmental services are mostly restored.

Therefore, the different costs per hectare for each specific impact activity, which were taken from a literature review, are then multiplied by the area impacted by deforestation.

$$C = H * \sum ABE$$

$$C = H * \sum ABE$$

(3)

On what:

C = Social cost of deforestation (in USD)

H = Impacted illegal area (in hectares)

A = Cost per hectare for each specific land opportunity cost impact activity (in USD/ha)

B = Cost per hectare for forest recovery (in USD/ha)

E = Cost of loss of ecosystem services (in USD/ha)

The formula is based on parameters found in the literature, which are related to the input information: the size of the deforested area (in hectare).

Further details on the calculation of each valuation approach in each specific impact activity are described in the next subsections.

### Opportunity Cost Approach (Direct Value ) for Measuring the Impact of Deforestation

Direct values are correlated with the concept of the opportunity cost of land, which is defined as the economic gain from alternative land uses. For example, the opportunity cost of conserving an area may be the alternative net income generated by cattle ranching on pastureland (Imazon, 2017). When analyzing a conventional (business-as-usual) scenario that maintains the trend of deforestation, the opportunity cost of the land is related to the net income that could be generated by sustainable timber and non-timber forest products.

The opportunity cost of land is estimated using the expected Net Present Value (NPV), which represents the average economic return of the land over time. The NPV is used to compare the returns from timber and non-timber products with those from other land uses with different production cycles. Therefore, economic alternatives are evaluated for activities that would no longer be suitable for newly deforested areas in the Brazilian Amazon.

The reduction in timber and non-timber forest products was valued based on their use value, which derives from the direct supply of timber and other non-timber products such as Brazil nuts and rubber. In a deforested scenario, the potential to use these resources is lost. The estimate is based on the availability of timber per hectare from the study by UFMG (2017a) and Strand et al. (2018). This volume of timber (m<sup>3</sup>/ha) could be responsibly extracted in the region at a market price of R\$160/m<sup>3</sup>, as described for forest concessions by the Ministry of Agriculture, Livestock and Food Supply (MAPA, 2022).

Operational costs must also be considered, including supervision, inspection, monitoring, planting, thinning, and administrative costs, which total around R\$11.39/m<sup>3</sup>, according to the 2023 data (Imazon, 2015). Based on this, the potential income that could be generated if the forest were conserved for a timber concession was calculated.

Our estimates for timber and non-timber products represent the social use value of sustainable, legal extraction. In practice, these values are not always realized by landholders because private incentives favor conversion: cattle supply chains have lower transaction costs and greater liquidity; weak enforcement reduces expected penalties; infrastructure and credit often favor ranching; and landholders apply higher private discount rates to longer-horizon forest revenues. To avoid overstating benefits, we deduct extraction and compliance costs, constrain volumes to sustainable yields, and run extensive sensitivity and “market-frictions” scenarios (including low-uptake cases) to reflect limited feasibility in parts of the region. value of sustainable, legal extraction. In practice, these values are not always realized by landholders because private incentives favor conversion: cattle supply chains have lower transaction costs and greater liquidity; weak enforcement reduces expected penalties; infrastructure and credit often favor ranching; and landholders apply higher private discount rates to longer-horizon forest revenues. To avoid overstating benefits, we deduct extraction and compliance costs, constrain volumes to sustainable yields, and run extensive sensitivity and “market-frictions” scenarios (including low-uptake cases) to reflect limited feasibility in parts of the region.

The projection of lost benefits from non-timber products is based on UFMG (2017b) and Strand et al. (2018), which consider Brazil nuts and rubber. The UFMG (2017b) study shows that the income value from Brazil nuts is R\$64/ha/year in the Amazon (already updated to 2023 values).

Similarly, the Amazon region also produces an average of 4.42 kg/ha/year of rubber at an average price of R\$9.20 per kilogram (Strand et al., 2018; UFMG, 2017b). The UFMG (2017b) study indicates that the income value from rubber is R\$6/ha/year. Thus, for the valuation of non-timber products, the impacted area is multiplied by these updated values.

It is important to note that these opportunity cost estimates are applied uniformly across the study area and do not differentiate between land-use categories or protection status (e.g., protected areas where extraction is restricted), reflecting the municipality-level resolution of the available data.

### **Indirect Values (Ecosystem Services) Approach to Measuring the Impact of Deforestation**

Deforestation affects social well-being by reducing the provision of critical environmental services. This approach is separated from the land opportunity cost because it includes values that are not accounted for as direct economic returns, such as carbon sequestration and biodiversity.

Carbon was valued as an ecosystem service that contributes to climate regulation, rather than as a potential return from carbon credits through the REDD+ mechanism. To reflect the societal value of carbon<sup>8</sup>, we applied a precautionary approach estimate of the Social Cost of Carbon (SCC), set at US\$ 56/tCO<sub>2</sub> (IWG, 2021 and one conservative scenario of value of USD 15.00 per ton of CO<sub>2</sub> was used (World Bank, 2022a) over a 30-year period, considering a different stock (tons of CO<sub>2</sub> per hectare) in the Brazilian Amazon by municipality (Heinrich et al., 2021). This approach does not assume that all forest areas would be eligible or covered by REDD+ projects, but rather reflects the social value of avoided emissions. However, it is important to consider that one hectare of deforested land, when converted into pasture, can still sequester 16.2 tCO<sub>2</sub> (Portela & Rademacher, 2001). This residual sequestration is deducted when calculating the net carbon loss from converting native vegetation to pasture. Although these market-specific costs are not applied here, since the valuation refers to the social—not financial—benefits of carbon storage.

Erosion control is classified as an indirect use value and plays a critical role in soil protection and conservation. This ecosystem service is essential for both ecosystem integrity and societal well-being, as it mitigates negative externalities such as river siltation, landslides, and the loss of soil fertility. Although its benefits are not directly consumed, erosion control underpins key economic sectors by reducing damages to agricultural productivity, hydropower generation, and water infrastructure. By preventing soil degradation and sediment accumulation, this service contributes to the long-term sustainability of land-use systems and associated economic activities. For this assessment, the economic value of erosion control in the Amazon was estimated using the unit values reported by Costanza et al. (1997), applied to the regional context.

The biodiversity value was estimated using the valuation function derived from Siikamäki's (2015) meta-analysis, which synthesizes empirical evidence from 54 independent data points across multiple geographic and ecological contexts. This function calculates the annual per-hectare economic value of biodiversity conservation, focusing specifically on studies that found positive and statistically significant relationships between the value of habitat or species protection and key socioeconomic variables. These variables include population density—capturing the influence of human presence and demand for ecosystem services—and per capita GDP, which serves as a proxy for the capacity to pay for conservation benefits (World Bank, 2022b). By integrating these parameters, the approach provides a robust, empirically grounded estimate that links ecological outcomes with socioeconomic drivers, allowing for context-specific valuation of biodiversity in the Brazilian Amazon.

Replacement cost approach to forest cover recovery

The replacement cost method is used to determine the cost of recovering the forest cover. This includes the value of the inputs and activities necessary for the forest restoration. Based on a literature review, the recovery costs for each method of restoration, per hectare, were collected and are displayed on Table 3. These costs can vary significantly depending on biophysical and ecological conditions, such as the level of soil degradation, the presence of invasive species, and the distance to seed sources or remaining forest patches.

TABLE 3: COST OF FOREST RECOVERY TECHNIQUE IN THE BRAZILIAN AMAZON

| Forest recovery technique | Value (2022 USD / hectare) | Reference    |
|---------------------------|----------------------------|--------------|
| Seedling plantation       | 4,132                      | Ibama (2019) |

|                               |       |                   |
|-------------------------------|-------|-------------------|
|                               | 2,816 | Imazon (2015)     |
|                               | 2,328 | Brancalion (2019) |
|                               | 4,765 | TNC (2017)        |
|                               | 3,660 | AVERAGE           |
| Natural regeneration          | 49    | Brancalion (2019) |
|                               | 899   | Imazon (2015)     |
|                               | 49    | TNC (2017)        |
|                               | 332   | AVERAGE           |
| Assisted natural regeneration | 475   | Ibama (2019)      |
|                               | 344   | Brancalion (2019) |
|                               | 649   | TNC (2017)        |
|                               | 489   | Average value     |

The restoration costs, presented on Table 3, can vary widely because they are sensitive to a set of biophysical and ecological conditions that affect the effort required to return degraded land to functional forest cover. For example, areas with more severe soil degradation or low seed availability require additional site preparation, soil amendment, or introduction of planting stock, increasing costs relative to areas where soils are intact and natural regeneration is feasible. Similarly, the presence of invasive species or high competition from grasses and weeds can necessitate costly control measures to enable establishment of native vegetation, and greater distances to seed sources or remnant forest patches reduce natural seed influx and may require supplemental planting (Siminski et al., 2021; Nature Conservancy Brasil, 2017). These context-specific factors help explain why restoration costs per hectare can vary significantly across landscapes and methods. Based on the literature review, the average of the different studies was chosen for each of the three forest recovery techniques. There are several scenarios for valuing this impact by multiplying the impacted area by the recovery cost for each desired technique.

### Combining Direct, Indirect Values and Restoration Cost to Calculate the Impact of Illegal Deforestation in the Brazilian Amazon

To combine the monetary values of different components, it is necessary to clarify their correspondence with the valuation approaches. In this framework, direct values refer to the opportunity cost approach, capturing foregone economic benefits (e.g., timber and non-timber products), while indirect values correspond to the ecosystem services approach, reflecting the loss of regulating and supporting services (e.g., carbon sequestration, water regulation, and biodiversity). These are complemented by the replacement cost approach, which estimates the cost of restoring forest cover. To combine these components, it is necessary to assess the monetary impact in the year under consideration. It is important to note that no double counting occurs when summing direct and indirect values (Fu et al., 2011).

The analysis is grounded in the legal and economical principal that restoration will occur in the region, given that the deforestation is illegal — meaning that those responsible should be held accountable not only for the environmental damage caused but also for the full costs of restoration.

Based on global meta-analyses (Rey Benayas et al., 2009; Meli et al., 2017), forest recovery is a gradual process whose pace depends on the type of ecosystem function considered. On average, abundance and some biogeochemical functions, such as soil stability and nutrient cycling, can recover within one or two decades, whereas biodiversity composition and carbon stocks typically require 20–50 years to approach reference levels.

For the purposes of this economic assessment, we adopted a 30-year time horizon as a conservative approximation of the period over which most ecosystem services significantly recover under active or assisted restoration scenarios (Rey Benayas et al., 2009; Meli et al., 2017). As forest regenerative, sustainable economic activities, such as the extraction of timber and non-timber forest products, may resume, allowing partial recovery of up to 80% of the ecosystem services typically provided prior to degradation.

Therefore, it is necessary to consider the flow of benefits over time. For this purpose, the Net Present Value (NPV) formula is used to bring all future benefit flows to the initial year of analysis.

## Economic Impacts of Illegal Deforestation in the Brazilian Amazon

As a methodological outcome of assessing the economic impact of a nature crime of illegal deforestation in the Brazilian Amazon in 2023, it is possible to estimate the total socio-environmental cost associated with this nature crime. These estimates are derived from the combination of three complementary valuation approaches described earlier: (i) the opportunity cost approach (direct values), capturing the foregone benefits from sustainable forest uses; (ii) the ecosystem services approach (indirect values), reflecting non-market welfare losses such as carbon storage, biodiversity, and water regulation; and (iii) the replacement cost approach, which estimates the cost of restoring forest cover. For each hectare of illegal deforestation, these components are estimated and aggregated across the affected area, ensuring that direct, indirect, and restoration-related impacts are jointly accounted for without double-counting.

This restoration can be carried out through different forest restoration techniques, ranging from lower-cost approaches such as natural regeneration to more complex and costly methods such as direct seeding.

Accordingly, two scenarios are presented below: one reflecting higher costs associated with the implementation of more complex restoration techniques (direct seeding), and another reflecting lower costs linked to simpler approaches (natural regeneration).

The following table presents the total estimated costs of impacts under both scenarios, considering the two main land-use conversion contexts: conversion to pastureland and conversion to agricultural cropland. As noted in Section 3.1, MapBiomas data for 2023 indicate that approximately 18.7 thousand hectares of forest and other native vegetation were converted to pastureland, while around 2.7 million hectares were transformed into agricultural cropland. These figures reinforce the disproportionate role of cattle ranching as a primary driver of deforestation, highlighting the structural challenge of reconciling prevailing land-use dynamics with conservation objectives.

Given that this study focuses exclusively on illegal deforestation, we rely on the estimate from Instituto Centro da Vida (ICV, 2024), which indicates that 90.8% of deforestation in the Brazilian Amazon is illegal. This proportion is applied to the 2023 MapBiomas land-use transition data as an adjustment factor, allowing us to isolate the share of land conversion attributable to illegal activities.

**BASED ON THIS APPROACH, THE ANALYSIS CONSIDERS THE IMPACTS ASSOCIATED WITH THE ILLEGAL CONVERSION OF APPROXIMATELY 17 THOUSAND HECTARES INTO AGRICULTURAL CROPLAND AND 2.4 MILLION HECTARES INTO PASTURELAND. TABLE 4: SCENARIOS AND TOTAL COSTS OF NATURE CRIME IN 2.4 MILLION HECTARES ILLEGALLY DEFORESTED**

|                                                | Scenario with lower-cost restoration techniques (natural regeneration)             | Scenario with more complex restoration techniques (direct seeding)                  |                                                                      |                                                                |
|------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------------------------------|
|                                                | Impact of conversion to agricultural areas (16 thousand of hectares)               | Impact of conversion to pastureland (2.4 millions of hectares)                      | Impact of conversion to agricultural areas (16 thousand of hectares) | Impact of conversion to pastureland (2.4 millions of hectares) |
| Total cost (SCC - Social Cost of Carbon price) | US\$ 651 million                                                                   | US\$ 25 billion                                                                     | US\$ 1.1 billion                                                     | US\$ 110 billion                                               |
|                                                | US\$ 25.6 billion for lower-cost techniques for agricultural and pastureland areas | US\$ 111 billion for more complex techniques for agricultural and pastureland areas |                                                                      |                                                                |
| Total cost (REDD carbon price)                 | US\$ 42 million                                                                    | US\$ 2.7 billion                                                                    | US\$ 111 million                                                     | US\$ 7.7. billion                                              |
|                                                | US\$ 2.7 billion for lower-cost techniques for agricultural and pastureland areas  | US\$ 7.8 billion for more complex techniques for agricultural and pastureland areas |                                                                      |                                                                |

Source: Own elaboration

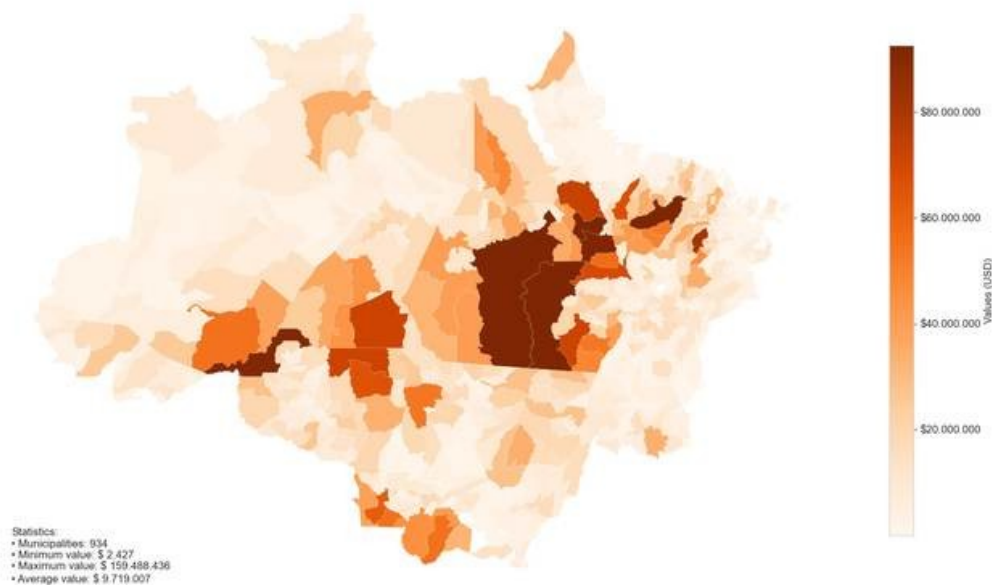


**FIGURE 2: TOTAL COST (USD) DISTRIBUTED BY MUNICIPALITY**

The results reveal a stark contrast between the economic impacts of different land-use conversion types and restoration strategies. While the conversion of forest to agricultural cropland generates substantial restoration costs, the conversion to pastureland represents a disproportionately higher financial burden. This discrepancy is largely explained by the vast difference in the scale of converted areas—2.7 million hectares to pasture compared to only 17 thousand hectares to agriculture—as well as potential differences in the degree of ecological degradation, which influence restoration requirements.

From a methodological standpoint, the comparison between natural regeneration and direct seeding highlights the significant influence of restoration technique choice on total cost estimations. Natural regeneration, representing a lower-cost approach, results in total estimated damages of US\$ 42 million to US\$ 651 million for agricultural conversion and US\$ 2.7 billion to US\$ 25 billion for pasture conversion. In contrast, the adoption of direct seeding—a more complex and input-intensive technique—raises these costs to US\$ 111 million to US\$ 1.1 billion and US\$ 7.7 billion to US\$ 110 billion, respectively. This cost escalation underscores the trade-offs between ecological effectiveness and financial feasibility in restoration planning.

From a policy and enforcement perspective, these findings emphasize the urgency of preventing illegal deforestation as the most cost-effective strategy. The financial resources required for restoration, especially in large-scale pastureland conversions, are substantial enough to strain both public budgets and potential private sector contributions. Moreover, given that ecological restoration occurs over decades, these estimates likely understate the full long-term socio-environmental costs. ecological recovery, the monetary costs reported here only partially capture the long-term biodiversity and ecosystem service losses, suggesting that the true socio-environmental cost of illegal deforestation is even greater than the financial estimates indicate.

Presenting the results on a per-hectare basis offers a clearer understanding of the relative economic burden of restoration across different land-use changes and restoration strategies. The figures indicate that restoring areas converted to agriculture generally incurs higher per-hectare costs than those converted to pastureland, regardless of the restoration technique Applied (table 5 ). For

instance, under natural regeneration, agricultural conversion costs are estimated at US\$ 2,476 /ha using a REDD prices for carbon compared to US\$ 1,097/ha for pasture for the same scenario, while direct seeding raises these costs to US\$ 6,532 /ha and US\$ 3,125/ha, respectively.

**TABLE 5: AVERAGE COST VALUES PER HECTARE**

|                                          | Scenario with lower-cost restoration techniques (natural regeneration) | Scenario with more complex restoration techniques (direct seeding) |                                            |                                     |
|------------------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------|-------------------------------------|
|                                          | Impact of conversion to agricultural areas                             | Impact of conversion to pastureland                                | Impact of conversion to agricultural areas | Impact of conversion to pastureland |
| Cost per hectare (Social cost of carbon) | US\$ 38,335/ha                                                         | US\$ 10,204 /ha                                                    | US\$ 64,837 /ha                            | US\$ 44,366 /ha                     |
| Cost per hectare (REDD prices)           | US\$ 2,476/ha                                                          | US\$ 1,097/ha                                                      | US\$ 6,532/ha                              | US\$ 3,125/ha                       |

Source: Own elaboration

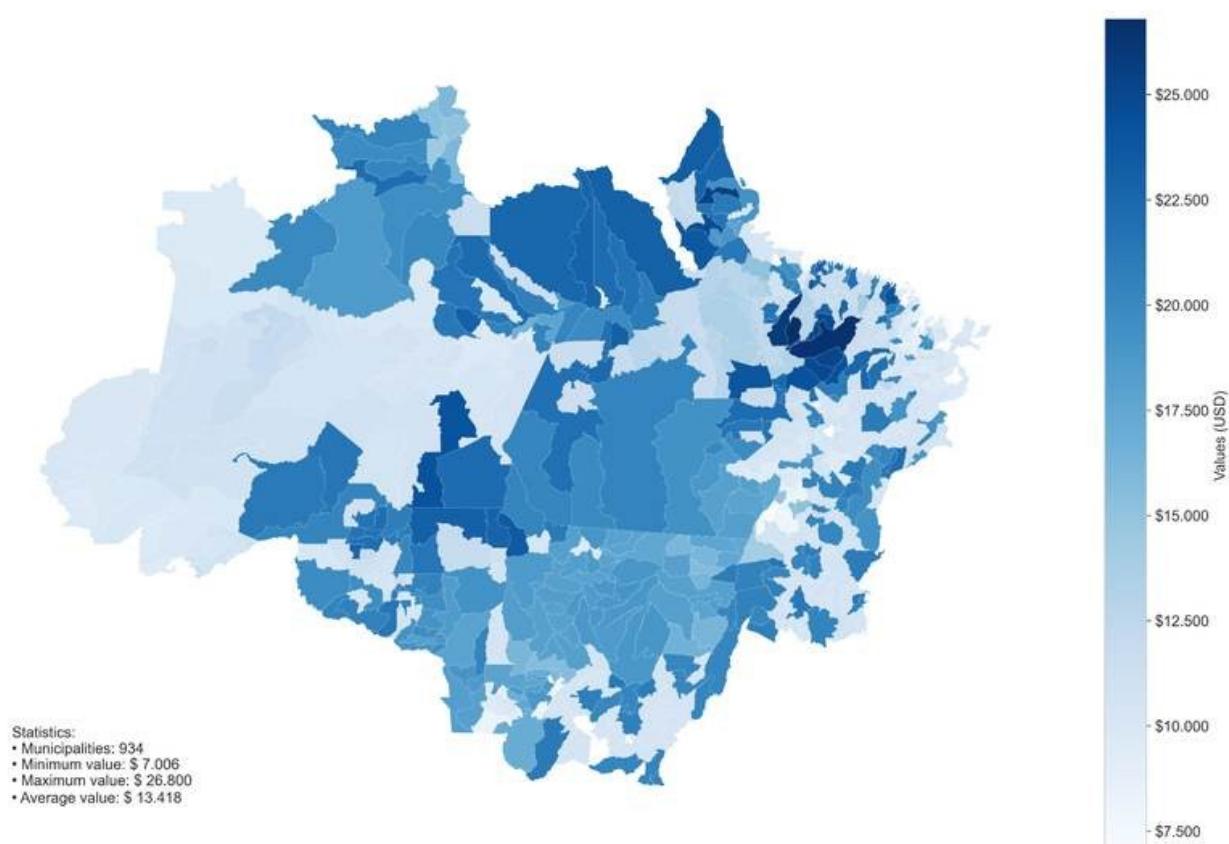


**FIGURE 3: COST PER HECTARE OF RESTORATION OF ILLEGALLY DEFORESTED LAND (USD) BY MUNICIPALITY IN THE BRAZILIAN AMAZON**

This pattern reflects differences in the intensity and type of land-use impacts. Agricultural conversions, especially for large monoculture crops, often involve higher soil disturbance, chemical inputs, and removal of vegetation, which can hinder natural regeneration and increase the need for complex restoration interventions (MARTÍNEZ-RAMOS et al., 2016). In contrast, pastureland—even degraded—may retain some capacity for natural regenerating, reducing the per-hectare investment required, particularly when using lower-cost restoration methods (SILVA et al., 2023; MARTÍNEZ-RAMOS et al., 2016).

Overall, large-scale monoculture agriculture typically results in more intensive mechanization and widespread soil degradation, demanding more substantial soil amendments and site preparation for restoration, whereas pasture systems can exhibit more variable levels of degradation, leading to a wider range of restoration costs depending on site-specific conditions.

The comparison between natural regeneration and direct seeding further emphasizes the financial implications of restoration strategy choice. Direct seeding consistently more than doubles per-hectare costs, underscoring its resource-intensive nature. While potentially delivering faster or more reliable ecological outcomes in heavily degraded areas, it may be financially prohibitive if applied indiscriminately. This reinforces the importance of tailoring restoration approaches to site-specific conditions, combining cost-efficiency with ecological effectiveness.

Taken together, both total and per-hectare cost assessments highlight the scale of the economic liability associated with illegal deforestation in the Brazilian Amazon. These findings strengthen the case for proactive prevention, robust enforcement of environmental regulations, and strategic allocation of restoration resources. By aligning restoration techniques with the severity of degradation and local ecological contexts, it is possible to optimize outcomes while minimizing the financial burden on public budgets and conservation programs.

## Conclusion

This study assessed the socio-environmental costs of illegal deforestation in the Brazilian Amazon by combining three complementary valuation approaches: opportunity cost (direct values), ecosystem service losses (indirect values), and restoration costs. The results show that total damages are substantial, ranging from US\$ 2.7 billion to US\$ 25.6 billion under lower-cost restoration scenarios, and from US\$ 7.8 billion to US\$ 111 billion under more complex restoration assumptions.

These estimates are driven primarily by the large scale of pasture expansion, which accounts for the majority of deforested areas and associated impacts. Even on a per-hectare basis, the results highlight significant economic losses, reflecting both the depletion of market and non-market values and the long-term costs of ecological recovery.

Overall, the findings indicate that illegal deforestation generates substantial net economic losses for society, as private gains from land conversion are outweighed by the broader social costs associated with ecosystem degradation and restoration obligations.

## Final Considerations and Decision-Making Insights

The Brazilian Amazon faces growing pressure from multiple fronts, particularly from cattle ranching, illegal logging, gold mining, and land grabbing. If emissions and deforestation trends of the last decade continue, the Brazilian Amazon will lose another 59 million hectares (an area larger than France) by 2050 (Nobre et al, 2023), leading to irreversible losses of biodiversity, ecosystem

services, and significant economic costs. The economic impact of illegal deforestation in the Brazilian Amazon in 2023 is estimated to fall within the range of US\$ 2.7 billion to US\$ 25.6 billion, in the scenario with lower-cost restoration techniques. These estimates assume that a share of deforested areas can recover through natural regeneration under favorable ecological conditions and are evaluated over a 30-year time horizon. In cases where natural regeneration is not feasible due to higher levels of degradation (e.g., soil compaction or nutrient depletion), higher-cost restoration techniques, longer recovery periods, and greater losses of ecosystem services are expected, as reflected in the upper-bound scenarios.

*The lower bound of the estimate reflects scenarios in which natural regeneration occurs under favorable biophysical conditions and lower opportunity costs, while the upper bound captures cases with higher restoration costs, longer recovery periods, and higher implicit values of lost ecosystem services, particularly carbon storage.* As for the scenario with more complex restoration techniques, the estimated value falls within the range of (natural regeneration techniques in agricultural and pastureland) and US\$ 7.8 billion to US\$ 111 billion. Compared to natural regeneration, scenarios relying on more complex restoration techniques are particularly sensitive to assumptions regarding implementation costs, labor intensity, and maintenance requirements. The wide estimated range therefore captures plausible variation in restoration pathways rather than uncertainty about the existence of impacts, highlighting the importance of site-specific conditions and implementation choices in determining total economic costs. The social costs of lost ecosystem services, including climate regulation, soil protection, etc for one scenario with more complex restoration techniques (direct seeding). To contextualize the values estimated by this study, the economy of Brazil's Northern region (which comprises much of the Amazon) has a GDP on the order of R\$ 970 billion ( $\approx$  US\$ 176 billion) in recent years, reflecting the region's formal, legally generated economic output. This means the annual cost of deforestation is non-negligible relative to regional output, around 63%.

These figures represent the real economic damages borne by society, rather than forgone opportunities, underscoring the urgency of policies that align economic development with forest conservation. But this figure does not tell the whole story: these are net losses to society, whereas a portion of the value is transferred to illegal actors via timber, land speculation, or cattle expansion. In other words, private interests capture gains while public goods are degraded.

Importantly, these figures are likely conservative, as they do not yet account for other indirect and external impacts, such as the escalation of land conflict, or public health risks associated with forest loss.

This analysis highlights the urgent need for coordinated action to halt illegal deforestation and transition towards sustainable land use models. The expansion of unregulated economic activities and the persistent lack of effective land governance not only accelerate biodiversity loss but also undermine Brazil's potential to generate long-term economic value from standing forests. Most of these damages are not currently internalized through functioning economic instruments. The total economic value of standing forests is still largely uncompensated. Carbon markets remain volatile and geographically limited; high-integrity forest carbon credits face credibility and demand challenges; biodiversity credits are at an early, experimental stage and are structurally complex; and the costs of ecological restoration are overwhelmingly borne by public agencies or external funders, not by those responsible for illegal clearing. In practice, this means the social losses quantified above are real, immediate, and mostly uncompensated.

The current response from public authorities is still not sufficiently dissuasive. Illegal deforestation persists because expected penalties, such as fines, asset seizure, loss of land claims, are uncertain, slow, or reversible. By contrast, the private gains from clearing are fast and liquid: timber can be sold, cattle can be moved, and land claims can be regularized later through political pressure. Strengthening deterrence, therefore, requires not only legal prohibitions but credible, timely, and costly consequences for offenders.

There is evidence from other fronts of environmental crime that this is possible. In the case of illegal gold mining, for instance, valuation tools have helped prosecutors and environmental agencies calculate damages in monetary terms and use those values to guide fines, civil liability claims, and restoration orders (Gasparinetti et al, 2024; Conservation Strategy Fund, 2023). Applying a similar approach to illegal deforestation, i.e. attaching a quantified, jurisdiction-specific economic cost to each hectare cleared, would allow enforcement agencies to seek compensation that reflects the true socio-environmental damage, rather than symbolic or arbitrary penalties. This shifts part of the restoration burden back toward perpetrators.

At the same time, long-term forest conservation cannot rely solely on repression. A durable solution also requires creating legitimate, predictable revenue streams for keeping forests standing, especially for actors who are not engaging in crime but are under economic pressure to convert land. Established mechanisms such as REDD+ initiatives, alongside emerging initiatives such as the Tropical Forest Finance Facility (TFFF), aim to channel finance toward standing forests through performance-based payments. These mechanisms could help close the gap between public value and private incentives by rewarding conservation in a stable, reliable way. However, unless these benefits are explicitly redistributed to the local level to communities, smallholders, and legitimate landholders in high-pressure frontiers, they will not fully counterbalance the incentives to clear. In practice, even with new finance, strong command-and-control style policies from governments will remain essential to contain organized deforestation and land grabbing.

Put together, the evidence suggests that halting illegal deforestation in the Brazilian Amazon is both an economic and institutional challenge. It is not enough to “make the forest more valuable on paper”; the policy mix must (i) raise the expected cost of environmental crime for perpetrators, (ii) ensure that the cost of restoration is enforced rather than socialized, and (iii) create accessible, long-term economic alternatives to extensive cattle ranching and speculative clearing.

To change this trajectory, a set of strategic interventions is required:

- Strengthen and enforce environmental legislation by improving the speed, certainty, and magnitude of penalties for illegal clearing. This includes: (i) linking fines and civil liabilities to standardized, jurisdiction-specific estimates of socio-environmental damage per hectare; (ii) streamlining administrative and judicial procedures to reduce delays in sanctioning and enforcement; (iii) strengthening monitoring and traceability systems to ensure that illegal clearing is rapidly detected and attributed to responsible actors; and (iv) enhancing inter-agency coordination (e.g., environmental agencies, prosecutors, and land registries) to enable effective asset seizure, enforcement of restoration obligations, and prevention of land regularization linked to illegal deforestation.
- Secure land tenure and clarify property rights, especially in areas vulnerable to land grabbing, enabling sustainable forest management, restoration, and community-based use.

- Create and scale predictable financial mechanisms that reward standing forests, for example, performance-based payments and initiatives such as the TFFF, with explicit provisions to channel benefits directly to local communities, smallholders, and other legitimate stewards, not only to national or international intermediaries.
- Expand real-time monitoring, traceability, and transparency (including public access to satellite data and enforcement outcomes) to reduce impunity and allow civil society, prosecutors, and control agencies to act more quickly on illegal clearing.
- Foster inter-institutional collaboration among federal, state, and local authorities, civil society, and Indigenous communities to improve land-use planning and align territorial governance with conservation goals.
- Promote political will and accountability by translating scientific evidence—such as the economic cost of inaction—into compelling arguments for decision-makers, donors, and the public.

In sum, protecting the Brazilian Amazon is not only an environmental imperative: it is an economic governance necessity. Forests offer viable, scalable pathways for sustainable development, climate mitigation, and community resilience. By prioritizing legal enforcement, sustainable alternatives, and transparent governance, Brazil can avoid the high costs of deforestation and unlock the full value of its most vital natural asset.

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## Notes

1. Values from Mapbiomas Collection 9 - Land Cover and Transitions Database (2024).
2. Under the MapBiomas hierarchical land-use and land-cover classification system, areas classified as “forest” comprise Forest Formation, Wooded Sandbank Vegetation, Floodable Forest, Mangrove, and Savanna Formation. In this study, the term “forest” is used to refer to the aggregation of these classes.
3. Native vegetation deforestation means a loss of opportunity to exploit timber and non-timber products (such as coffee, bananas, cocoa, guarana, among others).
4. Maintaining the forest provides some ecosystem services such as carbon removal, contributing to climate regulation and mitigating climate change.
5. Research and exploitation of the biodiversity of a region, its genetic and biochemical resources of commercial value.
6. The standing forest is essential as it retains water in the roots and soils. In degraded soils, soil absorption capacity is lost, which contributes to increased flooding and loss of ecosystem functions.
7. Forest recovery consists of transforming the pasture area used for livestock into an area with the basic ecological functions of a forested area.
8. Social Cost of Carbon is defined by the economic cost originated by an additional ton of carbon dioxide or its equivalent (Nordhaus, 2016).

## Annex 2. Drivers of deforestation in Protected Areas and Indigenous Territories

### Introduction

The Amazon rainforest, of critical importance for global biodiversity and climate regulation, is facing unprecedented threats from deforestation. Nature crime, which can be defined as **“illegal activities that cause significant damage to the environment, ecosystems, and biodiversity”<sup>1</sup>**, is both accelerating this destruction and fueled by it. Most deforestation across the Amazon is illegal, occurring in areas where the removal of forest cover is prohibited or requires an authorization that has not been given or even requested. While deforestation is criminalized in and of itself in most countries of the Amazon, it is often associated with other crimes such as money laundering, trafficking and corruption.

In this report, we provide a comprehensive analysis of the drivers of deforestation within the Amazon's Protected Areas (PAs) (national, state, and municipal levels) and Indigenous Territories (ITs) (here defined as indigenous lands with a formal title) across the Amazon basin, with a particular focus on the record-breaking year of 2024, and how they relate to illegal behaviors that could indicate potential manifestations of Nature Crime. The focus on PA and IT, where large scale removal of forest cover is generally prohibited, is here used as a proxy for illegality of deforestation. **By using newly available data on drivers of deforestation, we reveal how these deforested areas relate to a wide range of illegal activities beyond the mere removal of forest cover and start painting a picture of the extent and distribution of various manifestations of Nature Crime across the region.**

For the year 2024 alone, we record a staggering loss of primary forest in both PAs and ITs, with a significant portion attributable to activities linked to Nature Crime. Our analysis reveals that while wildfires, often deliberately set, are a major contributor to forest loss, a substantial and quantifiable area has been cleared for permanent and shifting agriculture, hard commodity extraction (primarily gold mining), and illegal logging. Since these activities are frequently carried out by organized criminal networks, the implications go beyond their environmental impacts, undermining the public safety and governance of Amazonian jurisdictions.

This report quantifies the scale of this destruction, identifying the specific PAs and ITs most affected by these illicit activities. We present a country-by-country breakdown of the data, highlighting the varying patterns of deforestation across the Amazon basin. For instance, while wildfires are the dominant driver in Brazil and Bolivia, agriculture-related deforestation is more prevalent in Colombia. Furthermore, we pinpoint specific hotspots of gold mining deforestation in several countries, providing clear evidence of the encroachment of organized crime into protected and indigenous lands.

Further below, in Section 3, we focus on the strategic state of Mato Grosso in eastern Brazil for a more detailed look at legal vs illegal deforestation events across multiple sectors.

### Methodology

This analysis is based on the latest data from the University of Maryland (UMD), which provides a detailed breakdown of primary forest loss from 2001 to 2024. Our methodology involved an in-depth

examination of this data in relation to the geographic boundaries of over 4,200 PAs and ITs across the Amazon biome. To ensure the accuracy of our findings, we further corroborated the UMD data with high-resolution satellite imagery from Planet, allowing for a granular assessment of deforestation drivers on the ground.

Following an **initial comparison** of the two main Amazon-wide datasets – University of Maryland (featured on Global Forest Watch) and Mapbiomas – we found that only the former was updated to 2024. Given the importance of the 2024 season, and the goal to provide as timely information as possible, we focused on the **University of Maryland (UMD)** data to provide an initial and timely estimate of Nature crimes for 2024. See Annex I for a more detailed comparison of UMD and Mapbiomas for 2023.

The UMD data indicates loss of primary forest due to both fire and non-fire causes. It extends from 2001 to 2024 and covers the entire Amazon biome and watershed. We analyzed this data in relation to PA and IT (data source RAISG 2024)<sup>2</sup>, yielding a large initial sample size of over 4,200 areas and territories overall.

## 1. Forest loss in Protected Areas and Indigenous Territories

Total Area covered by report:

PA total area = 230.9 M ha

IT total area = 199.7 M ha

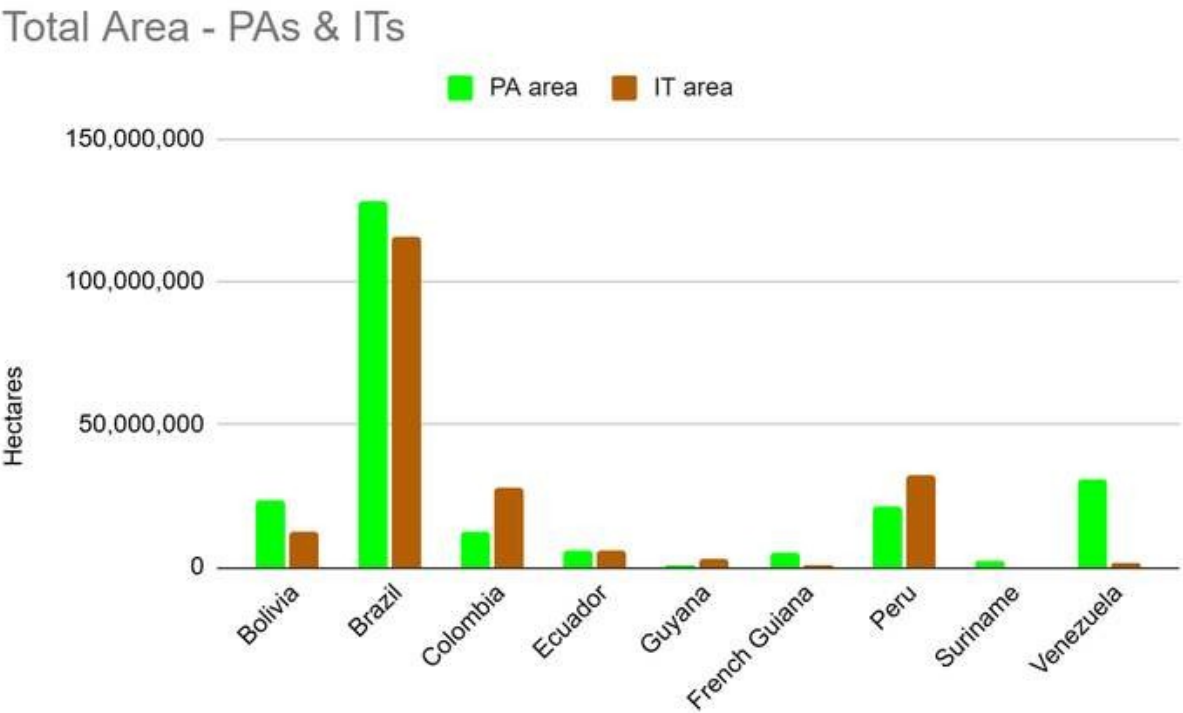
Broken down by country like this:

Brazil has the most with over 128M ha PAs and 115 M ha ITs

For PAs, Brazil distantly followed by Venezuela (31.1 M ha), Bolivia (23.8M ha), Peru 20.9 M ha)

For ITs, Brazil followed by Peru (32.2 M ha) and Colombia (27.9 M ha

We analyzed entirety of all these areas for primary forest loss



Graph 1.

For this full range of data (2001-2024), we estimate **3.9 million hectares** of primary forest loss due to non-fire causes in PA across the Amazon (1.6% of the total protected areas system), plus an additional 2 million hectares from fires (see Table 1). Note that **2024** had the highest totals, by far, for both categories.

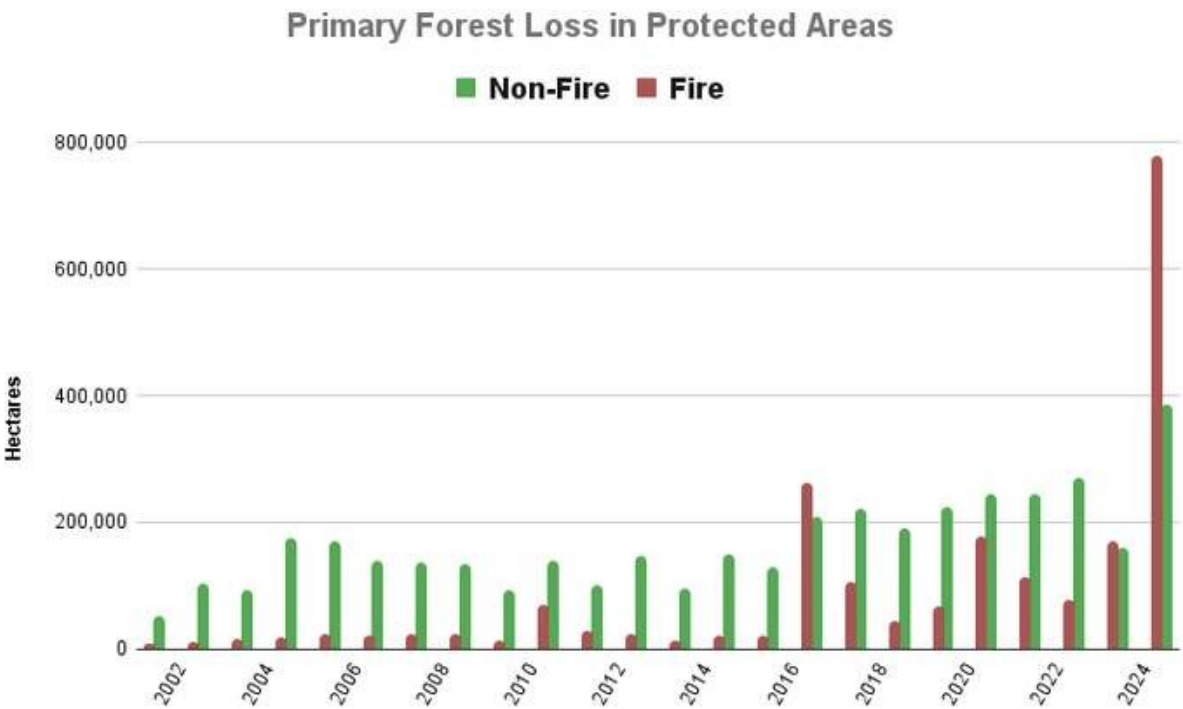


Table 1

Similarly, we calculated **2.4 million hectares** of primary forest loss due to non-fire causes in IT (1.2% of the total area), plus an additional 2.6 million hectares from fires (see Graph 2). Note that 2024 had the highest totals, by far, for both categories.

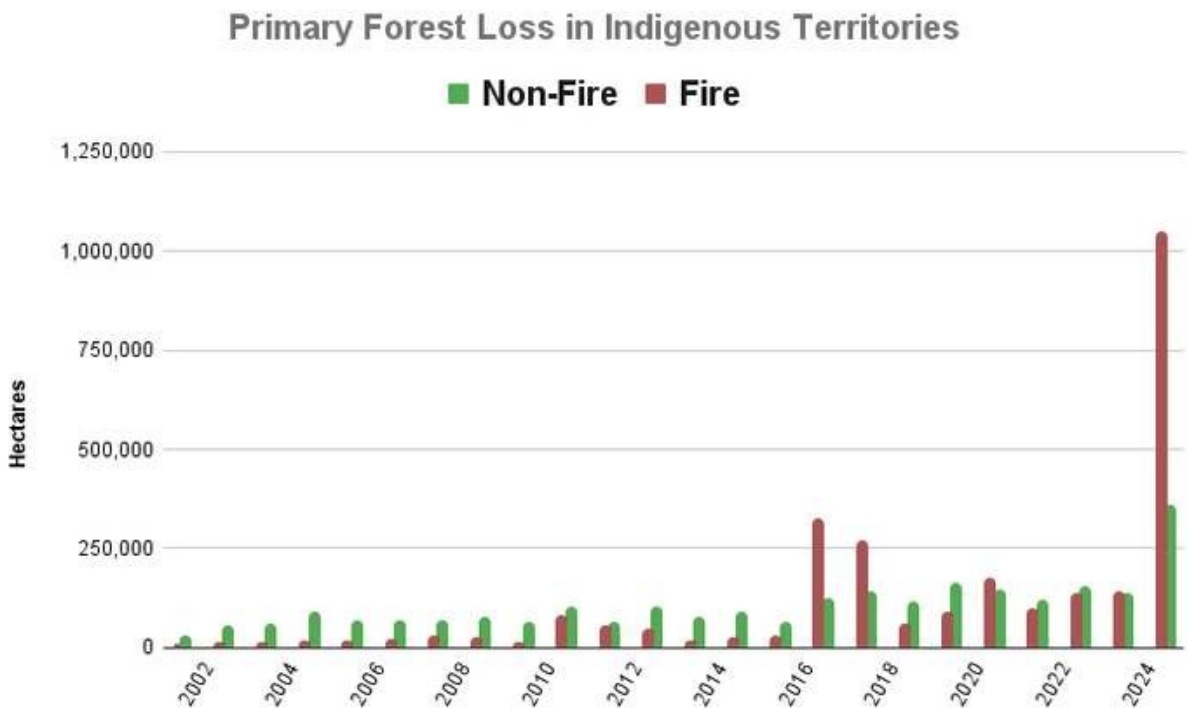


Table 2

We then **focused on the record-breaking 2024** data for a detailed analysis of drivers across these areas. This data includes 685 PA (national, state, and municipal levels) and 3,605 titled IT.

For the PA, we estimate the primary forest loss caused by other drivers (non-fire) of **390,341 hectares**, plus an additional impact of 783,218 hectares from fires. For the IT, we estimate the non-fire primary forest loss of **421,811 hectares**, plus an additional impact of 1,102,518 hectares from fires.

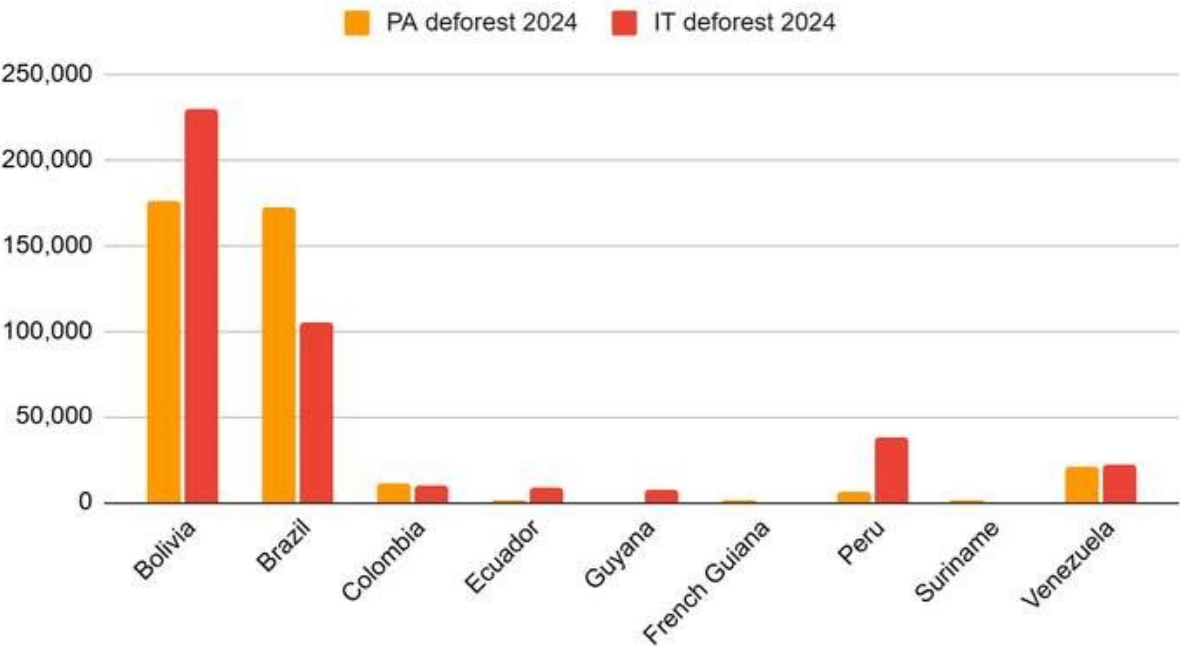
For PAs, Bolivia had the most forest loss (175,290 ha), followed by Brazil (172,471 ha).

Similarly for ITs, Bolivia had the most forest loss (229,211 ha), followed by Brazil (105,670 ha) - note more than double.

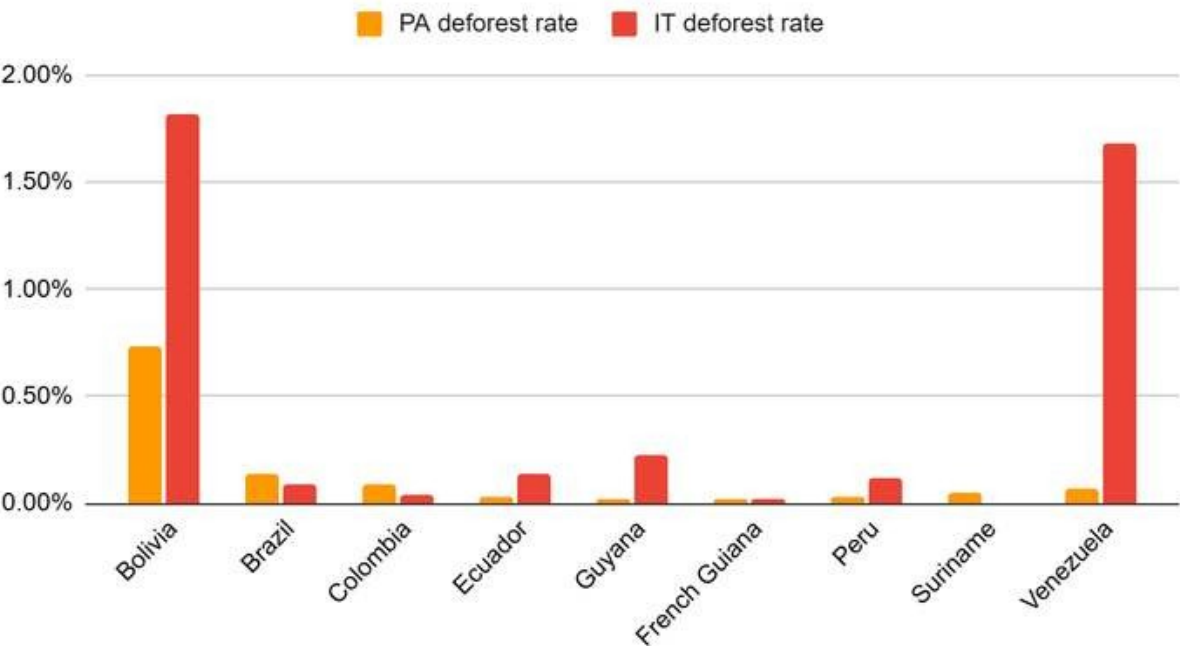
Standardizing for area, for PAs Bolivia had the highest deforestation rate by far (0.74%).

For ITs, Bolivia also had the highest deforestation rate (1.82%), closely followed by Venezuela (1.68%)

Deforestation 2024 - PAs & ITs



Deforestation Rate 2024 - PAs & ITs



To better focus the analysis on the most urgent cases, we then applied **two filters**: 1) For the PA, we focused just on the **national parks**, as the most emblematic category (and most likely to not allow forms of sustainable use that could be misconstrued as manifestations of Nature Crime); and 2) for both the national parks and IT, we focused on those that experienced more than **1,000 hectares** of primary forest loss in 2024.

The results from these two filters include **23 national parks (covering 37.9 million hectares)** and **86 IT (covering 94.6 million hectares)**. Of the 23 most impacted parks, 12 were in Brazil, 4 in

Bolivia, 3 Colombia, 3 in Venezuela and 1 in Peru (see purple areas in Figure 1). And of the 86 most impacted IT<sub>1</sub>, 43 were in Brazil, 25 in Bolivia, 6 in Guyana, 8 in Venezuela, 3 in Colombia, and 1 in Peru (see purple territories in Figure 2).

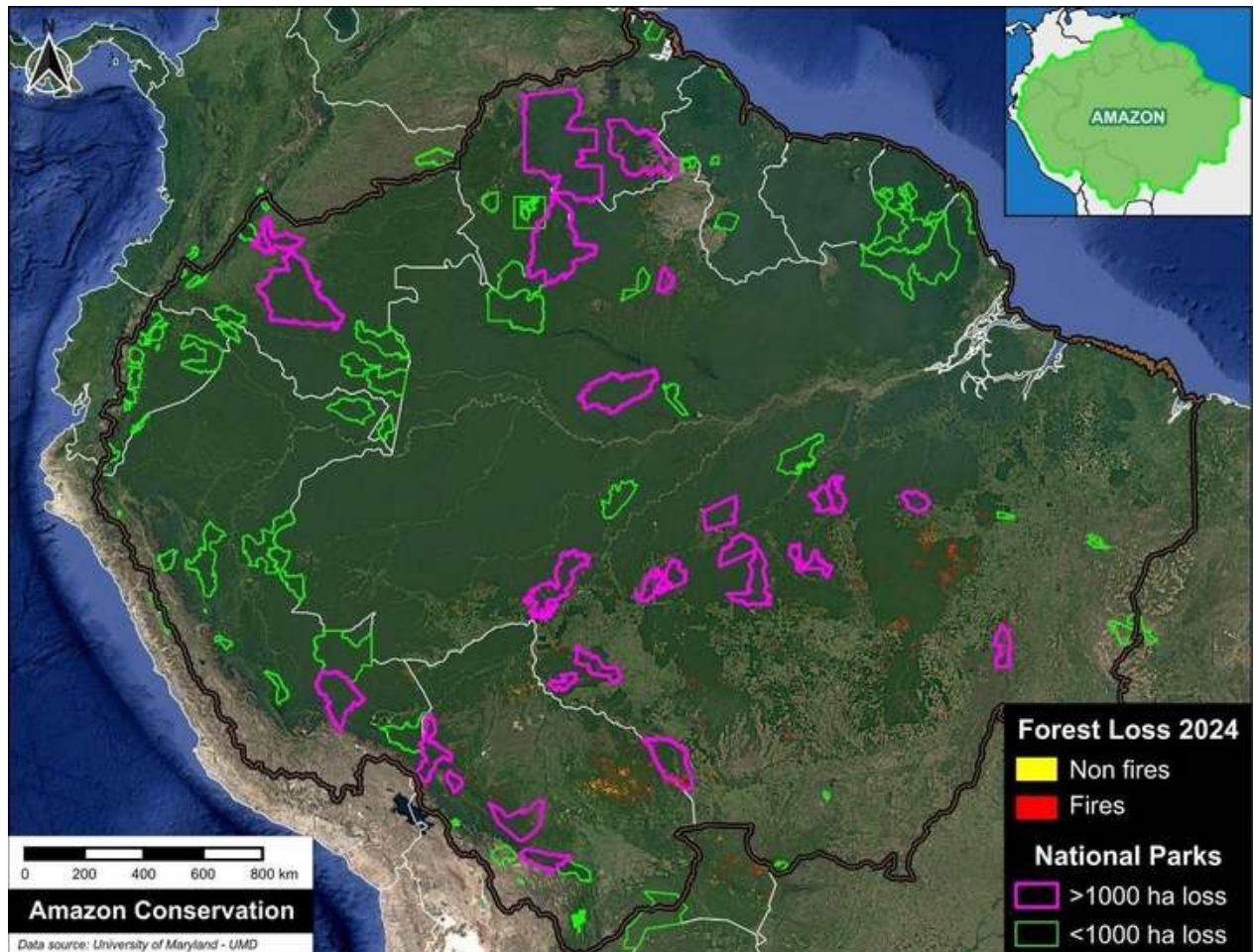


Figure 1. Map of National Parks affected by Forest Loss in 2024

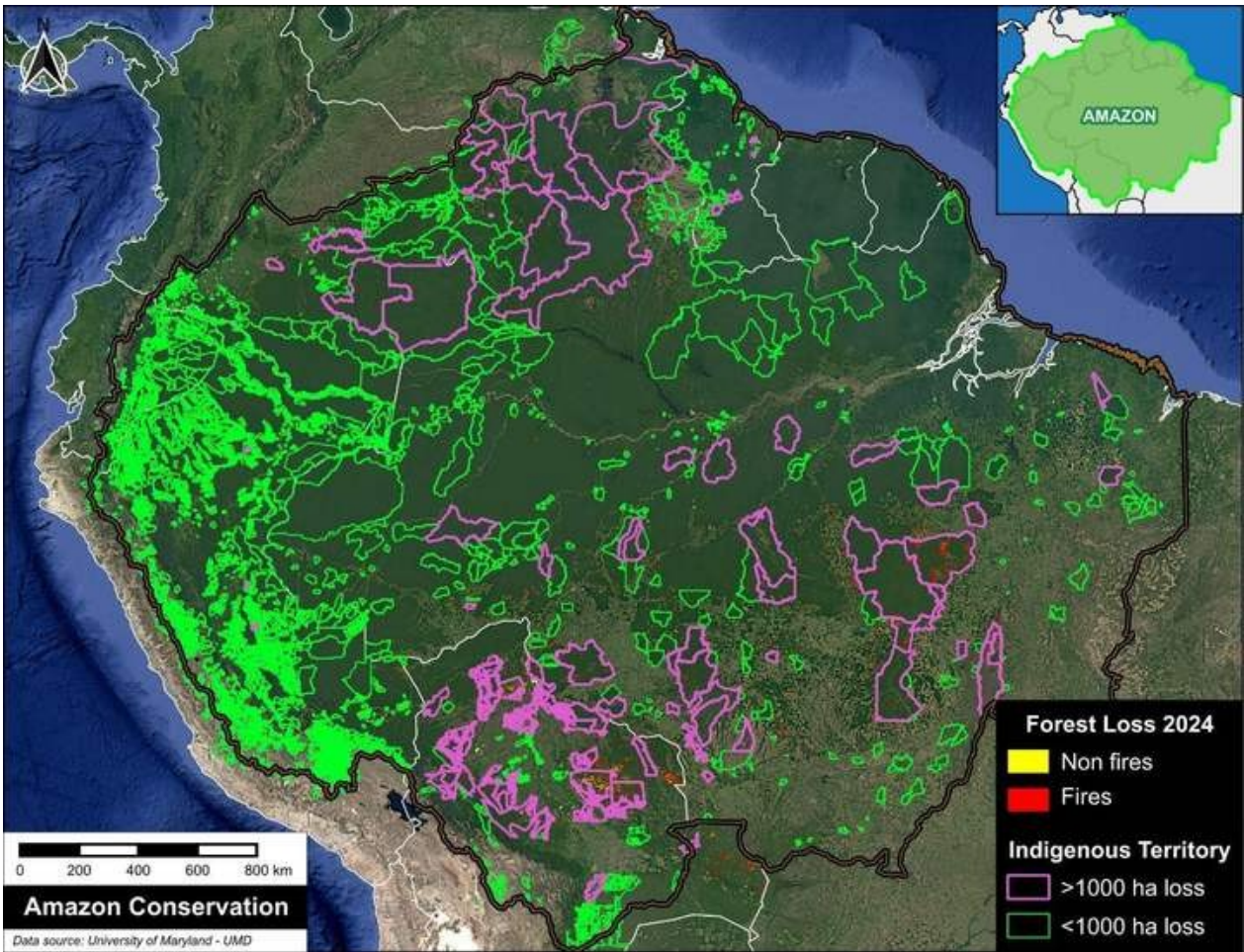


Figure 2. Indigenous territories affected by forest loss in 2024

2. Analysis of drivers of deforestation for 2024

For the next step of the analysis, we analyzed the new forest loss **drivers data** from the University of Maryland. This dataset further breaks down the primary forest loss into seven categories: Permanent agriculture, Shifting cultivation, Hard commodities, Logging, Wildfire, Settlements and infrastructure, and Other natural disturbances, that can help identify activities associated with Nature Crime. For analysis purposes, we combine Permanent agriculture and Shifting cultivation into an overall **Agriculture** category, and **Hard commodities** represents gold mining. These categories, plus Logging, represent the most direct measures of Nature crimes. In the table below, we detail how each of these categories of drivers of forest loss relate to potential manifestations of Nature crime.

| UMD dataset class description                                                                             | Relation to potential Nature crime                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Permanent agriculture:</b> Long-term, permanent tree cover loss for small- to large-scale agriculture. | Permanent agriculture, ranging from small-scale farms to large industrial plantations, is a primary driver of deforestation in the Amazon. When agricultural expansion occurs on land without clear use rights and without the potential approval requirements for vegetation removal, it becomes an illegal activity, passible of administrative or criminal sanctions. Organized criminal groups across the Amazon are known |

|                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                     | <p>to engage in large-scale land grabbing, illegally clearing vast tracts of forest to establish cattle ranches and agricultural operations. These activities are often used to launder profits from other illicit enterprises, such as drug trafficking and illegal mining.</p> <p>Sources: <a href="#">The ecosystem of environmental crime in the Amazon</a>; <a href="#">Cattle Supply Chains and Deforestation of the Amazon</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p><b>Hard commodities:</b> Loss due to the establishment or expansion of mining or energy infrastructure.</p>                                                                                                      | <p>The extraction of hard commodities, particularly mining for gold, while relatively small in terms of scale of area of forest cover lost, causes wide-ranging environmental and social impacts. This sector is heavily infiltrated by organized crime, and operations often involve the use of toxic substances like mercury, which contaminates rivers and soil, poisoning local communities and ecosystems. Criminal groups control mining sites, using violence and intimidation to displace Indigenous communities and exploit workers. The illicitly extracted minerals are then laundered into legal supply chains, making it difficult to trace their criminal origins. The expansion of energy infrastructure, while sometimes legal, can also be associated with Nature crime, as it can open up previously inaccessible areas of the forest to illegal colonization and resource extraction.</p> <p>Sources: <a href="#">Nature Crime Fuels Deforestation in the Amazon</a>; <a href="#">Inside the fight against illegal mining in the Amazon</a></p> |
| <p><b>Shifting cultivation:</b> Tree cover loss due to small- to medium-scale clearing for temporary cultivation that is later abandoned and followed by subsequent regrowth of secondary forest or vegetation.</p> | <p>Small-scale, traditional shifting cultivation by Indigenous and local communities is a sustainable and licit practice within Indigenous Territories. In National Parks with strict conservation status, it is likely to be illegal. In either land categories, shifting cultivation footprint may be associated with illicit crops, such as coca. This makes it challenging to distinguish between traditional, sustainable practices and criminal exploitation of this driver of forest cover loss.</p> <p>Source: <a href="#">The Unstoppable Rise of Environmental Crime</a></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p><b>Logging:</b> Forest management and logging</p>                                                                                                                                                                | <p>Illegal logging is a major form of Nature crime in</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

|                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>activities occurring within managed, natural or semi-natural forests and plantations, often with evidence of forest regrowth or planting in subsequent years.</p>                                                                               | <p>the Amazon, often operating under the guise of legal forest management. Criminal organizations systematically harvest valuable timber from PA, IT, and public lands. This illicitly sourced timber is then frequently laundered into legal supply chains through fraudulent permits and corruption, making its way to domestic and international markets. The logging industry in the Amazon is rife with violence, with criminal groups using intimidation and force against environmental defenders, Indigenous communities, and law enforcement officials who stand in their way. The construction of illegal roads to access remote logging sites further exacerbates deforestation and opens up new frontiers for other criminal activities.</p> <p>Sources: <a href="#">Stolen Amazon: Environmental Crime in the Tri-Border</a>; <a href="#">Illegal Logging, Wildlife Trafficking, and Enforcement Tech</a></p> |
| <p><b>Wildfire:</b> Tree cover loss due to fire with no visible human conversion or agricultural activity afterward. Fires may be started by natural causes (e.g. lightning) or may be related to human activities (accidental or deliberate).</p> | <p>Wildfires do not naturally occur in the Amazon, and most instances of fire are deliberately set by human hand. Arson is widely used to clear large areas of forest for illegal activities such as agriculture, cattle ranching, and land speculation. Organized criminal groups orchestrate these fires to expand their territorial control and eliminate evidence of illegal logging. The use of fire as a weapon of deforestation is a clear manifestation of Nature crime, transforming vast landscapes and contributing to a cycle of environmental destruction and violence. Sources: <a href="#">Nature Crime Fuels Deforestation in the Amazon</a>; <a href="#">Amazon rainforest fires 2022: Facts, causes, and climate impacts</a></p>                                                                                                                                                                         |
| <p><b>Settlements and infrastructure:</b> Tree cover loss due to expansion and intensification of roads, settlements, urban areas, or built infrastructure (not associated with other classes).</p>                                                | <p>The expansion of settlements and infrastructure, such as roads and urban areas, is often a precursor to and facilitator of Nature crime in the Amazon. While some infrastructure development is legal and planned, illegal road construction is a common tactic used by criminal organizations to gain access to remote, previously inaccessible areas of the forest for illegal logging, mining, and agricultural expansion. These illegal roads act as arteries for environmental destruction, opening up new frontiers for deforestation and creating corridors</p>                                                                                                                                                                                                                                                                                                                                                  |

|                                                                                                                                                                                                                                                                |                                                                                                                                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                | for the transportation of illicit goods. Source: <a href="#">How the Amazon crisis is reshaping responses to environmental crime</a> |
| <b>Other natural disturbances:</b> Tree cover loss due to other non-fire natural disturbances (e.g., landslides, insect outbreaks, river meandering). If loss due to natural causes is followed by salvage or sanitation logging, it is classified as logging. | N/A                                                                                                                                  |

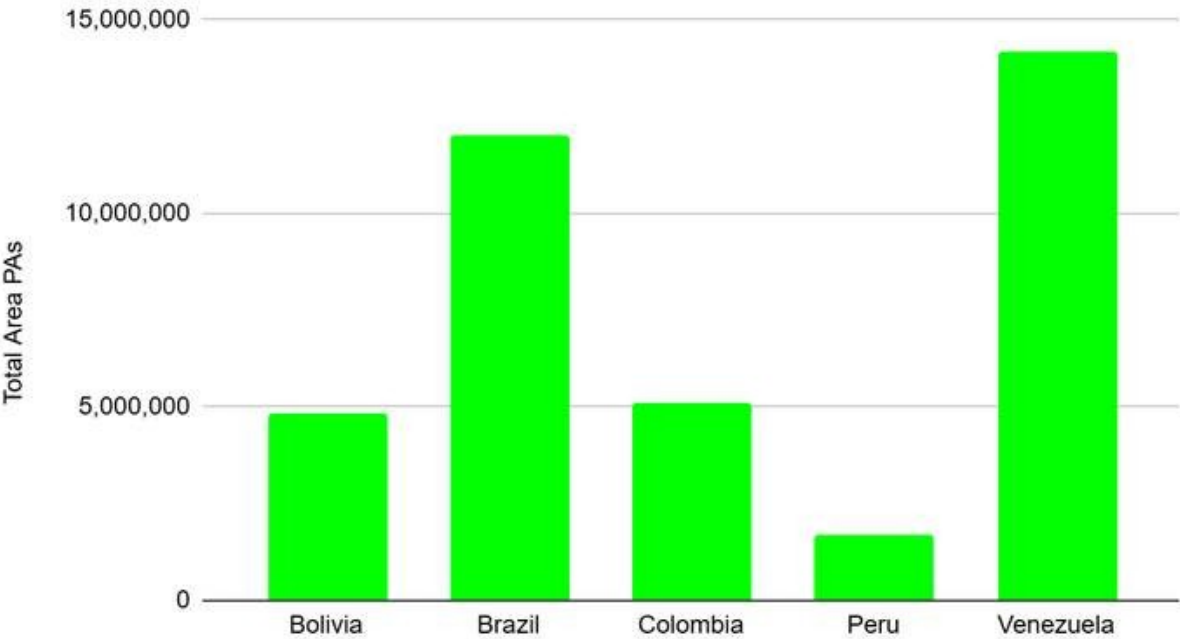
Results in protected areas

For the national parks, the vast majority (84.4%) of the forest loss detected was due to escaped human-caused fires (defined as wildfires by UMD). An additional 2.4% was due to natural causes(such as landslides, windstorms, and shifting rivers). Thus, our initial estimate is that **13.2% (31,306 hectares) of the area lost in national parks analyzed** (that lost more than 1,000 ha in 2024) is linked to agriculture (permanent and shifting), gold mining, and logging, potential indicators of Nature crime.

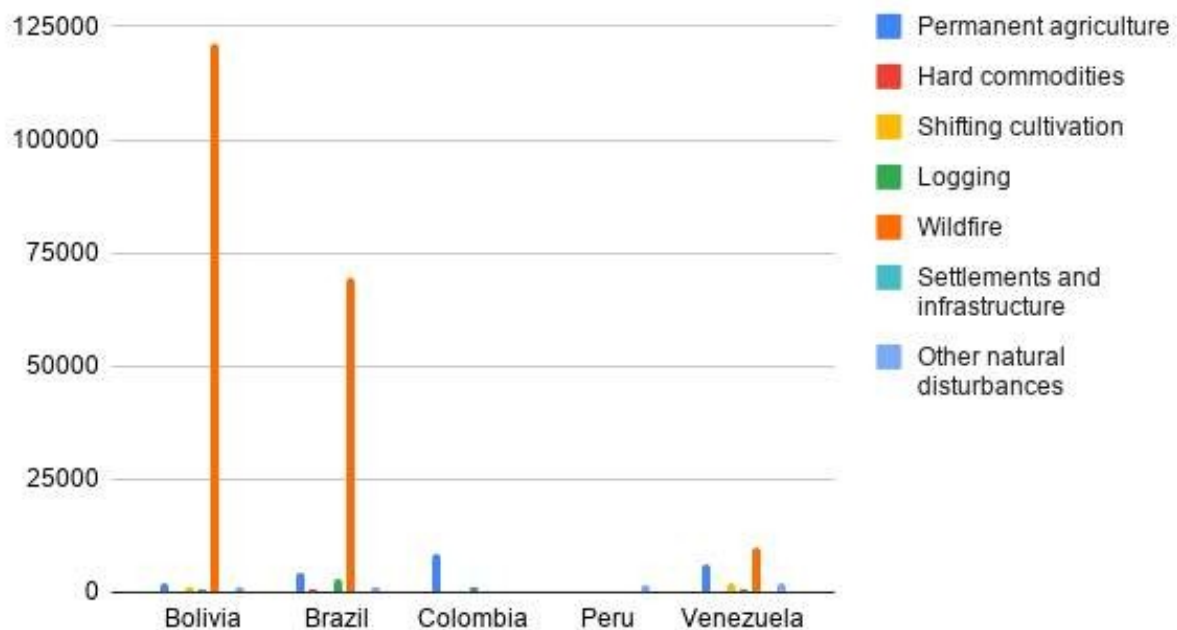
For the 23 national parks analyzed in this section, Venezuela had the most area (14.2 M ha), followed by Brazil, Colombia, and Bolivia.

Bolivia had the most forest loss (125,946 ha), mostly due to wildfires. Similarly, most of Brazil's forest loss was wildfire.In contrast, most of Colombia’s limited forest loss was due to permananet agriculture.

Total Area PAs



## Deforestation by Driver - PAs



There were important variations by country.

In both **Brazil and Bolivia**, most of the impact in National parks was due to wildfires (88% and 96%, respectively). The most fire-impacted park by far was Bolivia's Noel Kempff Mercado (110,000 ha; see Figure 3), followed by Brazil's Mapinguari and Pacaás Novos and Bolivia's Isiboro Securé (each with over 10,000 ha).

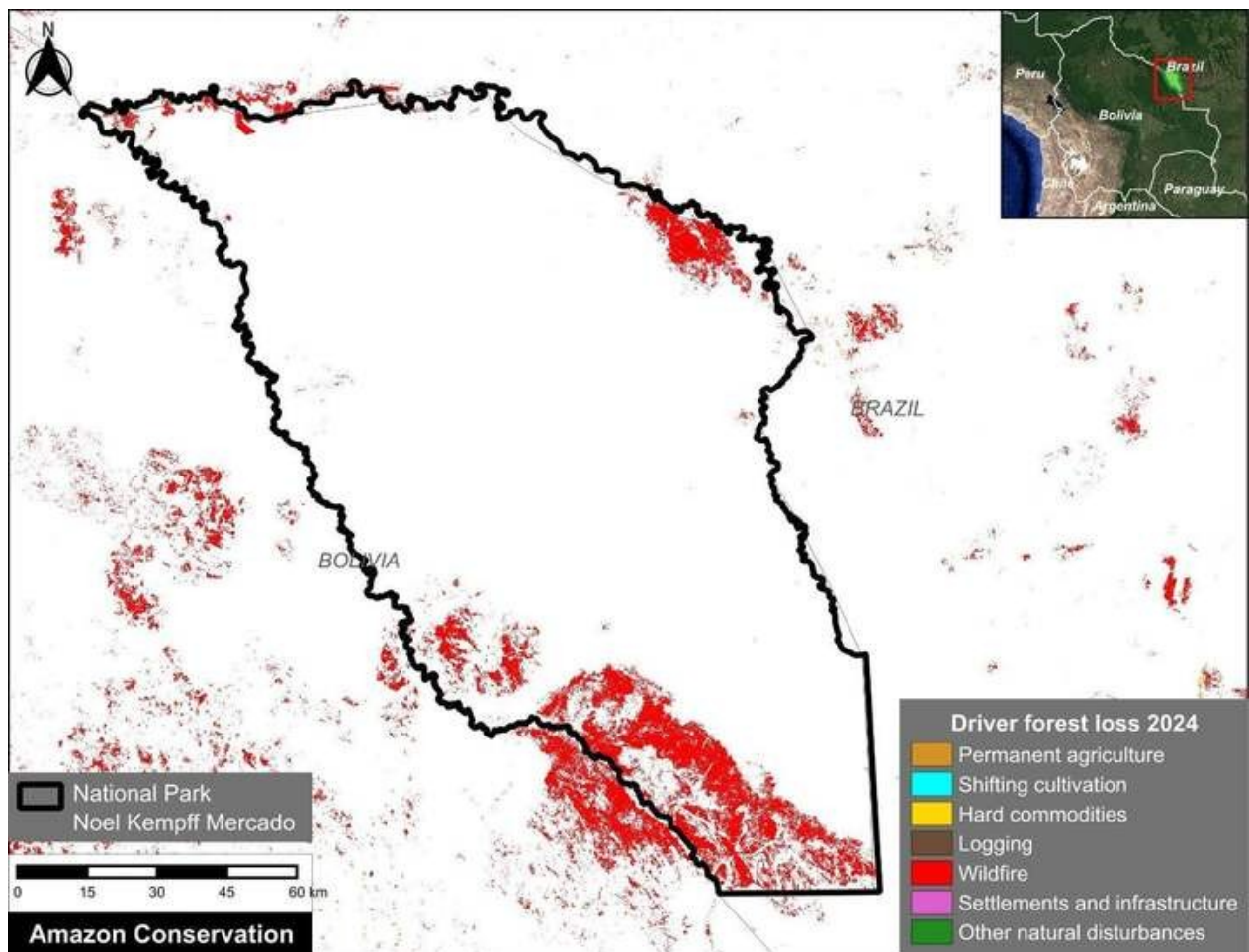


Figure 3

Other areas in Brazil and Bolivia, however, had >1,000 ha impact from agriculture and gold mining, indicating more direct relationship with potential Nature crimes. For example, Bolivia's Isiboro Securé and Brazil's Jamanxim (see Figure 4; note this area also had extensive fires) and Mapinguari each had over **1,000 ha of agriculture** related primary forest loss in 2024.

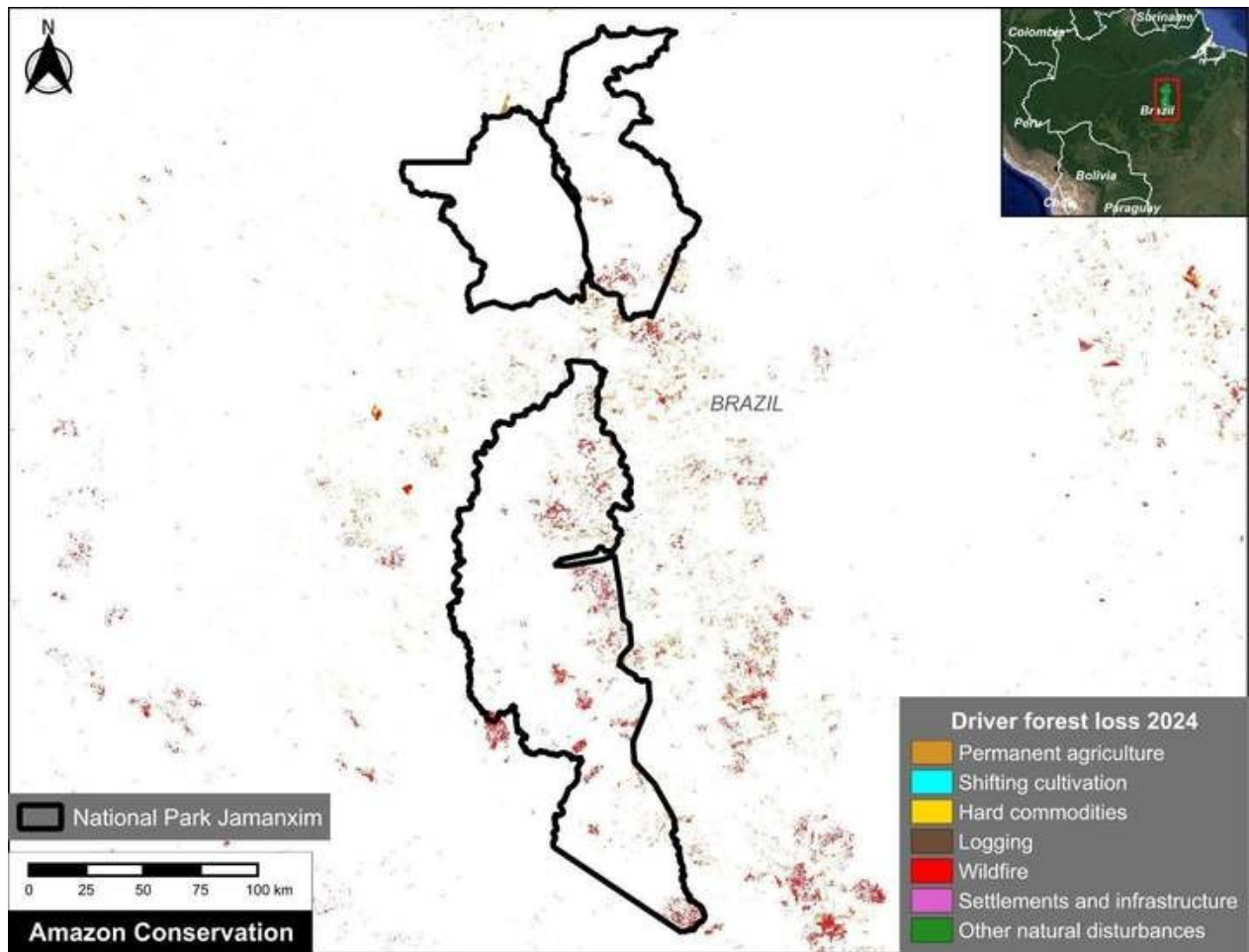


Figure 4

In **Colombia**, the pattern differed, with less impact from fires (1.8%) and much more on agriculture (87.7%). Three parks had over 1,000 ha impact from Nature crimes (agriculture and logging): Tinigua (Figure 5), Macarena, and Chiribiquete.

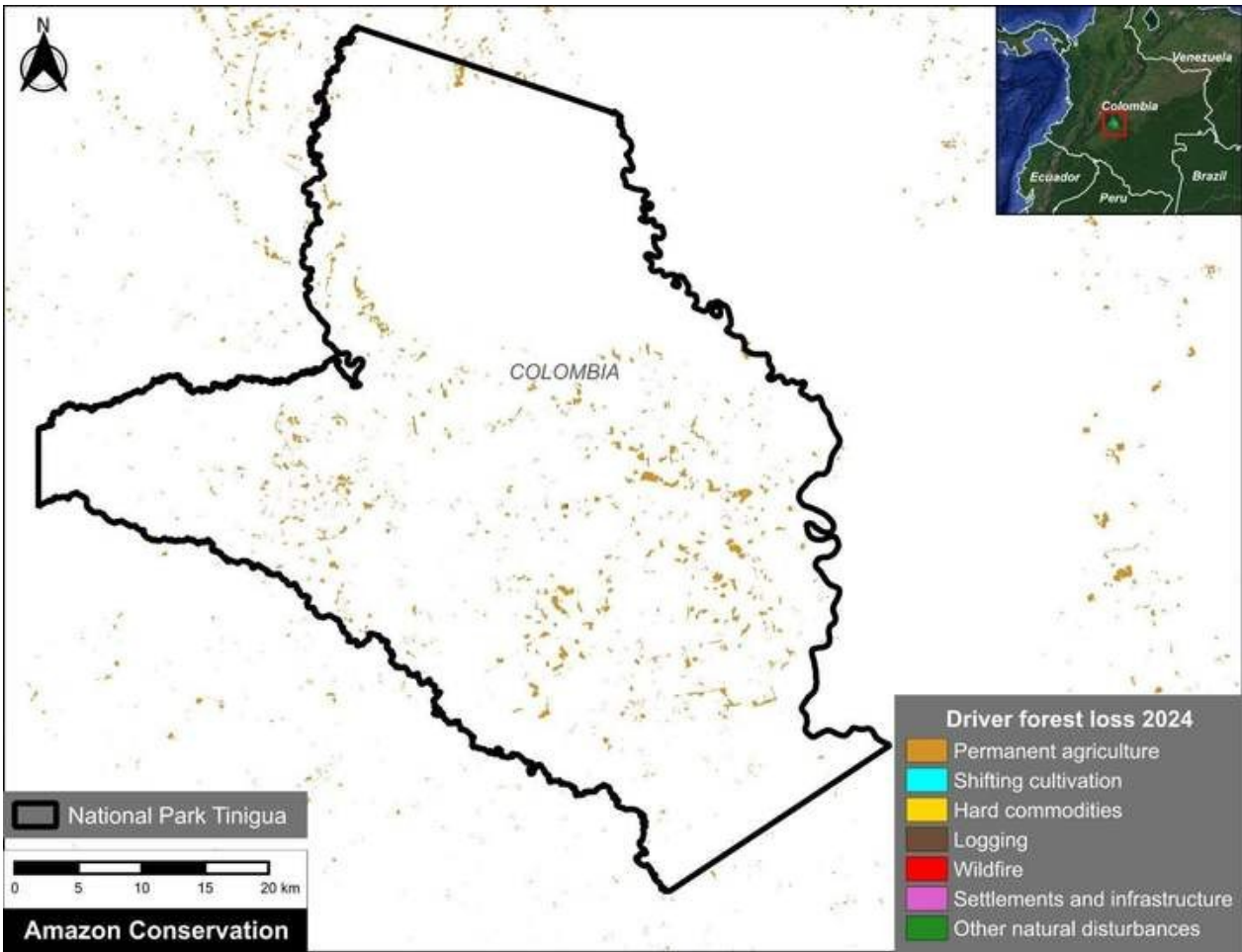


Figure 5

In Peru, an important feature of data was highlighted: exonerating areas with high levels of **natural forest loss** (such as landslides and wind storms). Manu had 1,385 ha primary forest loss in 2024, indicating a major problem in one of the world's most emblematic parks. But the drivers data revealed that this was mostly natural loss (Figure 6).

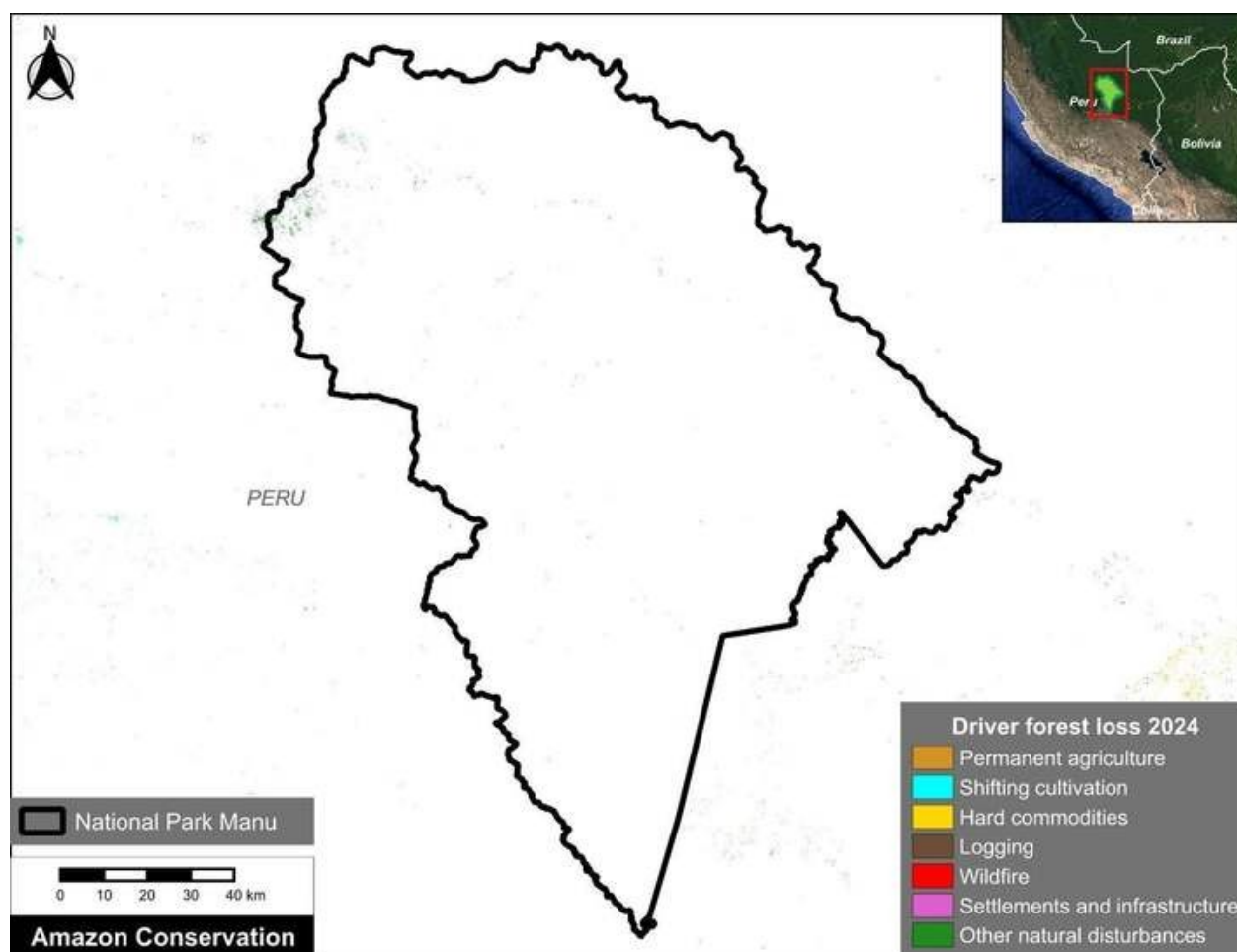


Figure 6

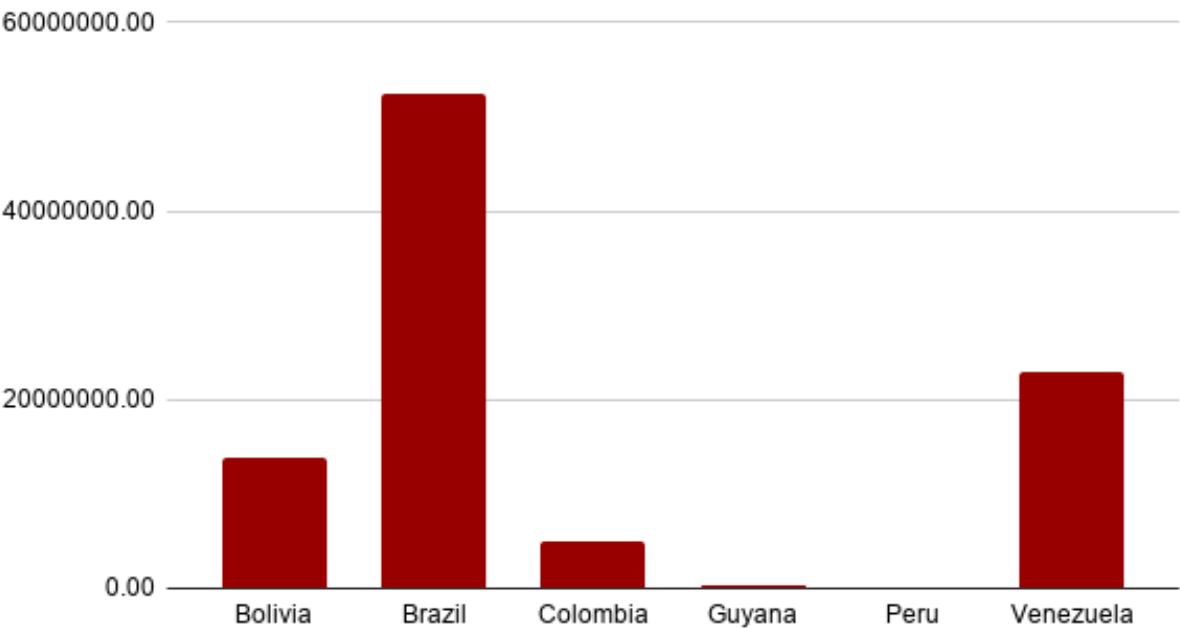
### Results in indigenous territories

There were similar findings for the IT in 2024. The vast majority (90%) of this loss was due to escaped fires (wildfires), mostly in Brazil and Bolivia, and an additional 1% was due to natural causes.

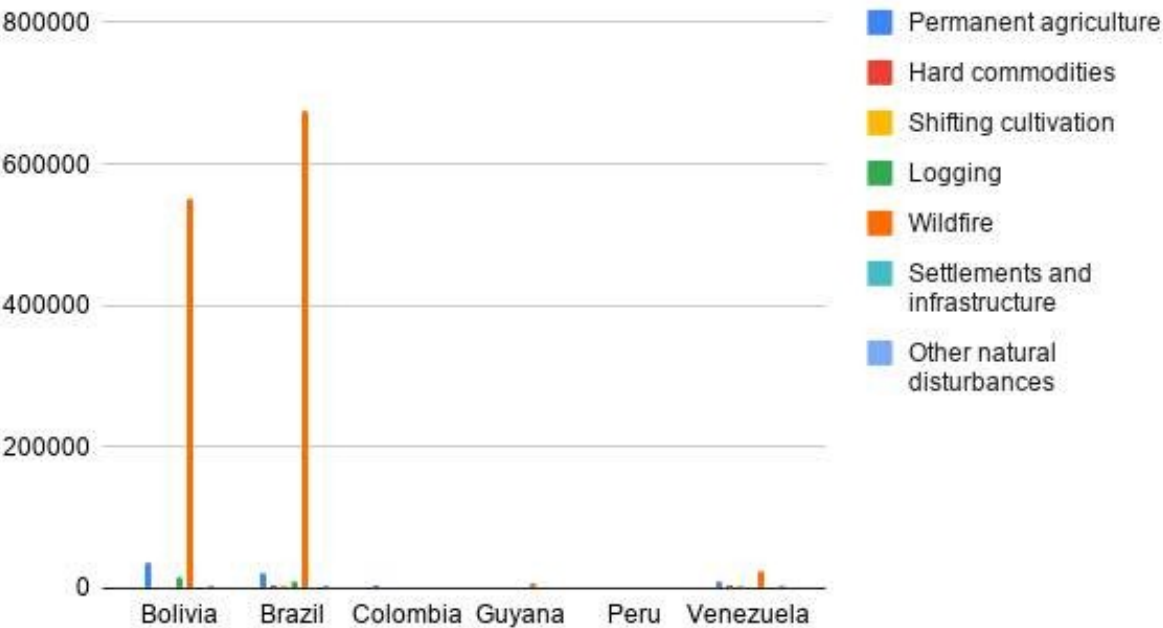
Thus, our initial estimate is nearly **9%** (119,580 hectares) of deforested area in IT analyzed (that lost more than 1,000 ha in 2024) being potentially linked to Nature crimes involving illegal conversion of natural ecosystems for agriculture (permanent (5.3%) and shifting (0.7%)), gold mining (0.6%), and logging (2%). Specifically, 19 territories had over 1,000 ha agriculture loss and 3 had over 1,000 ha mining loss. For example, the data indicated extensive gold mining deforestation in Sararé Indigenous Territory in Brazil (Figure 7) and agriculture deforestation in Llanos del Yari Yaguara II Indigenous Territory in Colombia (Figure 8).

For the 86 ITs analyzed in this section, Brazil had the most area, followed by Venezuela and Bolivia. For both Brazil and Bolivia, most of this loss was wildfire. For Venezuela, it was wildfire followed by permanent agriculture.

Total Area - ITS



Deforestation by Driver - ITs



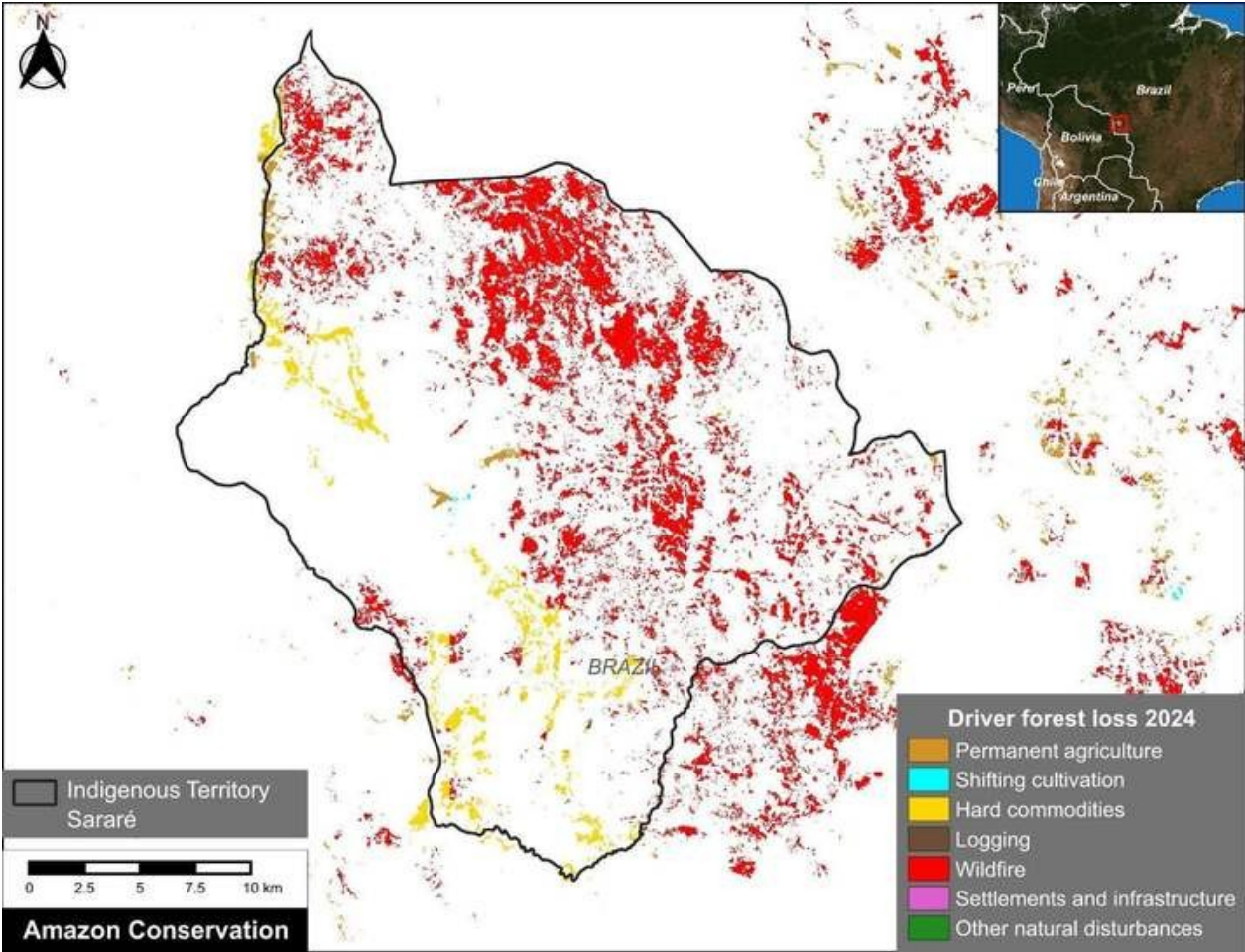


Figure 7

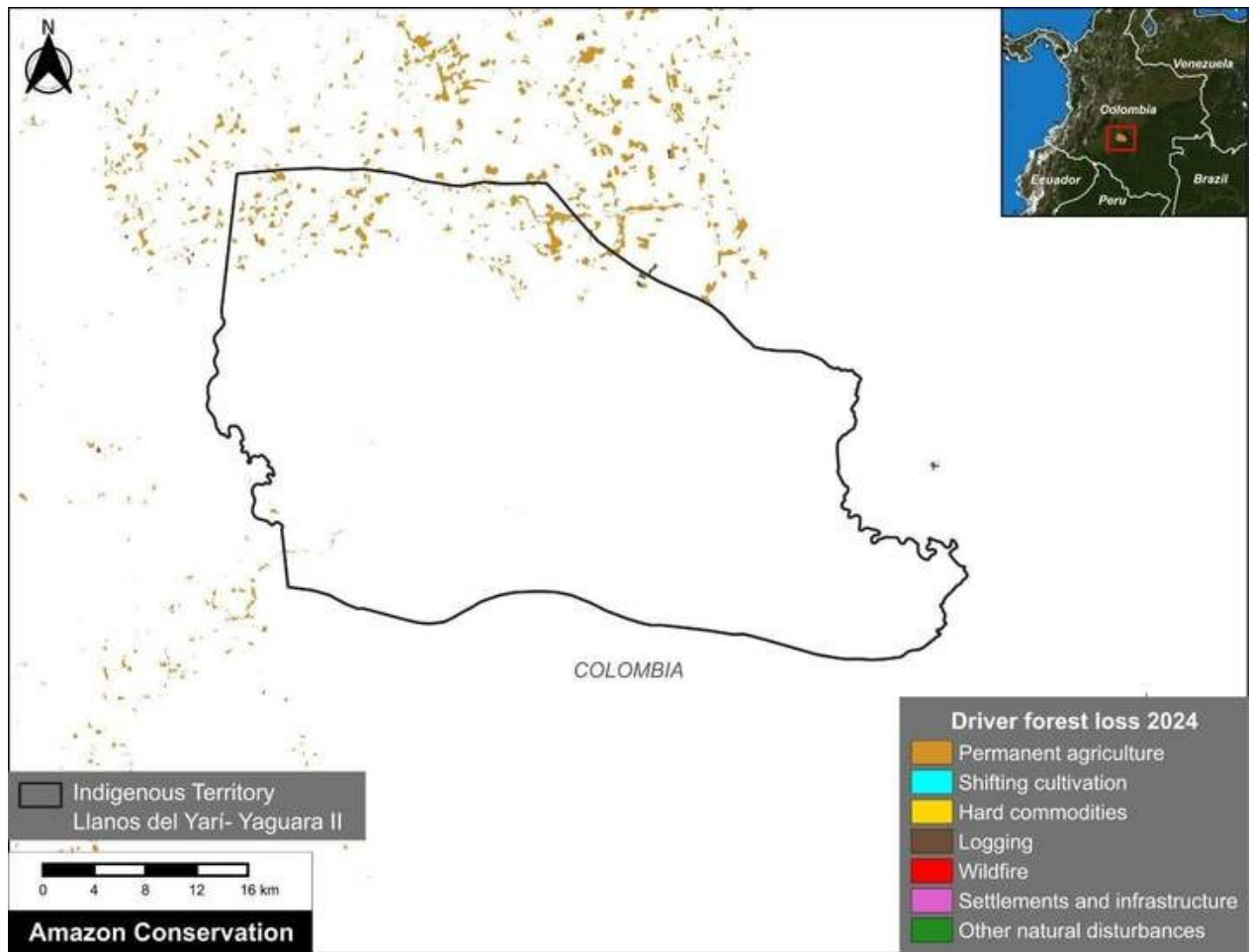


Figure 8

### Detailed analysis of agriculture and gold mining-related forest loss

For the final part of the 2024 analysis, we focused on forest loss caused by **agriculture and gold mining** in the national parks and IT. For agriculture, we lowered the threshold to 250 hectares per area, and for gold mining down to 100 hectares.

In addition, for each of the identified areas above these levels, we confirmed the forest loss and driver using high resolution **satellite imagery** (Planet). This step proved important as we identified a number of false positives in the data, mostly from fires classified as agriculture.

We **confirmed 12 national parks with over 250 hectares of agriculture-related deforestation in 2024** (Figure 9). Most notable were Colombia's Tinigua and Macarena (see Figure 10 for example of the satellite imagery confirmation), with over 4,000 ha and 3,000 ha, respectively. Other confirmed areas include: Jamanxim (Figure 11), Mapinguari, Serra do Pardo, Jurueña, and Serra do Divisor in Brazil; Chiribiquete La Paya, and Picachos in Colombia; and Carrasco in Bolivia.



Figure 9

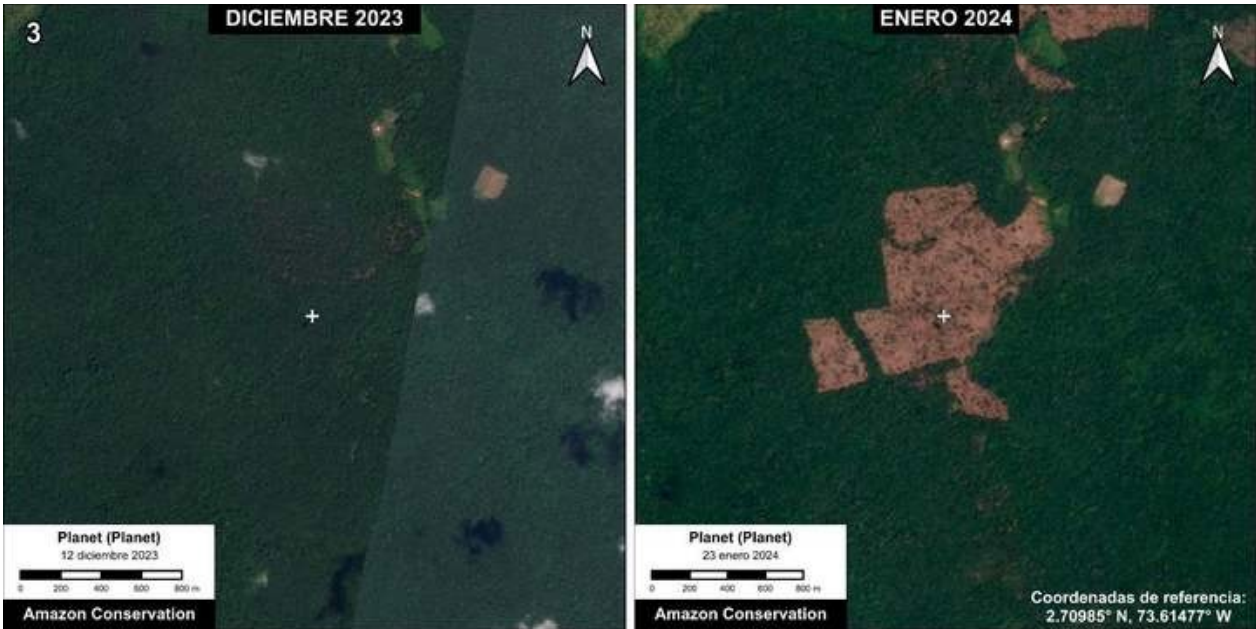


Figure 10

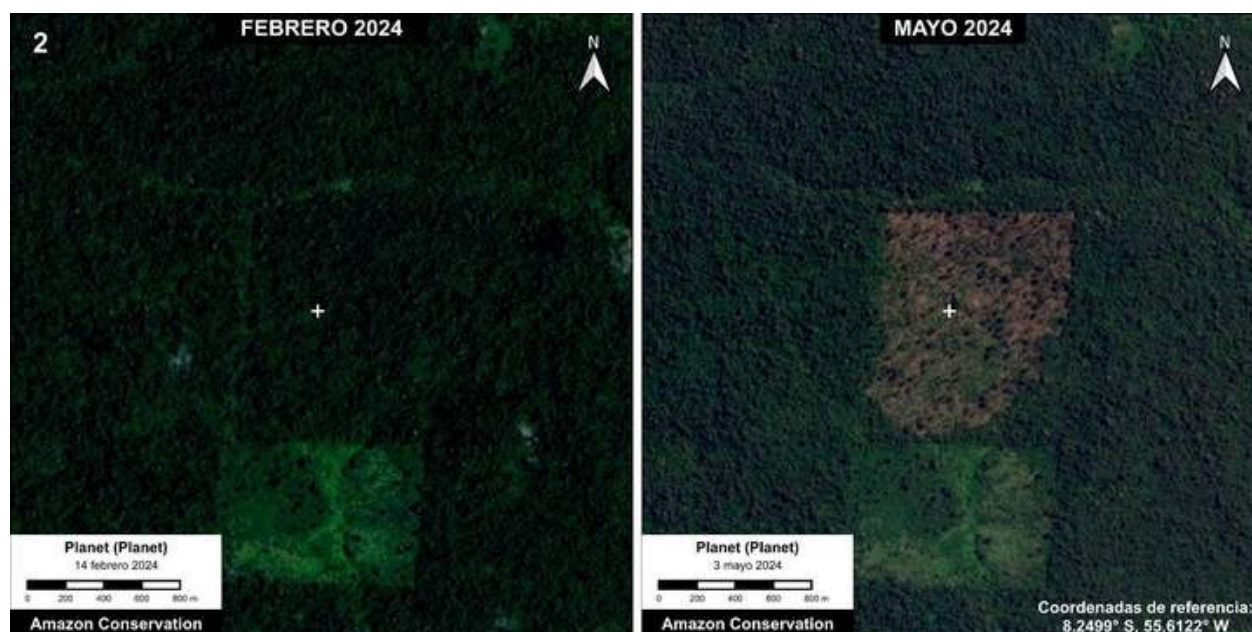


Figure 11

We determined that forest loss in some park areas, such as this example (figure 12) of windstorm damage in Bolivia's Isiboro-Secure, were natural, and thus not likely to be associated with Nature crime.



Figure 12

Likewise, we confirmed **38 IT with over 250 hectares of agriculture-related deforestation in 2024** (Figure 13). Deforestation for agricultural purposes is not necessarily illegal in indigenous territories, and this data would require further analysis of the area of single events and type of crops, to more reliably distinguish between industrial scale architecture (likely not authorized within these territories) from small-scale subsistence farming, and to identify potentially illicit crops such as coca. Most notable were Ace Catato, Baure, Monte Verde, Takana 1, Takovo Mora, and Guarayo in Bolivia; Cachoeira Seca in Brazil; and Llanos del Yari- Yaguara II and Nukak - Maku in Colombia; all with over 1,000 ha each. Other confirmed territories include: Masetén and Ayopaya in Bolivia; Tenharim

Marmelos, Trincheira/Bacajá, Sepoti, Sete de Setembro, and Uru-Eu-Wau-Wau in Brazil, Selva De Mataven in Colombia, Yamanunka in Ecuador; and Colpa, Janabeni, Morroyacu, and Muruinia in Peru.



Figure 13

We also **confirmed 6 national parks with over 100 hectares of gold mining deforestation in 2024** (Figure 14). These include Campos Amazônicos (Figure 15), Jamanxim, Juruena, and Rio Novo (Figure 16) in Brazil; and Caura and Canaima in Venezuela.



Figure 14



Figure 15



Figure 16

Likewise, we **confirmed 15 IT with over 100 hectares of gold mining deforestation in 2024** (Figure 17). Most notable were Kayapó (Figure 18) and Sararé (Figure 19) in Brazil; and Pemon in Venezuela; with over 1,000 ha each. Other impacted areas include: San José de Karene (Figure 20), Barranco Chico, Boca Inambari, Kotsima, and Tres Islas in Peru; Yanomami, Aripuanã, and Mundurucu in Brazil; Baramita and Malali in Guyana; and Akawayo in Venezuela.



Figure 17

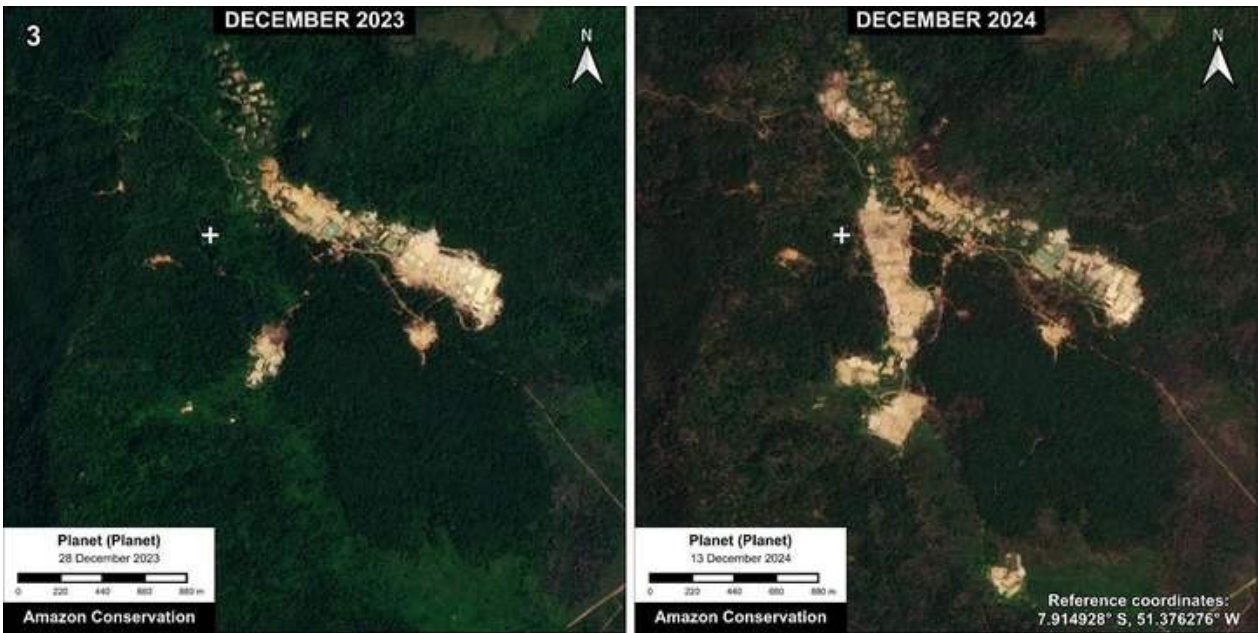


Figure 18



Figure 19



Figure 20

### Dominant driver in protected areas and indigenous territories

Finally, for this section, we present a map of forest loss by dominant driver for each national park meeting the thresholds noted above (250 hectares for agriculture and 100 hectares for gold mining). Note, this data has been corrected by our follow-up analysis of satellite imagery (that is, false positives in the UMD data have been corrected in this map). Note that most in Brazil and Bolivia were related to fire, while in Colombia most were related to agriculture (Figure 21).



Figure 21

Of the 78 National Parks across the Amazon, Fires impacted the most of them (26 parks, 33% of the total number of parks, covering 202,704 ha), followed by Natural Causes (20 parks, 26%, covering 7,009 ha) and Permanent Agriculture (17 parks, 22%, covering 23,433 ha). Rounding out the list is Logging (9 parks, 12%, covering 6,836 ha), Shifting Cultivation (4 parks, 5%, covering 4,335 ha), and Mining (2 parks, 3%, covering 1,214 ha) (Figure 22).

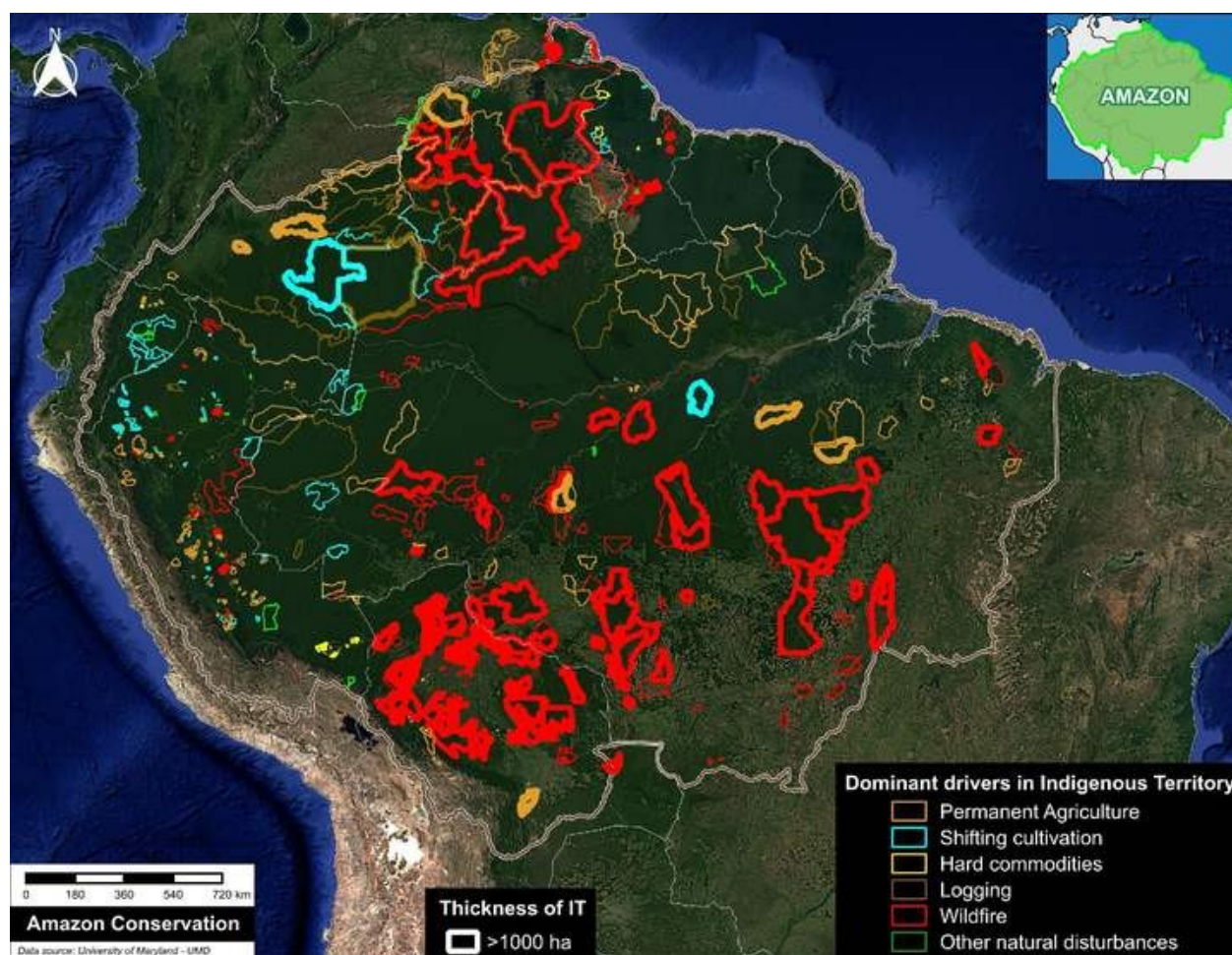


Figure 22

Of the more than 3,000 Indigenous Territories, Shifting Cultivation impacted the most of them (1,243 territories, 41% of the total), followed by Permanent Agriculture (915 territories, 30%). Rounding out the list is Natural Causes (334 territories, 11%), Fires (270 territories, 9%), Logging 209 (territories, 7%), and Mining (39 territories, 1%). Note on the map that fires seem more dominant because they impacted the larger territories in Brazil and Bolivia, but agriculture is more widespread impacting the smaller territories.

### 3. In-Depth estimate of illegal deforestation in the State of Mato Grosso, Brazil.

This section builds off a **four-year collaboration with the Brazilian organization Instituto Centro de Vida (ICV)**. During this time, Amazon Conservation led monthly monitoring of major cases of new forest loss detected by GLAD alerts (University of Maryland). All cases confirmed as deforestation by analysis of high-resolution (3 meters) imagery, were then entered into a shared spreadsheet. Also, based on the imagery, each case was classified by the driver. ICV would then classify each case as Legal or Illegal based on analysis of land registry records.

Based on this methodology, we were able to estimate illegal deforestation across the entire state of Mato Grosso, not just within PA and IT. The identification of deforestation drivers evolved over the four years. In 2022, the monitoring focused on soy and cattle. In 2023, a third category of non-soy crops was added. And in 2024, we incorporated gold mining.

During this monitoring (2022-2025), we confirmed **479 cases of deforestation** in Mato Grosso, of which **67% were illegal** (Figure 23). The area covered by these cases is 131,702 hectares. Most of this area (61%) was illegal (Nature crimes), indicating issues with governance. 39% of that area was lost to legal deforestation. According to the Brazilian forest code, landowners are allowed to deforest a fraction of their properties, provided they request a prior authorization.

Standardizing for just **2024-2025**, the two years with data for all four driver categories, we confirmed **336 cases of deforestation, of which 75% (252) were illegal** (Table 3). The majority of these illegal cases (70%) were **gold mining**.

The area covered by these cases is **86,615 hectares. Most of this area (70%) was illegal** (60,553 hectares; see Table 3). Breaking down this illegal deforestation, nearly half (49%) of the area were cattle (29,854 ha), 39% non-soy crops (23,783), 10% gold mining (6,053 ha), and 1% soy (862 ha).

Note the distinction between number of cases and area impacted. For example, the highest number of Nature crime cases were illegal gold mining (70%), but the area impacted (10%) is less than the agricultural cases (Table 3).

Table 3

| Illegal Deforestation in Mato Grosso, Brazil, 2024-25 |       |         |        |        |
|-------------------------------------------------------|-------|---------|--------|--------|
| Driver                                                | Cases | % Cases | Area   | % Area |
| Soy                                                   | 3     | 1%      | 862    | 1%     |
| Gold                                                  | 177   | 70%     | 6,053  | 10%    |
| Crops                                                 | 31    | 12%     | 23,783 | 39%    |
| Cattle                                                | 41    | 16%     | 29,854 | 49%    |
| Totals                                                | 252   | 100%    | 60,553 | 100%   |

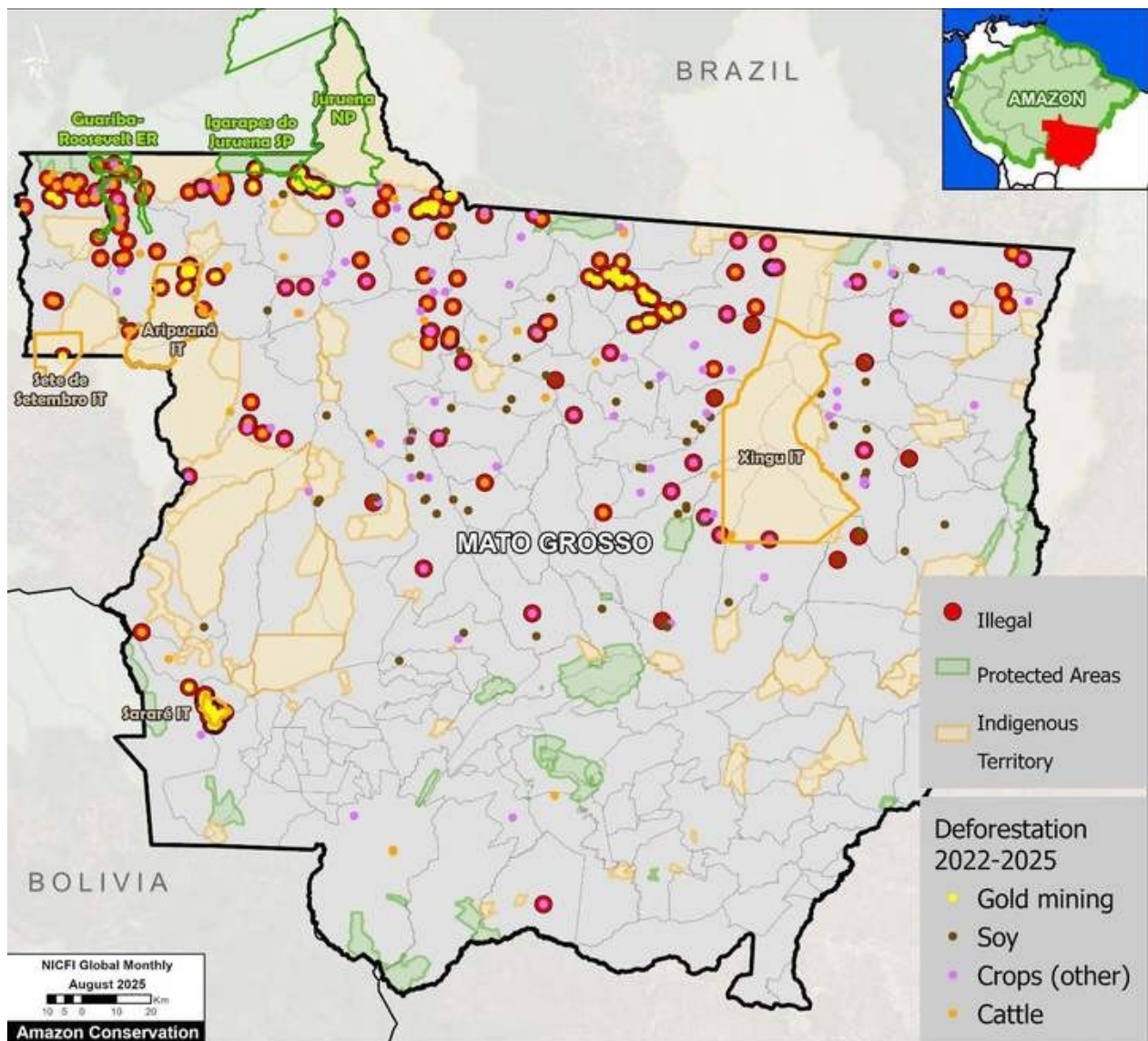


Figure 23

## Comparison of two Amazon-wide datasets: UMD and MapBiomas

For this section, we go back one year to **2023 to compare** two leading annual Amazon-wide forest loss datasets: University of Maryland and Mapbiomas.

There are a number of **key differences** between them. First, as noted above, the University of Maryland updates the annual data faster. This year, UMD released the 2024 data in May 2025, while Mapbiomas has not yet released 2024 (as of October 2025). Second, Maryland records forest loss of primary forest, while Mapbiomas records any type of land use transition.

Third is spatial resolution. While the annual UMD data spatial resolution is 30 meters, their forest loss drivers dataset is coarser at 1,000 meters (1 km). Mapbiomas data, including drivers, is 30 meters.

Fourth, they break down forest loss into similar, but technically different **drivers**, categories. As noted above, the University of Maryland has seven major categories: Permanent agriculture, Shifting cultivation, Hard commodities, Logging, Wildfire, Settlements and infrastructure, and Other natural disturbances. Mapbiomas also has seven, but somewhat different, categories: Pasture, Agriculture, Palm Oil, Mosaic of Uses, Urban Area, Mining, Other non-Vegetated Areas.

Importantly, note that **Mapbiomas** does not specifically include the major forms of forest loss most associated with degradation: fires and logging. Also importantly, Mapbiomas does not appear to specifically distinguish natural vs. human-caused forest loss. On the other hand, Mapbiomas does specifically account for cattle pasture relative to other agriculture.

Related to our overall analysis of Nature crimes in protected areas, for University of Maryland we estimate the loss of **163,795** hectares primary forest due to non-fires and an additional 177,732 ha due to fires (for a total for 341,528 ha) across all 674 protected areas. For Mapbiomas, we estimate the transition of **299,837 hectares** across all 650 protected areas. Note that Mapbiomas is considerably higher for estimated deforestation (163,795 ha UMD vs 299,837 ha Mapbiomas) but lower if fire is included (341,528 ha UMD vs 299,837 ha Mapbiomas).

As an additional step for Mapbiomas, we estimated primary forest loss (to be more directly comparable to UMD) by filtering data for transitions from the three main forest categories (Forest, Forest Formation, Flooded forest). With this filter, the primary forest loss estimate dropped to **242,982 ha**, bringing it a bit closer to non-fire primary forest loss UMD (163,795 ha as noted above).

For Indigenous territories, the University of Maryland data estimates the loss of 178,798 hectares primary forest due to non-fires and an additional 146,088 ha due to fires (for a total for 324,887 ha) across all 3,602 territories. For Mapbiomas, we estimate the transition of 303,832 hectares across 3,496 territories.

Similar to protected areas, note that Mapbiomas is considerably higher for estimated deforestation (178,798 ha UMD vs 303,832 ha Mapbiomas) but lower if fire is included (324,887 ha UMD vs 303,832 ha Mapbiomas).

### Analysis 2023, UMD vs Mapbiomas

Related to our specific analysis of Nature crime drivers, for **agriculture**, we compare Maryland's Permanent agriculture and Shifting cultivation layers to Mapbiomas' Pasture, Agriculture, and Palm Oil layers. Figure 24 illustrates the comparison results. Note that both datasets converge (indicated in red) across most of Brazil and parts of Bolivia and Colombia. But Mapbiomas has more extensive coverage in eastern Brazil, while UMD has more extensive coverage in the western and northeastern Amazon.

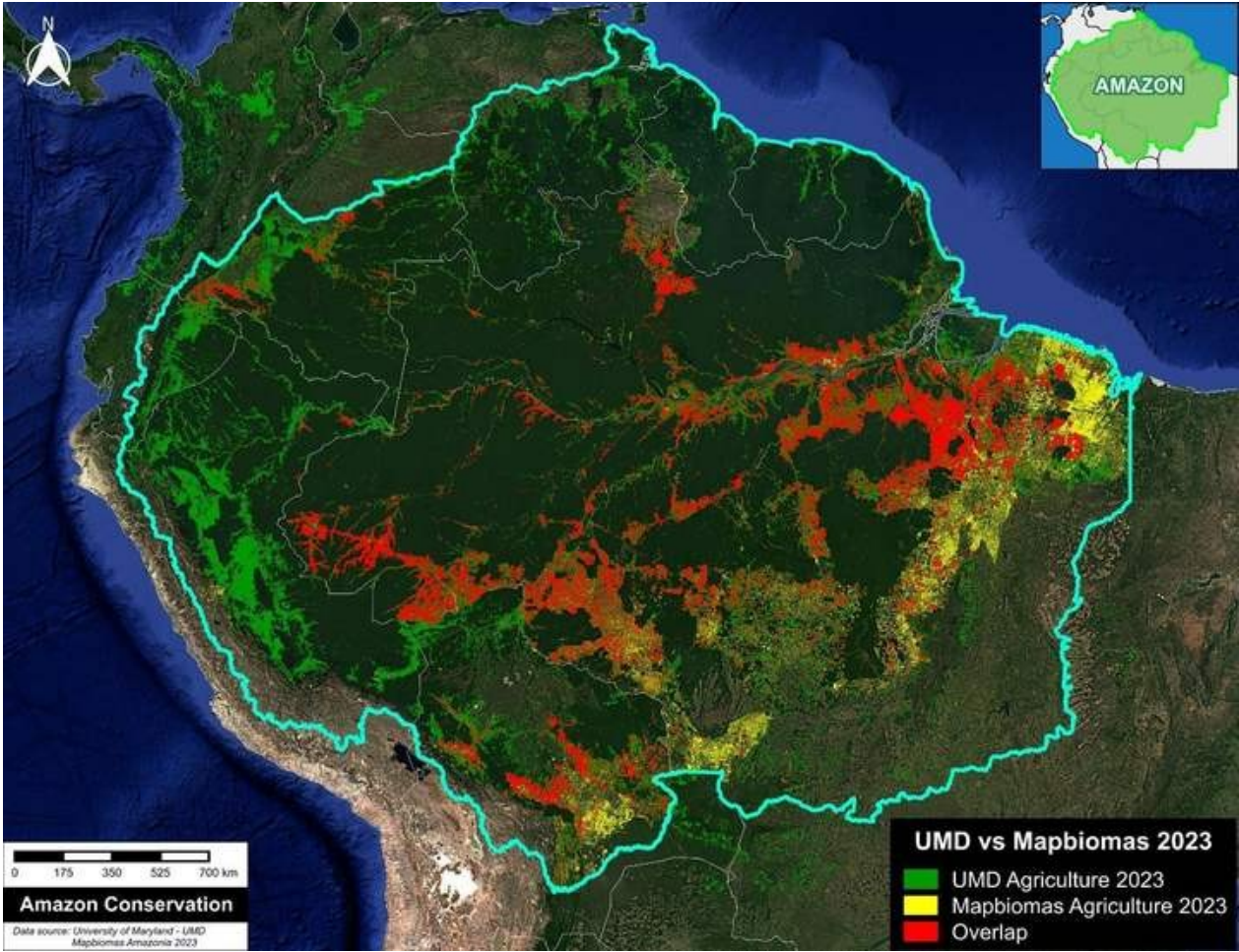


Figure 24

For **mining**, we compare Maryland's Hard commodities layer to Mapbiomas' Mining layer (Figure 25).

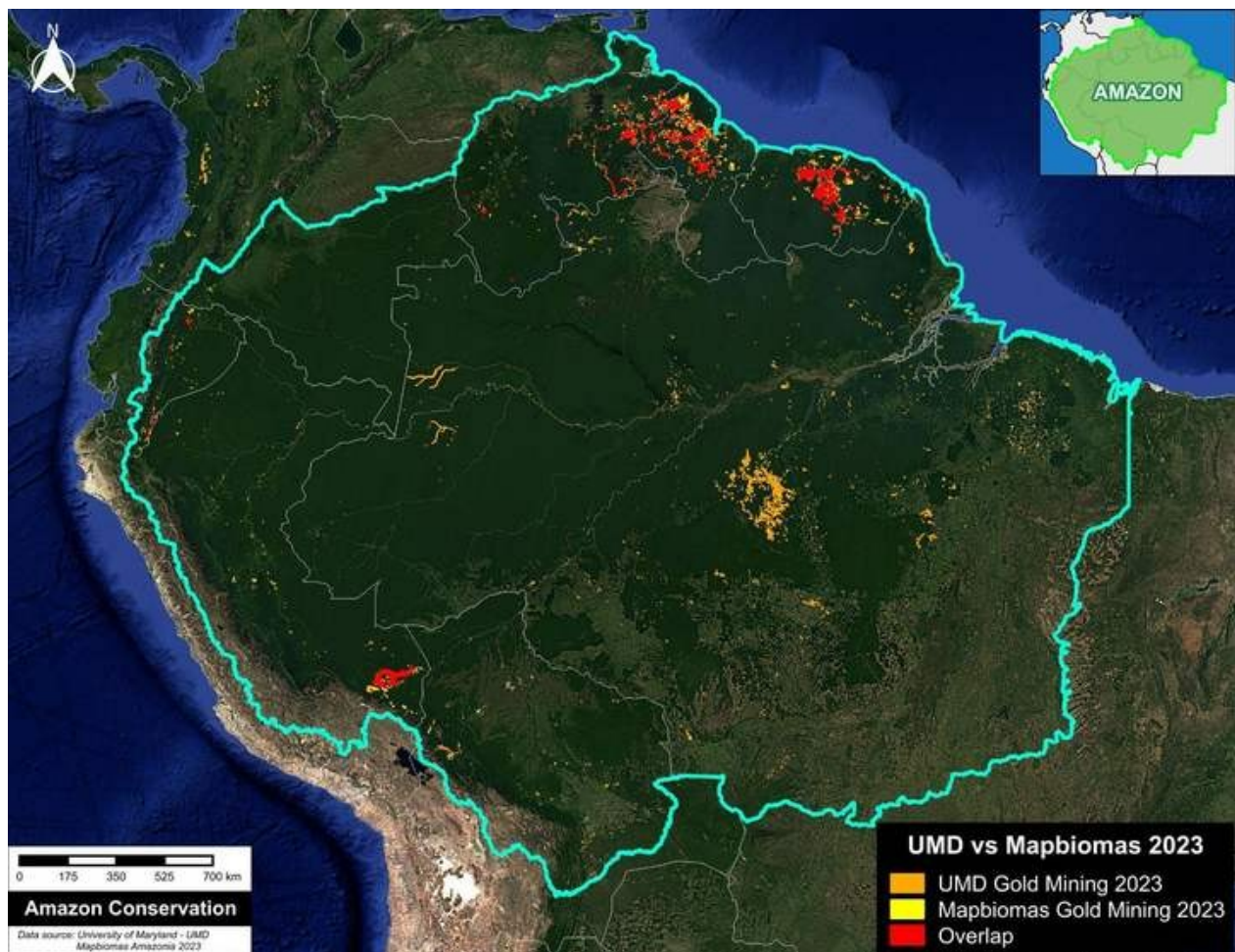


Figure 25

In 2023 across all protected areas, for Mapbiomas the vast majority of the transitions were related to agriculture (71%), especially pasture (66%). Agriculture is followed by Mosaic of Uses (45%), Mining (1%), and Other non-Vegetated Areas (1%). Applying the primary forest filter, **agriculture increased (to 79%), especially pasture (to 73%)**, while Mosaic of Uses decreased (to 19%). Mining stayed the same (1%).

In 2023, across all Indigenous territories, for Mapbiomas the majority of the transitions were related to agriculture (52%), especially pasture (40%). Agriculture is followed by Mosaic of Uses (26%), Mining (1%), and Other non-Vegetated Areas (1%).

We then narrowed the analysis to **national parks with over 1,000 ha impact in 2023**. For UMD there were 8 areas, vs 4 areas for Mapbiomas. Only one of these areas overlapped between the two datasets (agriculture in Isiboro Securé). Thus, Mapbiomas missed several areas with permanent agriculture and fire-related loss in Bolivia (Noel Kempff), Brazil (Jurueña and Araguaia), and Venezuela (Canaima and Caura). On the other hand, UMD missed three areas with Agriculture and Mosaic transitions in Bolivia (Carrasco) and Ecuador (Cayambe Coca and Sangay).

Similarly, we narrowed the analysis to Indigenous territories with over 1,000 ha impact in 2023. For UMD there were 50 territories, vs 52 territories for Mapbiomas. Eighteen of these areas overlapped between the two datasets (Bolivia, Brazil, and Colombia). Focusing on specific Nature crimes drivers, for agriculture, we found 30 territories with more than 250 hectares impact in UMD vs 40 for Mapbiomas. For mining, interestingly we found 5 territories with more than 100 hectares impact in

UMD vs zero for Mapbiomas, putting into question the accuracy of the Mapbiomas mining layer. These included the expected territories of Kayapó, Mundurucu, Sararé, and Yanomami.

## Conclusion

The analysis in this report establishes a quantifiable link between deforestation in the Amazon's PA and IT and potential manifestations of Nature Crime. Such activities are not isolated events but are often part of broader patterns of land use change driven by organized entities.

The results highlight the necessity for consistent and ongoing monitoring of deforestation drivers and their correlation with various forms of Nature Crime. As the methods employed by those engaged in illicit activities evolve, so too must the analytical approaches used to detect and understand them. Continuous monitoring can provide law enforcement and environmental agencies with the data required to identify emerging trends, predict areas of future forest loss, and support targeted interventions.

By operating across national borders and maintaining institutional continuity, civil society can provide consistent, long-term monitoring necessary to track changes in deforestation patterns and detect emerging threats. Furthermore, civil society's role in data dissemination and transparency can enhance accountability and ensure that monitoring findings informs policy and enforcement decisions.

In the future, consistent time series that analyze drivers of deforestation and their correlation with Nature Crime across the Amazon could also provide useful insights into the effectiveness of enforcement measures taken to address it.

## Notes

1. WRI, 2025, People, Planet, Justice: Understanding and Countering Nature Crime. Available at : <https://www.wri.org/research/people-planet-justice-understanding-and-countering-nature-crime>
2. The Amazon Network of Georeferenced Socio-Environmental Information is a consortium of civil society organizations from the Amazon countries, supported by international partners, concerned with the socio-environmental sustainability of Amazonia. <https://www.raisg.org/>

## Chapter II. Amazonian civil society in the fight against Nature crime

**Note on sources and attribution** This chapter draws on a survey of 41 civil society organizations, sixteen semi-structured interviews, and complementary desk-based research. The organizations that responded to the survey or participated in interviews contributed information on their own experiences and practices, which informed the content of this report. Where specific organizations are named, this is to illustrate documented practices. The findings and recommendations, however, are those of Amazon Conservation and should not be attributed to individual participating organizations.

### Introduction

“Nature crime” or “crimes against nature” is used to refer to illegal forms of logging, ecosystem conversion, wildlife exploitation and trafficking (both domestic and international), fishing, and mining, and is often associated with financial offenses, fraud, corruption, organized crime, as well as labor and human rights abuses.<sup>1, 2</sup> In the context of the Amazon, it can be understood as a portfolio of illegal or illegality-tainted activities that harm forests, rivers, wildlife, and local populations<sup>3</sup>, although legally speaking this definition is subject to variations depending on the environmental regulations of each country of the Amazon region and what constitutes a violation of these regulations.

Nature crime does not occur as a series of isolated incidents, but rather as part of an interconnected network - or ecosystem - of crime<sup>4</sup>, in which environmental offenses are closely linked with corruption, economic crimes, human rights violations, and violence.<sup>5</sup> This ecosystem feeds on rising commodity prices (notably gold)<sup>6</sup>, commodity laundering (particularly of timber, gold, and cattle), remote frontiers with little governmental presence<sup>7,8,9</sup>, disputed or parallel territorial control exercised by organized criminal groups<sup>10</sup> and governance gaps in Amazonian countries regarding environment protection.

Some of these governance gaps, such as insecure or incomplete land tenure systems<sup>11</sup>, disordered cadastral registries<sup>12</sup>, limited territorial presence and operational capacity of state agencies<sup>13</sup> or corruption within regulatory bodies<sup>14</sup>, create fertile ground for widespread environmental violations. Others, such as corruption of enforcement institutions<sup>15</sup> or the fragmentation among environmental, mining, policing, and prosecutorial authorities<sup>16</sup>, hamper an effective response to these violations at national and subnational levels. Thus, Nature crime in the Amazon is sustained not only by the direct commission of illegal acts but also by persistent institutional and regulatory weaknesses that severely limit the accountability of those causing environmental harm.

Accountability for environmental harm requires the production and validation of reliable evidence, the timely initiation of investigations, the prevention of corruption and intimidation of prosecutors and judges, and the effective sanctioning of perpetrators. While law enforcement and criminal justice are (and should remain) prerogatives of the State, government institutions often receive contributions from civil society that help reduce information asymmetries, increase accountability, and sometimes through the provision of services.

To explore this auxiliary role of civil society, we map it against five main stages of the response of government authorities to environmental harm. Taken together, these stages can be described as an “evidence-to-accountability pipeline” through which cases of potential environmental violation must

move from their initial definition to their detection, investigation (and prosecution in the case of criminal offenses), adjudication by administrative bodies or criminal courts and ultimately, execution of the sanction. At each one of these stages, civil society contributes in different ways, either by collaborating with authorities or compelling them to take action.

The following sections provide examples of contributions of civil society that complement efforts from governments to promote accountability for environmental violations and Nature crimes, organized around a typology of 7 contributions of civil society (see Figure 1). These examples and the typology are derived from a survey of 41 civil society organizations and 16 interviews (see below section on Methodology for more details). These different types of contributions are mutually reinforcing through “collaborative pathways” (represented by the grey arrows in Figure 1), some established and some that could be further strengthened.

### Steps in the evidence-to-accountability pipeline for Nature crimes

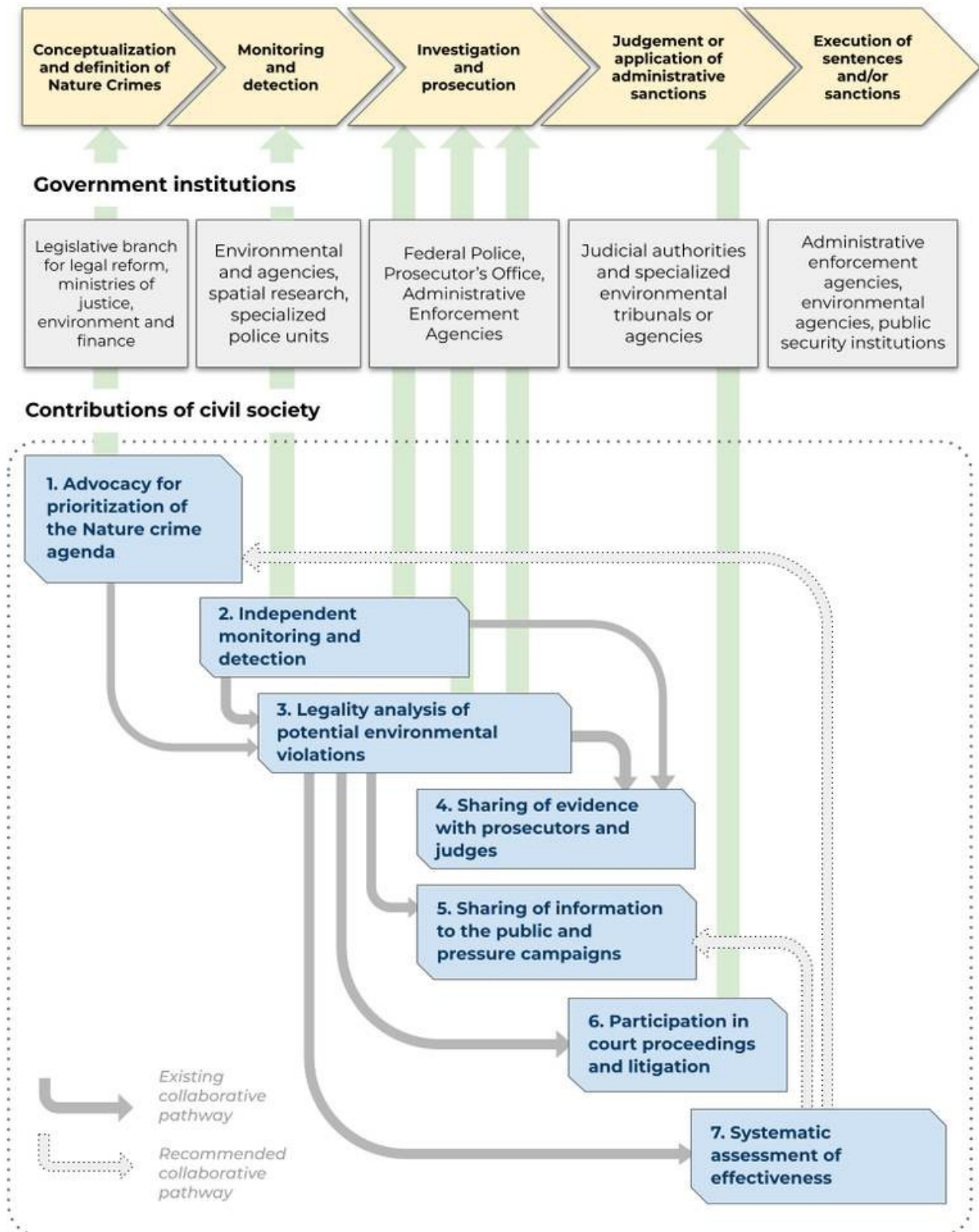


Figure 1. Stages of government response along the accountability pipeline and civil society contribution

**Below, we go over the various stages of the accountability pipeline and provide an overview of ways that civil society contributes to them:**

**Stage 1. Conceptualization and definition of Nature crime:** this foundational step involves defining what constitutes Nature crime by identifying which environmental violations qualify as criminal offenses and ensuring their incorporation into penal codes, environmental laws, and administrative regulations. The clarity and comprehensiveness of these legal definitions directly determine what can be prosecuted, who can be held accountable, and what sanctions can be imposed.

- At this preliminary stage, civil society's contribution is to **advocate for prioritization of the Nature crime agenda (Section 1)**, by shaping the policy debate and press for legal reform for these categories of offenses to be clearly established and, to the extent possible, harmonized across Amazonian jurisdictions.

**Stage 2. Monitoring and detection:** This stage involves the identification and detection of manifestations of potential environmental crimes, as they occur or shortly thereafter. This requires establishing robust monitoring systems, both technological and institutional, capable of identifying these manifestations across vast and often remote territories. The challenge is particularly acute in the Amazon, where the scale of territory, limited State presence, and transnational nature of criminal operations complicate detection efforts.<sup>17</sup>

- At this early stage, civil society can play an important role in **independently monitoring cases of potential environmental violations (Section 2)**, as well as strengthening investigative capacity of government authorities through training and technical support, strengthening the probative value of evidence collected.

**Stage 3. Investigation and prosecution:** Once potential manifestations of environmental crime are detected, the investigation stage must establish both the occurrence of the illegal act and, ideally, the identity and culpability of those responsible. This may include site inspections, sample collection, photographic and video documentation, witness statements, and the creation of comprehensive case files. The quality of evidence gathered through investigation often determines whether cases can proceed to prosecution and judgement.

Prosecution rates remain low in many Amazon countries, reflecting both limited judicial resources dedicated to environmental crime and the complexity of cases involving organized criminal networks<sup>18</sup>.

- This is both a critical pinch point in the pipeline due to limited capacity of government authorities, and where civil society's contributions are concentrated. Civil society contributions at this stage can take several forms. First, the raw material from monitoring and detection requires an analysis of legality (Section 3). Depending on the political context and relationship with authorities the results of this analysis can be **shared directly with prosecutors (Section 4)** or with the public, **through pressure campaigns (Section 5)**.

**Stage 4. Judgement or application of administrative sanction:** The formal legal process through which documented evidence is presented to judicial or administrative authorities for determination of guilt and assignment of responsibility. This encompasses the presentation of evidence before courts or administrative tribunals, and the issuance of judgements. The violations of environmental, land-use and natural resource regulations may trigger administrative sanctions - such as fines,

embargoes, and licenses suspensions - as well as criminal liability, when the conduct involves fraud, corruption, money laundering, violence or significant environmental harm.

- As cases advance through prosecution and judgement, civil society may **participate in court proceedings (Section 6)**, providing a range legal and technical support through mechanisms such as amicus curiae<sup>19</sup> or technical expertise.

**Stage 5. Execution of sentences and/or sanctions:** Even when environmental crimes are successfully prosecuted, the effectiveness of these rulings ultimately depends on whether judgements or sanctions are properly enforced. This includes the collection of fines, seizure of illegally obtained assets, execution of imprisonment sentences, and revocation of licenses or permits. Success rate at this stage is critical: without credible execution of punitive measures, the entire accountability process loses its power to deter future environmental violations. In many Amazon countries, the execution of sanctions is hampered by limited enforcement capacity, corruption, and the prioritization of other criminal justice concerns.<sup>20</sup>

- At this stage, CSOs can contribute to accountability through **systematic assessment of the effectiveness institutional responses (Section 7)**, helping to track whether environmental crimes effectively progress through the accountability pipeline and whether sanctions are ultimately enforced.

### Methodology<sup>21</sup>

The information contained in this report is derived from two main sources: a survey and semi-structured interviews to generate an exploratory assessment of CSOs (CSOs) addressing nature-related crimes across the eight Amazonian countries. First, a desk-based mapping was conducted using Amazon Conservation's network to identify active CSOs and ensure broad geographic coverage. Based on this mapping, a survey was disseminated through partner networks and public channels. The questionnaire, composed of 56 questions across seven thematic sections, captured organizational characteristics, engagement with environmental crimes, data collection and use, legal capacities, operational challenges, and participation in networks and partnerships. Using a non-probabilistic sampling approach, the survey gathered 41 responses from organizations operating across all Amazonian countries.

Building on the survey findings, semi-structured interviews were conducted with a targeted subset of organizations to deepen and contextualize the analysis. Ten CSOs were selected based on their reported experience with legal actions related to environmental crimes, complemented by additional interviewees to ensure representation across all countries. The interviews followed a flexible structure combining 24 guiding questions with the possibility to adapt to each organization's context. They explored litigation strategies, interactions with judicial and administrative authorities, barriers to legal action, enforcement dynamics, and perceptions of legal and policy frameworks, as well as the nature of relationships between governments and civil society. This mixed-methods approach enabled a more nuanced understanding of both the operational realities and legal dimensions shaping CSO engagement in addressing environmental crimes in the Amazon region. Further methodological details are provided in Annex I, and a summary of the respondents' composition and responses is provided in Figure 2 and 3, below

Relevance of this report

**For CSOs:** By clearly identifying their respective roles, mandates, thematic expertise, along the accountability pipeline and by developing a clear typology of civil society contributions, the report seeks to support the consolidation of an articulated “ecosystem of environmental defenders” capable of responding effectively to the “ecosystem of environmental crimes”<sup>22</sup> operating across the Amazon basin. By documenting the strategies and lessons learned by CSOs operating in diverse legal, political, and institutional contexts, it identifies the conditions under which their contributions are most effective and the persistent challenges that limit their impact, highlighting opportunities for emulation across organizations and countries.

**For governments:** For State institutions across the Amazon, this report demonstrates that civil society is not merely an external observer, but a vital operational partner in addressing the complex, transnational mechanics of Nature crime. By mapping how CSOs generate technical evidence, monitor remote territories, and support complex investigations, the findings (in detail below) illustrate how governments can leverage these specialized capacities to overcome their own institutional and resource constraints. Furthermore, this chapter lays the groundwork for the comparative assessment presented in Chapter III, demonstrating that a State's engagement with civil society can directly enhance the effectiveness, reach, and resilience of its action against Nature crime.

**For donors and funding partners:** By mapping existing capacities and identifying remaining gaps, challenges, and opportunities, the report highlights the financial, technical, and institutional resources required to ensure a more sustained, coordinated, and impactful engagement in the fight against Nature crime across the region.

**For the Amazon Sustainable Landscape Program (ASL):** The ASL Program is an initiative operating across eight Amazonian countries, aimed at improving integrated landscape management and ecosystem conservation. These objectives depend not only on conservation interventions, but on functioning accountability systems, capable of deterring and sanctioning the environmental violations that undermine them.

By documenting lessons learned and good practices from CSOs across all eight Amazonian countries, this report offers a body of knowledge that can be shared with ASL grantees, implementing partners, and government counterparts, providing an evidence base for strengthening their cooperation with civil society acting on Nature crime.

Figure 2. Composition of survey respondents  
(41 organizations surveyed across 8 countries)

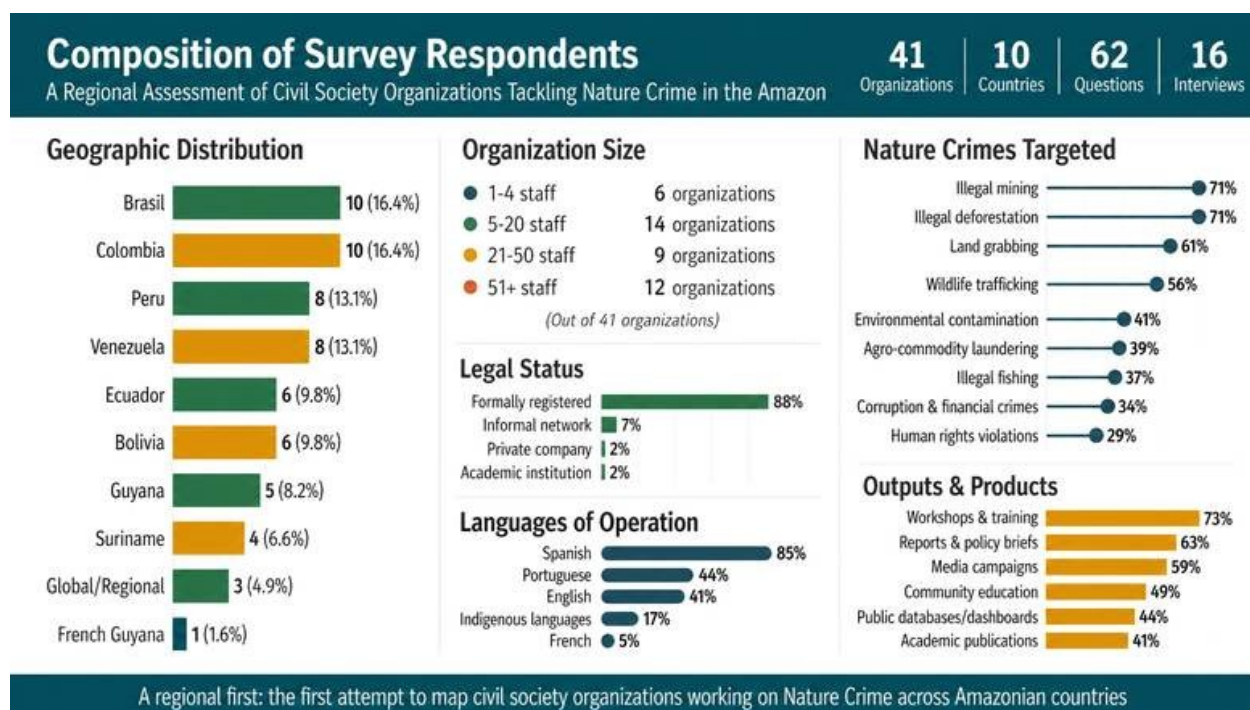


Figure 3. Overview of main survey results



## Contributions of civil society in the fight against Nature crime

As seen in **Figure 1**, contributions of civil society span various stages of the accountability pipeline, and can be broken down into several functional types, from Advocacy for prioritization of the Nature crime agenda ([Section 1](#)), Independent monitoring and detection ([Section 2](#)), Legality analysis of potential environmental violations ([Section 3](#)), Sharing of evidence with public prosecutors and judges ([Section 4](#)), Sharing of information to the public and pressure campaigns ([Section 5](#)), Participation in court proceedings ([Section 6](#)) and Systematic assessment of government action ([Section 7](#)).

Each section explores, based on survey results and interviews:

- strategies adopted by CSOs to maximize their impact,
- challenges encountered in their implementation,
- concrete examples derived from the interviews and additional desk-based research<sup>23</sup>
- recommendations, addressed to CSOs, donors and governments, to enhance the effectiveness of each type of contribution.

## 1. Advocacy for prioritization of the Nature crime agenda

Any accountability process for Nature crimes assumes that such crimes have been formally defined and recognized within national legal frameworks. In addition to their efforts to promote accountability for already recognized crimes, many CSOs across the Amazon therefore seek to expand the definition of what constitutes a Nature crime within domestic frameworks and elevate it as a policy priority, expanding the potential for holding actors accountable for environmental harm. This contributes to Stage 1 of the evidence-to-accountability pipeline: Conceptualization and definition of Nature crimes. This contribution can take two forms: (i) direct advocacy before the legislative branch, aiming at legal reform of criminal categories, or more broadly (ii) by elevating Nature crime as a priority in domestic or regional agendas.

### (i) Advocacy for the definition of Nature crimes within domestic legal frameworks

A successful example of this type of contribution can be found in advocacy efforts by organizations such as Sociedad Peruana de Derecho Ambiental (SPDA), Wildlife Conservation Society (WCS), Oceana Perú, in Peru, which contributed to the incorporation of wildlife and flora trafficking into the country's organized crime framework through Law No. 31622 (2022), expanding the legal recognition of environmental harms as forms of organized criminal activity.<sup>24</sup>

Respondents to the survey and interviews related using the following strategies to effectively influence legislative processes and shape the legal definitions of Nature crimes:

- Relying on the use of objective, technical evidence, such as data from remote sensing monitoring systems. This strengthens the credibility of CSOs participating in legislative debates, supports legal reforms and decreases the risk on environmental defenders (ICV, Brazil).
- Maintaining long-term relationships with public authorities, by combining public advocacy with direct dialogue with legislators, ministries, and high-level decision-makers (ICV, Brazil; FCDS, Peru).

The following challenges were noted:

- Sustained engagement in legislative processes, however, requires financial resources, technical expertise, and continuous presence, which many organizations struggle to maintain over the long term (Instituto SocioAmbiental, Brazil).
- Advocacy efforts frequently face political resistance and competing interests from actors who benefit from weaker environmental regulation, thereby limiting the adoption or ambition of proposed reform (Instituto Centro de Vida, Brazil).

- Finally, engagement in legislative debates can expose CSOs to risks of intimidation and pressure, particularly at subnational levels, complicating their ability to advocate safely and effectively.

This type of contribution feeds into the legality analysis of potential environmental violations (Section 3): advocacy efforts push for clearer and more comprehensive legal definitions of nature crime, establishing the normative benchmarks against which detected activities can be assessed.

#### (ii) Elevating Nature crime to the regional policy agenda

Respondents also noted that beyond domestic frameworks, an important strategy is to elevate Nature to a priority in regional cooperation fora, such as the Amazon Cooperation Treaty Organization (OTCA) or Andean Community (CAN).

- This is considered crucial given that many instances of Nature crime are cross-border, policy and enforcement coordination among Amazonian countries (Instituto Igarapé, Brazil).
- This approach also involves reframing environmental degradation as a critical security issue and promoting convergence in the definition and regulation of environmental crimes to close regulatory loopholes exploited by transnational criminal networks (AARIMO<sup>25</sup>, Instituto Igarapé) — as illustrated by the Igarapé Institute case in the box below .

A challenge to this approach lies with the varying levels of commitment to environmental regulation across Amazonian countries, which can hinder regional consensus and harmonization efforts, a barrier that the Igarapé Institute has addressed through a distinctive model of discreet diplomacy and strategic reframing.

### **Igarapé Institute — Reframing Nature crime as a Security Issue**

*The Igarapé Institute (Brazil) works to shift how Nature crime is defined and prioritised within political frameworks across the Amazon basin. Recognising that illegal deforestation, land grabbing, and illegal mining were largely absent from security and criminal justice agendas (often dismissed by law enforcement as subsistence activity rather than organised crime) the organisation developed a strategy to reframe environmental harm as a public security threat.*

*Rather than pursuing litigation, Igarapé pursued influencing decision-makers through applied research and sustained "discreet diplomacy": building trust with officials, brokering closed-door dialogues between authorities who would not otherwise meet, and coordinating positions behind the scenes before formal negotiations.*

*This approach contributed to two concrete outcomes at the regional scale:*

- *Working alongside the Brazilian and Colombian governments and OTCA's secretariat, Igarapé helped secure the inclusion of Nature crime in the **Belém Declaration of 2023**.*
- *The organisation had also been instrumental, since 2021, in convincing OTCA member states that security was a legitimate institutional domain for the body which led to the creation of a **Public Safety Commission within OTCA** with a dedicated environmental crime sub-commission.*

## **Recommendations**

Based on the experiences documented, the following recommendations can help CSOs' contributions to be more effective at this stage.

- **Mapping existing legal gaps in your country's definition of Nature crime, using comparative frameworks from other Amazonian countries as reference points.** Legal reform is more likely to advance when it can be framed as alignment with a regional framework rather than a unilateral domestic demand.
- **Engage legislative committees and regulatory agencies directly through written submissions, technical hearings, and expert testimony,** acting as technical partners in the drafting process of legal texts.
- **Build coalitions with other CSOs to present a unified front.** Coalition advocacy is more effective at this stage because legislators and regulators are more likely to treat a demand as reflecting broad societal consensus when it comes from multiple organizations, and less likely to dismiss it as a single-interest position.
- **Use successful reforms from neighboring countries as advocacy tools domestically.** For example, the SPDA's role in Peru or CEDIB's advocacy in Bolivia. Peer examples can work because they shift the debate from whether reform is desirable to whether it is feasible.
- **Reframe Nature crime as a security and governance issue.** This expands the coalition of potential allies beyond the environmental sector, bringing in actors, such as ministries of justice, security agencies, or anti-corruption bodies, whose engagement significantly increases the political weight of the advocacy.

## 2. Independent monitoring and detection

Once what constitutes an environmental violation<sup>26</sup> has been defined, the next step in the accountability process requires the detection of acts or environmental harm constitutive of that violation. Capacity to detect and monitor potential environmental violations vary widely between countries of the region (see Chapter I), but a constant is the contribution of CSOs to that step of the accountability process.

Monitoring and detection emerged as the most reported primary approach among survey respondents, with almost two thirds of respondents identifying it as central to their work. For monitoring illegal mining, for example, 22% of the CSOs surveyed collect their own data through remote sensing technologies<sup>27</sup>, and 28% use various forms of community-based monitoring.

This contributes to Stage 2 of the evidence-to-accountability pipeline: Monitoring and detection. Given the variation in governments' monitoring capacity, however, the role of civil society differs across national contexts:

- Where technical capacity and access to imagery is low but willingness of authorities is present (e.g., Peru), civil society can step into the role of data partner, sometimes through formal agreements with authorities.
- Where both technical capacity and willingness is low, civil society may use independent detection to raise the alarm and apply domestic and/or international pressure on governments to take action.
- Where technical capacity and access to data is high (e.g., Brazil), civil society will still typically continue to independently monitor and detect potential manifestations of Nature crime. In this context, the independence of civil society guarantees against potential reversals of political will to maintain these systems or use them effectively.

Below, we present three strategies adopted for CSOs for monitoring and detection and associated challenges. The first is the use of remote sensing technologies (i), followed by community-based monitoring (ii).

### (i) Remote sensing and imagery

Across the Amazon, remote sensing tools have enabled a step change in the capacity of civil society to monitor manifestations of Nature crime, with unprecedented speed and precision (see Chapter I). Many organizations collaborate with research institutions, NGOs, and technology partners to share analytical tools, monitoring data, and technical expertise (76% of organizations indicated partnering with other organizations). This collaborative approach allows organizations to aggregate data and methodological expertise, generating standardized and comparable information on environmental pressures across the region.

- The Monitoring of the Andes Amazon Program (MAAP) is one such example (see box below), and has worked with a range of local organizations to help contextualize remote sensing evidence and communicate it to relevant authorities.
- Conservación Amazónica - ACCA (Perú) elaborates Policy Reports. These reports constitute technical analysis documents based on the interpretation of satellite imagery and other geospatial monitoring tools, prepared to provide timely, objective, and technically sound

information for decision-making by the competent authorities investigating environmental crimes in specific areas of the Amazon.

- In addition to satellite imagery, FCDS (Colombia) highlights the use of low-altitude overflights to gather data that satellite images might miss, explaining that government entities often do not have capacity to follow-up on satellite imagery with low-altitude overflights. FCDS provides this crucial information, especially for activities like illegal mining under forest canopy or specific land-grabbing markers that are invisible to standard satellite monitoring.

However, organizations relying on remote sensing face significant technological and financial barriers. Access to advanced monitoring technologies and high-resolution satellite imagery remains uneven, pointed out as the top difficulty by 49% of the surveyed organizations. Furthermore, there are inherent environmental and technical constraints as conditions such as persistent cloud cover and limitations in imagery resolution can affect the reliability of satellite-based monitoring.

- A practical response to both constraints is the use of freely available radar-based imagery. Conservación Amazónica - ACCA in Peru, for instance, built its Radar Mining Monitoring (RAMI) platform on Sentinel-1 radar data, which is open-access and capable of penetrating cloud cover.

Another challenge is that, while the use of remote sensing data to document evidence of Nature crime is widespread, challenges in using that information to compel authorities to take action sometimes comes from a lack admissibility of remote sensing evidence<sup>28</sup>:

- Derecho, Ambiente y Recursos Naturales - DAR (Peru) has advocated for the legal admissibility of satellite monitoring as evidence, working with specialized environmental prosecutors (FEMA). This ensures that remotely collected data holds weight in legal proceedings, reducing the need for risky on-the-ground evidence gathering in certain contexts. However, gaps remain, as FEMA prosecutors and satellite monitoring units still face a technical capacity gap in interpreting and assessing remote sensing evidence, limiting its full evidentiary use.
- The Instituto Democracia e Sustentabilidade - IDS (Brazil) has worked to strengthen the legal standing of satellite-derived evidence in environmental proceedings. Through its JusAmazônia platform and sustained advocacy before judicial and prosecutorial bodies, IDS contributed to building the institutional environment that led to the formal recognition of remote sensing data as valid evidentiary input in Brazilian courts.

## (ii) Community-based monitoring

Recognizing that satellite data alone is often not enough to document environmental crime – as it cannot reveal who is responsible or uncover cases of coercion, CSOs have developed successful community-based monitoring strategies.

- CSOs increasingly support Indigenous and local monitoring systems that combine territorial knowledge with digital reporting tools and participatory mapping (Amazon Conservation Team - ACT, Suriname and Guyana; Conservacion Amazonica - ACCA, Peru). A key component of this strategy is training and capacity-building for local monitors. Programs that train community members in environmental monitoring techniques strengthen local capacity to document environmental crime, providing on-the-ground verification of environmental damage and irregular permits.
- Instituto Socioambiental - ISA (Brazil) actively fosters a network of indigenous or non-indigenous researchers for collaborative monitoring and evidence production. For example, they

support the data collected by the Yanomami Indigenous Territory Alert System – an initiative led by the Indigenous organizations of the territory, including the Hutukara Yanomami Association and the Wanasseduume Ye'kwana Association. ISA provides the technical infrastructure and capacity-building that makes this Indigenous-led system function, ensuring that community-sourced findings are documented in formats that can support accountability processes.

- The integration of field and community-based documentation, such as testimonies, local knowledge, and on-the-ground observations complement technological monitoring and strengthen the evidentiary record, can also provide a more comprehensive view of the violations. This can help transform technical monitoring outputs into clear, structured evidence packages that prosecutors and judges with limited environmental expertise can readily interpret and act upon (Instituto Centro de Vida, Instituto SocioAmbiental, Brazil; SOS Orinoco, Venezuela).

A central challenge to this approach involves security risks for environmental monitors. Collecting and publishing information about illegal activities can expose communities and organizations to threats, intimidation, or violence (68% of respondents use the information for awareness-raising campaigns or media engagement).

- Security was highlighted as a high-priority challenge by 41.5% of survey respondents. In many cases, communities fear retaliation when denouncing illegal activities such as illegal mining, illegal logging or land grabbing.
- Some organizations have responded to this by developing tools that reduce individual exposure, such as the Wãnorí system used by ISA and the Hutukara Yanomami Association, which allows Indigenous monitors to report incidents via app, radio, or WhatsApp without direct identification, and anonymous digital reporting platforms such as Wildlife Sentinel, which protects the identity of those reporting suspected crimes.

Independent monitoring and detection is a pivotal activity in the work of CSOs fighting Nature crime. It provides the foundation for legality analysis (Section 3) and the subsequent sharing of data with prosecutors (Section 4), for use in public pressure campaigns (Section 5) or in court proceedings (Section 6). It is also a key input for systematic assessments of governments' action (Section 7).

### **Monitoring of the Andes Amazon Program (MAAP)**

#### **Independent Satellite Monitoring of Nature Crime**

*The Monitoring of the Andes Amazon Program (MAAP), a flagship program of Amazon Conservation (USA), implemented in partnership with Conservación Amazónica – ACCA (Peru), and Conservación Amazónica–ACEAA (Bolivia), and a network of local partners across the region, illustrates how effectively civil society monitoring can adapt to the institutional realities of different national contexts.*

*Combining high- and medium-resolution satellite imagery, drone data, and radar algorithms, MAAP delivers near real-time detection of illegal mining, logging, and deforestation across the Amazon biome, spanning all nine Amazonian countries. Crucially, its methodology is designed not only to detect forest loss but to determine its legality, pinpointing the most urgent cases as they happen.*

*MAAP works in two complementary ways: 1) by providing government agencies and law enforcement with confidential intelligence reports that can support field operations against illegal activity, and 2) by publicly sharing the most urgent cases to build awareness and pressure for action. Beyond case-specific enforcement support, MAAP also produces broader thematic*

*analyses of the Amazon as an interconnected system—covering deforestation trends, flying rivers, tipping points, and carbon dynamics. This model has strengthened the capacity of public authorities across the region to link detection directly to enforcement response.*

## Recommendations

The following approaches reflect what CSOs across the Amazon have found to work in practice, drawing on a range of organizational sizes, technical capacities, and national contexts.

- **Seek partnerships with governmental agencies, when there is political willingness.** Partnerships between CSOs and public institutions contribute to improving national monitoring systems and facilitating the circulation of environmental information.
- **Use freely available tools to integrate satellite imagery and deforestation alerts into workflows.** Platforms such as Global Forest Watch, MapBiomas Alerta and Amazon Mining Watch provide responsive analytical capacity, making credible remote sensing accessible to organizations of all sizes.
- **Join or contribute to existing multi-organizational monitoring alliances suited to your context— such as MAAP for rapid-response analytical and enforcement support, or MapBiomas Alerta for validated deforestation alert data).** Pooling analytical capacity and sharing methodologies avoids duplicating infrastructure and allows smaller organizations to access capabilities they could not build independently.
- **Develop and strengthen community-based surveillance and monitoring networks by training leaders and vigilance committees from local and indigenous communities in standardized protocols** for observing, documenting, and recording environmental crimes during territorial patrols, while incorporating security and protection measures to safeguard their well-being. This strategy generates timely, high-resolution information that complements satellite remote sensing, strengthens communities' capacity to respond, and fosters greater local participation and ownership in surveillance, oversight, and accountability processes—ultimately contributing to the sustainability and resilience of monitoring systems in the face of technical limitations or institutional change.
- **Where political will exists, formalize data-sharing agreements with public authorities who already hold monitoring infrastructure.** This allows CSOs to focus scarce resources on analysis, legal interpretation, and advocacy rather than data collection, and builds institutional relationships that can facilitate evidence transfer at later stages of the pipeline. (see also [Section 4](#))
- **In contexts where institutional willingness is low, use independent monitoring to generate external pressure.** Documented evidence published publicly or shared with international actors has prompted governmental responses in cases where domestic channels were unresponsive, making monitoring itself a lever for accountability even before formal processes are engaged (see also [Section 5](#)).

## 3. Legality analysis of potential environmental violations

The detection of resource use or land cover change activities through satellite imagery or community monitoring does not, by itself, establish that a violation has occurred. A critical intermediate step in

the accountability pipeline therefore involves determining whether detected activities are a meaningful indication of illegal conduct.

Although this verification function would ideally rest with public enforcement agencies, limited investigative capacity across many Amazonian countries has led CSOs to increasingly assume it, increasing the probative value of evidence shared with prosecutors and judges. This type of contribution therefore bridges Stages 2 and 3 of the accountability pipeline (Monitoring and Detection; Investigation and Prosecution), by transforming raw detection data into legally meaningful evidence of potential violations.

The main strategy used by CSOs is to cross-reference data on potential manifestations of Nature crime with official administrative records— such as mining cadastre databases, land tenure registries, environmental permits, or authorizations for deforestation— to qualify monitoring data and identify presumed cases of illegality.

- Portal da Transparência do Ouro (WWF Brazil) aggregates publicly available data relevant to assessing the legal compliance of gold mining activities against the standards established by Brazilian law, consolidating information on administrative processes, satellite imagery, and financial and geographic data into a single platform.
- Imazon (Brazil) has created the Simex (Sistema de Monitoramento da Exploração Madeireira), that uses medium-resolution satellite imagery to detect logging infrastructure — roads, log yards, and skid trails — and then cross-references detected activity against the SINAFLORE authorization records from government, to classify areas as authorized, unauthorized, or of uncertain status.
- This information can also be combined with other spatial data to provide a wall-to-wall “presumption of illegality” spatial layer, that can be readily combined with recurring detection data to provide a regular, jurisdictional-level breakdown of how much of a given activity is associated with a low, medium or high presumption of illegality (see box below and Chapter I, Section 4).
- Another strategy is to establish formal cooperation with public governmental bodies for the exchange of data. This cooperation allows authorities to gain access to specialized technical expertise, including geospatial analysis and evidence development, to support complex investigations, thereby helping to overcome institutional gaps in technical knowledge, analytical capacity, and access to environmental data (Centre for Climate Crime Analysis, Peru - see box below).
- Importantly, legality analysis need not be conducted by the same civil society organization that produced the raw monitoring data. CSOs often collaborate in that regard to complement each other’s expertise.

This type of contribution is also beset by a number of challenges:

- Limits on data accessibility often constrain the exercise. Many respondents mention facing limited access to open governmental data and incomplete or outdated public registries on mining concessions, land tenure, and environmental permits severely hinder the ability of CSOs to properly contextualize monitoring alerts and verify the legal status of detected activities (Conservacion Amazonica - ACCA, Peru; Conservacion Amazonica - ACEAA, Bolivia; Fundacion Ecociencia, Ecuador; ICV, Brazil).

- Establishing a presumption of illegality falls short of identifying potential culprits to be investigated by authorities. Records on pending use rights (concessions, authorization) do not always identify the rightsholder. Rightsholders will often claim that the harm was caused by external actors that they have no control over. Finally, where no tenure information is available, it may be even more difficult to link the activity to a specific person or company (Conservacion Amazonica ACCA, Peru; IDS, Brazil).

Once the initial evidence of environmental harm has been qualified through a legality analysis, it is ready to feed into the next stages of the accountability process. There, CSOs will choose, depending on the specifics of the evidence and the relationship they enjoy with authorities, to either share it directly with prosecutors and judges (Section 4), or reveal it to the public in a bid to put pressure on authorities to take action (Section 5). This information may also be used in court proceedings (Section 6) or, where it is collected systematically over long timeframes, used as a way to assess the effectiveness of authorities' enforcement capacity (Stage 7).

### **Centre for Climate Crime Analysis (CCCA), Peru**

#### **Forensic Legality Analysis**

*The Centre for Climate Crime Analysis (CCCA) Peru, applies a forensic methodology to establish the legal status of environmental violations in Peru, with a specific focus on cases where domestic enforcement has failed and where the illegal activity is embedded in international supply chains.*

*CCCA investigates the role of international actors involved in illegal deforestation in Peru, with a focus on the palm oil sector as a notorious global driver of deforestation.*

*CCCA's legality analysis combines satellite imagery, open-source investigation, geospatial data, and legal review of land titles and environmental permits to establish forensic presumptions of illegality.*

*Satellite analyses by CCCA documented clear deforestation on the land of Ocho Sur, Peru's second-largest palm oil company, which is linked to over 15,500 hectares of forest loss. Building on this analysis, a coalition including CCCA and Indigenous organisations filed a complaint before the Dutch OECD National Contact Point against Louis Dreyfus Company for sourcing palm oil from illegally deforested land, resulting in the NCP concluding the complaint merited further consideration.<sup>29</sup>*

#### **Amazon Mining Watch - Amazon Conservation, regional Cross-Referencing Detection Data with Legal Frameworks**

*Amazon Mining Watch (AMW), an AI-powered platform, goes a critical step further by systematically cross-referencing detected mining sites with national legal frameworks to generate structured presumptions of illegality.*

*Based on an analysis of potential overlaps with land designations and applicable regulations, AMW incorporates a location-based presumption of illegality classified across four levels: very high, where activity occurs without a permit inside a protected area; high, where activity falls outside any explicit concession; medium, where activity occurs within a concession whose active status cannot be verified or which does not meet legal requirements; and low, where activity is within an active concession but full compliance cannot be confirmed. This legality layer is currently operational for Bolivia, Brazil, Colombia, Ecuador, and Peru, with expansion to remaining Amazonian countries*

*planned for 2026.*

## Recommendations

Based on documented practices across the region, the following entry points offer CSOs a pathway to build or strengthen their capacity to analyze the legality of evidence of potential environmental violations.

- **Develop systematic cross-referencing protocols between monitoring data and official administrative registries.** Building structured, repeatable assessment methodologies increases the speed and breadth of legality analysis, enabling organizations to move beyond case-by-case verification toward jurisdictional-scale assessments.
- **Qualify instances of environmental harm by degrees of presumption of illegality** rather than directly calling out instances as illegal, to avoid overstepping on the responsibilities of prosecutors and judges and reduce the risks of defamation lawsuits or even violence of threats.
- **Establish partnerships with legal teams or academic institutions to strengthen the evidentiary quality of illegality assessments.** This allows CSOs with detection capacity to access specialized knowledge that strengthens the legal standing of their findings without needing to maintain full in-house legal expertise on a permanent basis.
- **Produce standardized, court-ready documentation formats that translate technical findings into legally legible outputs.** Presenting environmental information that does not require the interpretation by prosecutors and judges increases the probative value of the evidence, bridging the gap between detection and prosecution that often causes cases to stall.

## 4. Sharing of evidence with public prosecutors

Although several countries have developed specialized environmental investigation units, either within their police force or their environmental agencies, many prosecutors lack the required expertise to handle evidence of potential Nature crimes. An important contribution of many CSOs in the Amazon is therefore to translate monitoring and detection results into formats that can be readily used by authorities in the pursuit of investigation, prosecution, or adjudication of environmental violations.

This action by CSOs primarily supports Stage 3 (Investigation and Prosecution) of the accountability pipeline, by equipping prosecutors and enforcement agencies with the technical evidence needed to advance cases toward formal proceedings.

This type of contribution is widespread, with 78% of CSOs surveyed claiming to have shared their data with public authorities. Importantly, this type of information sharing does not necessarily amount to a formal complaint, which would require a CSO to formally identify itself as the reporting party. Formal complaints can trigger a legal process that can expose the organization and lead to financial burdens, while informal data sharing affords the organization a degree of operational distance from the proceedings that follow.

CSOs employ a range of strategies in sharing evidence with authorities:

- CSOs translate monitoring data, geospatial analysis, and field observations into structured evidentiary documentation, in the form of technical reports, case files, and georeferenced

datasets. In Brazil, ICV has built sustained working relationships with Mato Grosso prosecutors, adapting its analysis to their evidentiary standards. This ensures that complex technical data is transformed into admissible scientific proof that can be readily understood by prosecutors who may lack environmental expertise.

- Many organizations highlighted the importance of maintaining direct working relationships with institutional actors involved in environmental enforcement. Rather than relying solely on formal reporting channels, CSOs often collaborate with specific prosecutors or enforcement officials who are familiar with environmental crime cases and with the role civil society can play in supporting investigations (ICV, Brazil; FCDS, Colombia and Peru; DAR, Peru).
- Another key aspect of evidence-sharing is long-term evidence compilation, which prevents authorities from claiming a lack of information or uncertainty about the extent of environmental harm. Fundación Río Napo (Ecuador) exemplifies this strategy by meticulously documenting illegal mining activities over extended periods. This evidence garnered international attention, making the government "uncomfortable" and ultimately leading to a judicial order for restoration work on the site.
- The data shared can also go beyond the mere description of environmental damage. A compelling example of this is the Mining Impacts Calculator developed by Conservation Strategy Fund (CSF) in collaboration with Brazilian authorities, a tool designed to estimate the socio-environmental and economic cost of illegal gold mining in monetary terms that prosecutors policymakers can readily use to advocate for appropriate penalties, including monetary fines (see box below).
- These collaborative relationships are, in some cases, formalized through cooperation agreements between CSOs and public authorities (FCDS and WCS in Peru). Such partnerships often emerge as authorities seek to strengthen their technical capacity, particularly in the interpretation and use of environmental and geospatial data. FCDS emphasizes that they act as a "technical intelligence" hub, bridging the gap between raw environmental data and the legal requirements of the state, especially when government agencies lack sufficient technical professionals to analyze complex environmental data. In Peru, the work of Conservación Amazónica - ACCA also illustrates how sustained formal cooperation can progressively strengthen the technical capacity of State enforcement institutions to independently use and act on satellite-derived evidence (see box below).

A central challenge to this contribution is the risk of retaliation from individuals or companies implicated by the data shared with prosecutors. Respondents faced with these security risks mention the use of measures, such as acting through an alias or constructing a chain of information to shield those on the ground – meaning that field monitors collect and pass information to an intermediate contact, who then transmits it to the organization, so that no single person holds the full picture and the identity of those closest to the violation is never directly traceable in the documentation (SOS Orinoco, Guardianes del Bosque, Venezuela; Instituto Centro de Vida, Brasil).

#### **Conservación Amazónica - ACCA, Peru**

##### ***Embedding Civil Society Evidence into State Enforcement Systems***

*Conservación Amazónica (ACCA) in Peru illustrates how a civil society organization can move beyond simply producing evidence in parallel to state institutions and instead become structurally embedded within them. ACCA developed a multi-level strategy to ensure that satellite-derived evidence of crimes against nature reaches law enforcement authorities and is usable by them.*

*Between 2018 and 2025, ACCA delivered 520 confidential reports to prosecutors, environmental authorities, indigenous representatives, and the press, contributing to at least 15 direct field interventions with the presence of authorities.*

*Crucially, ACCA did not limit itself to producing and transmitting evidence. It supported the creation of specialized satellite monitoring units within the Specialized Environmental Prosecutor's Office (FEMA) in Madre de Dios and within the National Forest and Wildlife Service (SERFOR), and has since provided ongoing technical support to the monitoring units of SERNANP, the Forest and Wildlife Resources Oversight Agency (OSINFOR), and the Ministry of Culture. In February 2023, this work culminated in the launch of Peru's National Network of Satellite Monitoring Units, which brings together 14 state institutions and 3 civil society organizations under a common framework.*

### **Conservation Strategy Fund, regional**

#### **Mining Impacts Calculator**

*A persistent obstacle to prosecuting Nature crime across the Amazon is the difficulty of quantifying environmental harm in terms that courts and administrative bodies can apply to determine sanctions. Conservation Strategy Fund (CSF) developed two tools that directly address this gap.*

*Its **Mining Impacts Calculator**<sup>30</sup> was originally developed in partnership with Brazil's Federal Public Prosecutor's Office. In one concrete case, prosecutors initially calculated damages of a lower amount against an illegal mining company, but using the tool, the MPF adjusted the figure to R\$268 million to include social damages related to deforestation, erosion, and mercury contamination, enabling the MPF to obtain a legal seizure of the company's assets in a public civil action.<sup>31</sup> CSF expanded the Calculator to Colombia, Peru, Guyana, Suriname, Ecuador, and Bolivia, creating a common regional framework to improve comparability of assessments and strengthen accountability across the Amazon. In Peru, CSF held meetings with officials from the Ministry of Environment and the Attorney General's Office to promote implementation, and trained officials from the regional governments of Loreto and Madre de Dios alongside civil society and academic representatives.*

## **Recommendations**

The following approaches reflect how CSOs in the region have successfully navigated the transition from evidence production to evidence sharing, and what conditions have made that transition more effective.

- **Formalize relationships with Public Prosecutor's Offices and environmental enforcement agencies through protocols or memoranda of understanding.** Structured agreements ensure that evidence transfer survives staff turnover, political transitions, and institutional reshuffles, moments when informal relationships tend to break down.
- **Translate technical monitoring outputs – satellite imagery, geospatial data, remote sensing results – into legal formats accessible to prosecutors and judges.** Prosecutors and judges often lack the technical background to interpret raw monitoring data; organizations that do this translation work significantly increase the usability of their evidence and favour a robust legal case.
- **Document successful cases of evidence used and share them with relevant authorities.** Building a visible track record demonstrates the value of CSO contributions and helps open

doors with institutions that remain hesitant to engage, turning individual successes into institutional legitimacy.

- **In contexts where rule of law is weak or institutions are compromised, consider operating through legally registered entities in other jurisdictions.** This preserves the ability to document and share evidence safely when working domestically would expose the organization or its staff to unacceptable risk.

## 5. Sharing of information to the public and pressure campaigns

When formal engagement strategies, such as briefings to authorities or the submission of complaints, fail to provoke a response, CSOs often turn to public dissemination of information and pressure campaigns as an alternative pathway to trigger institutional action. Survey respondents mention the use of a range of outputs, primarily reports and media campaigns (58.5%), followed by community education materials (46.3%), public data platforms (41.5%), and academic publications (39%).

This type of activity operates as a cross-cutting lever across Stages 2 through 4 of the accountability pipeline (Monitoring and Detection; Investigation and Prosecution; Judgement), by generating public pressure that can unblock inaction at any of these stages when formal channels prove insufficient.

- One strategy mentioned by respondents is the translation of technical data into accessible formats for the public, such as reports, visualizations, and media content, a critical step to broaden outreach and increase visibility. ISA's 2021 report<sup>32</sup> on the Yanomami territory, for instance, combined satellite imagery, epidemiological data, and Indigenous researchers' ethnographic accounts into a single public document that was subsequently presented by federal deputies in Congressional hearings and by the Minister and FUNAI president to the President of Brazil during an official visit to the territory (Instituto Socioambiental, Brazil).
- Coupled with this is the strategy of strategic timing of information release, where CSOs align publication with legal actions, policy windows, or moments of heightened attention to enhance impact and responsiveness. Amazon Conservation Association, for example, timed the release of a report on the projected impact of the BR-319 highway on rainfall patterns and Amazonian flying rivers to coincide with a moment of heightened public debate, following the Brazilian government's announcement of a \$75 million investment in the road's construction through the heart of the Amazon.<sup>33, 34</sup>
- Leveraging international visibility through dissemination on global platforms and media can also amplify the pressure on national authorities and increase the reputational costs of inaction. For instance, international visibility of deforestation and gold mining impacts on platforms such as the Monitoring of the Andes Amazon Program (MAAP) has successfully impacted regulation by making governments uncomfortable with global scrutiny (Fundación Río Napo, Ecuador; Amazon Conservation/MAAP, Venezuela). Public visibility can sometimes trigger institutional action more rapidly than formal legal submissions alone (Instituto SocioAmbiental, Brazil; Fundacion Rio Napo, Ecuador).

These exposure strategies face their own set of challenges:

- Limited responsiveness from authorities may persist even when evidence is widely disseminated, as the position of public authorities can stem from competing interests rather than lack of information.

- Tensions between the goals of confidentiality and public exposure create difficult trade-offs. Evidence prepared for legal processes may require confidentiality to protect sources and maintain the chain of custody, while advocacy strategies often rely on the public dissemination of information.
- Perhaps most critically, increased visibility of environmental crimes may expose communities and activists to retaliation, particularly in contexts with weak State protection. Risks to environmental defenders represent a high-priority concern for organizations conducting public campaigns.
- In Venezuela, NGOs frequently face obstacles to formal registration or have their legal recognition blocked by the State. To navigate these restricted civic spaces, some groups adopt informal or community-based forms of organization (Grupo de Trabajo de Asuntos Indígenas - GTAI in Venezuela), as working through decentralized community-based structures allows documentation activities to continue without depending on institutional recognition that may never be granted. Others operate through legally registered entities outside their home country to continue their systematic documentation of environmental crimes safely (SOS Orinoco in Venezuela).
- In Peru, a similar dynamic is emerging through regulatory channels. In 2025, Peru's Congress approved Law No. 32301, which amends the law creating the Peruvian International Cooperation Agency (APCI), commonly known as the "Ley APCI." This law introduces new restrictions on civil society organizations and international cooperation, establishing an over-regulation scheme that limits their functioning and restricts legal advocacy against the Peruvian State in cases involving the protection of fundamental rights, including those brought by indigenous peoples. It also introduces a regime of steep sanctions and fines that creates a chilling effect on human rights defense work, discourages citizen reporting and oversight, and restricts the exercise of freedom of expression, association, and advocacy by CSOs, disproportionately affecting the defense of rights for the most vulnerable populations.

To navigate these tensions and risks while maintaining their effectiveness, some CSOs rely on coalitions and multi-partner platforms for their public pressure campaigns. By working through joint initiatives rather than acting alone, individual CSOs can distance themselves from the most confrontational aspects of campaigns while maintaining their collaborative relationships with government bodies.

This approach is particularly valuable when a CSO needs to simultaneously criticize government action through public campaigns while maintaining technical cooperation with the same institutions on other fronts. In Brazil, for instance, Instituto Centro de Vida participates in the Observatório Socioambiental de Mato Grosso (Observa MT), a network also comprising the Federação dos Povos Indígenas de Mato Grosso, Operação Amazônia Nativa, and other organizations, which monitors socio-environmental agendas and tracks legislative and executive action at the state level (Instituto Socioambiental and Hutukara Yanomami Association, Instituto Centro de Vida/ObservaMT, Brazil; Conservacion Amazonica - ACEAA/GITOR, Bolivia).

The coalition structure allows the collective voice to carry weight while individual members retain the flexibility to engage in ongoing institutional relationships. Beyond coalition-based visibility management, some organizations go further in calibrating their institutional exposure on a case-by-case basis, as illustrated by ICV's approach in the case box below.

**Instituto Centro de Vida, Brazil Public Campaigns in High-Risk Contexts**

*In contexts where environmental defenders face direct physical threats, the decision of how, and under whose name, to conduct public advocacy can be consequential. Instituto Centro de Vida (ICV) in Brazil illustrates how organisations operating in high-risk territories carefully calibrate visibility to protect both staff and local partners.*

*In the case of Cristalino State Park in northern Mato Grosso, ICV made formal representations to the Public Prosecutor's Office while deliberately managing attribution, routing actions through an intermediary channel rather than under ICV's institutional name, and shielding the identity of locally-based staff and partners. The organisation describes this approach as a "fragile protection barrier": imperfect, but sufficient to reduce exposure in a context where visible association with the case carries real personal risk.*

*This approach contributed to the reopening of a legal case concerning the park's protection, demonstrating that carefully calibrated public pressure, combining formal legal engagement with strategic management of institutional visibility, can generate accountability outcomes even under significant security constraints.*

**Recommendations:**

The following pathways draw on documented CSO experience in the region to illustrate how public communication and pressure campaigns can be designed and deployed effectively, including in high-risk contexts.

- **Use open data portals to disseminate findings widely and regularly.** Publicly accessible dashboards and reports can generate sustained attention beyond a single news cycle, maintaining pressure on institutions without requiring ongoing investment in each new publication.
- **Build relationships with trusted media partners in advance, before evidence is ready to go public.** Established channels allow findings to be amplified responsibly and accurately when the moment arises, reducing the risk of misrepresentation and increasing the reach and credibility of the message.
- **Develop clear internal criteria for when to go public,** weighing the potential to trigger institutional action against risks such as alerting perpetrators, endangering community monitors, or undermining ongoing legal proceedings.
- **Calibrate campaigns to the audience and goal,** distinguishing between efforts aimed at mobilizing public opinion, pressuring specific agencies, or influencing international actors. Each requires a different message, format, and channel.
- **Document the outcomes of past campaigns,** including cases where public pressure successfully unblocked institutional inaction. This builds an internal evidence base for future strategic decisions and provides funders with concrete proof of impact.
- **Monitor and respond to new legal and regulatory restrictions on civil society,** such as Peru's Law No. 32301 ("Ley APCI"), which can limit CSOs' advocacy capacity and chilling their ability to conduct public pressure campaigns, particularly in defense of the most vulnerable populations.

## 6. Participation in court proceedings and litigation

Judicial proceedings represent the formal mechanism through which accountability is ultimately established. It is a comparatively less utilized contribution to the evidence-to-accountability pipeline, with only 12% of respondents to the survey mentioning direct involvement in this type of activity.

This involvement of CSOs at court proceedings primarily supports Stage 4 (Judgement or Application of Administrative Sanction) of the accountability pipeline, by providing courts and tribunals with expert evidence that strengthens the basis for a determination of guilt and assignment of responsibility.

The low proportion of respondent organizations that mention directly participating in litigation reflects the structural reality that criminal proceedings related to environmental violations are initiated and led by the State, typically through Public Prosecutor's Offices. While these structural constraints limit CSOs to a supporting role, their contribution at this stage can be decisive in determining whether cases succeed and what remedies are obtained.

To overcome these structural limitations, CSOs employ several strategies:

- Where criminal prosecution is difficult or slow, CSOs may support action before administrative agencies, environmental tribunals, or specialized jurisdictions such as agro-environmental courts or Indigenous justice systems. In Venezuela, where criminal enforcement of constitutionally recognised environmental rights has remained largely ineffective in practice, GTAI has worked to strengthen Indigenous customary jurisdictions as an alternative accountability channel (see Chapter III, Venezuela country profile).
- Many organizations also participate through mechanisms such as *amicus curiae* (friend of the court) submissions (Instituto Centro de Vida - ICV in Brazil, Conservación Amazónica - ACEAA in Bolivia), producing technical reports, geospatial analysis, and expert documentation that can be used by prosecutors, judges, and allied litigants.
- In contexts of weak rule of law where the government fails to prosecute or rule against environmental crime perpetrators, some organizations also choose the path of appeal before international jurisdictions. CSOs may bring evidence before regional and international human rights bodies such as the InterAmerican Commission on Human Rights to generate scrutiny and pressure for accountability. GTAI and SOS Orinoco have pursued engagement before the Inter-American Commission on Human Rights as their primary accountability avenue for illegal mining, supported by specialized legal partners such as the Due Process of Law Foundation. (SOS Orinoco in Venezuela, GTAI in Venezuela).

Challenges to legal action include

- Lack of legal capacity, which can represent a substantial barrier as many organizations do not have the internal expertise required to pursue complex environmental litigation (34% of respondents ranked "lack of legal or institutional support" among their top 3 challenges). Maintaining an in-house legal team or securing continuous legal counsel can be difficult, particularly for organizations that rely on project-based funding. This is compounded by high financial costs and lengthy judicial processes.
- The fact that judicial proceedings related to environmental crime are often long and resource-intensive. Because CSOs usually operate under project-based funding, participating with a specialized technical team throughout such processes often becomes unfeasible (Guardianes del Bosque & GTAI, Venezuela; IDS, Brazil).

- Accessing international judicial mechanisms requires substantial financial resources, specialized expertise in international and human rights law, and the ability to support the participation of affected communities and expert witnesses throughout lengthy legal proceedings (AARIMO, Colombia; SOS Orinoco, GTAI, Venezuela).
- Participation in environmental litigation can expose organizations and their staff to security risks. Publicly denouncing environmental crimes or contributing technical evidence to legal cases can attract retaliation from actors involved in illegal mining, logging, or land grabbing, requiring organizations to implement protective measures for environmental defenders (SOS Orinoco, Venezuela; Instituto Centro de Vida, Brazil).

### ***GI-TOR, Bolivia Civil Society Science as Expert Evidence in Environmental Litigation***

*GI-TOR, a consortium of scientific and conservation organisations in Bolivia, illustrates how civil society technical expertise can be formally embedded within judicial proceedings to overcome one of the most persistent bottlenecks in environmental accountability: the absence of credible, court-ready evidence of ecological damage.*

*Environmental cases in Bolivia usually stalls at the investigative stage because neither prosecutors nor judges have access to institutions capable of providing technically rigorous, independent assessments of environmental harm. GI-TOR stepped into this gap, initially by providing technical information informally to support legal actions initiated by allied lawyers and Indigenous communities.*

*GITOR was formally appointed by the National Agro-Environmental Tribunal as a court-mandated technical expert in proceedings against 43 illegal mining cooperatives operating on the Tuichi River. GITOR's expert report, assessing damages across Indigenous territories of the Masetén and Chimane peoples, is now awaiting sentencing and is expected to set a national precedent for the quantification of environmental harm.*

*In parallel, GITOR's technical contributions supported a constitutional action that led to the Beni River being declared a rights-bearing subject under Bolivia's Law on the Rights of Mother Earth (SCP 1326/2023-S1).*

## **Recommendations**

The following entry points reflect how CSOs across the Amazon have engaged in litigation and court proceedings, from contributing technical evidence to pursuing strategic cases through regional human rights mechanisms.

- **Identify cases where CSOs have contributed to successful outcomes and map the strategies that made the difference.** Learning from litigation that has already worked, understanding what type of evidence was used, how the relationship with prosecutors was built, and what legal arguments proved most effective, can help organizations refine their legal strategy.
- **Where domestic channels are blocked, explore regional human rights mechanisms such as the IACHR.** Mapping these alternative pathways in advance, even before they are needed, allows for CSOs to have a strategy when domestic avenues close.
- **CSOs should map the legal mechanisms available in their jurisdiction** — constitutional, criminal, civil, and administrative — before designing an engagement strategy. The comparative

assessment of legal pathways across the eight Amazonian countries in Chapter III provides a useful reference for this exercise.

## 7. Systematic assessment of the effectiveness of government action

The final stage of the evidence-to-accountability pipeline involves monitoring the implementation of sanctions and the outcomes of judicial decisions. Nature crime in the Amazon remains systematically underreported, under investigated and under-sentenced. Between 2018 and 2024, only 147 convictions were recorded out of 2,376 criminal investigations relating to environmental crimes in the Colombian Amazon<sup>35</sup>. In Brazil, an Imazon analysis of over 3,500 lawsuits for illegal deforestation filed between 2017 and 2020 found that 78 per cent were dismissed without prejudice and only 8 per cent resulted in a ruling with liability; of the compensation and civil penalties ordered, just 0.2 per cent had been paid by December 2023.<sup>36</sup> In Ecuador, a specialized prosecutorial task force opened 2,075 investigations between 2017 and 2022, of which 87 per cent remained in the investigative phase and only around 1 per cent ended in a conviction or plea bargain.<sup>37</sup>

The compilation of such statistics is crucial to assess the gap between the scale of environmental violations and the institutional capacity available to address them. This type of activity primarily supports Stage 5 (Execution of Sentences and Sanctions) of the accountability pipeline, by tracking whether rulings are actually enforced and maintaining political pressure for investment in the capacity of agencies along the entire accountability pipeline,

- CSOs, in particular in Brazil, have created dedicated platforms to organize, systematize, and make publicly accessible data on environmental enforcement and litigation. The Monitor da Fiscalização, developed by a coalition of CSOs including Instituto Centro de Vida (ICV), MapBiomias, and Brazil.IO, tracks the implementation of environmental enforcement actions and sanctions. The JusAmazônia platform, meanwhile, functions as a search and monitoring tool that compiles dispersed judicial information and extracts statistics about the resolution of cases of environmental violations. This systematic assessment often reveals that a significant proportion of cases remain unresolved, reflecting structural limitations in the ability of State systems to process the volume and complexity of environmental claims<sup>38</sup>.
- By making this information accessible to journalists, researchers, and policymakers, CSOs increase transparency and generate public pressure for stronger accountability for Nature crime. This systematic assessment is critical to “close the loop” of civil society contributions to the pipeline. Going back to the first type of contribution “Advocacy for the prioritization of Nature crime, this type of information can be used in advocacy campaigns to argue for allocation of resources commensurate with the scale of the challenge presented by Nature crime.

Conducting this type of systematic assessment presents a number of challenges:

- In many Amazonian countries, information on inspections, sanctions, fines, embargoes, and judicial cases is dispersed across multiple institutional databases or is simply not publicly available, making this type of systematic assessment difficult.
- Even when data can be accessed about judicial cases, there may still be a significant gap between judicial decisions and implementation. When courts issue rulings or administrative sanctions are applied by environmental agencies, there is often limited transparency regarding whether fines are actually paid, illegal activities are halted, or restoration measures are implemented. This “last mile” of the accountability process is where data is the most deficient.

### ***Instituto Democracia e Sustentabilidade (IDS), Brazil*** ***Jurimetrics as a Tool for Systemic Accountability***

*JusAmazônia, a platform developed by the Instituto Democracia e Sustentabilidade (IDS), applies jurimetric analysis to environmental litigation across the Brazilian Amazon, producing the kind of systemic diagnostic that neither the judiciary nor the Public Prosecutor's Office routinely generates for itself.*

*Drawing on a database of nearly 17,000 public civil actions sourced from state courts and the Federal Regional Court, the platform tracks cases involving deforestation from filing through to sentencing. An analysis of over 3,500 cases filed under the Federal Public Prosecutor's Amazônia Protege programme found that only 7% of all cases filed resulted in a conviction, with the total monetary value of 51 condemnatory sentences amounting to R\$4 million, a figure the platform's researchers describe as negligible relative to the scale of harm.*

*These findings have been presented to the Supreme Court, the National Justice Council, and the Ministry of Justice, generating institutional interest.*

## **Recommendations**

- **Design transparency platforms with non-specialist audiences in mind**, including journalists, policymakers, and affected communities. Data on enforcement gaps that is accessible and legible to these audiences is far more likely to generate political pressure than technically rigorous reports.
- **Coordinate with regional networks to produce cross-country comparisons**. These are more effective at exposing structural gaps than national reports in isolation, and harder for individual governments to dismiss as exceptional or anomalous, turning national data into a regional accountability story.
- **Frame findings around accountability gaps rather than just violations**, shifting the narrative from documenting harm to assessing whether institutions are functioning. This framing tends to resonate more strongly with policymakers and international audiences, and positions CSOs as governance monitors rather than adversaries.

## **Conclusion and recommendations**

In a region where State capacity is often uneven or constrained by political volatility, CSOs can transform dispersed observations of environmental harm into legally actionable evidence and maintain pressure on institutional mechanisms to ensure that perpetrators of Nature crime are held accountable. These contributions of civil society are spread across the whole arc of government response. Taken as a group, civil society can be seen as an intelligence hub, working hand-in-hand with environmental agencies and public prosecutors to ensure that State authorities possess the evidentiary basis to initiate investigations.

The evidence gathered for this chapter points to a consistent distributional imbalance across the accountability pipeline. Civil society efforts are most concentrated at the detection and monitoring stage, reflecting both the relative accessibility of remote sensing tools and the long tradition of territorial surveillance among Amazonian CSOs. Capacity thins progressively toward the later stages: legality analysis, evidence-sharing with prosecutors, and above all the systematic tracking of enforcement outcomes remain chronically underfunded and understaffed. The gap is sharpest in the

translation of monitoring data into judicially usable evidence — a function that requires legal expertise, institutional relationships, and procedural knowledge that most organizations lack. A pipeline in which the detection end is well-resourced, but the accountability end is thin will generate awareness without generating accountability.

Significant challenges remain: the mismatch between short-term project funding and the long-term nature required for territorial monitoring often limits the sustained impact of civil society efforts. Furthermore, the translation of technical evidence into judicial action is frequently hindered by institutional bottlenecks, a lack of specialized knowledge among judges, and persistent opacity regarding government enforcement data in certain national contexts. Ultimately, given the exclusive nature of criminal prosecution as a prerogative of the State, these bottlenecks of government capacity set a limit on the effectiveness of civil society efforts, no matter how skilled and well-funded (see also Chapter III)

Accountability for Nature crime in the Amazon is unlikely to be achieved through State action alone, nor can it rely on isolated organizational efforts. It demands a highly articulated, well-resourced, and technically proficient civil society network, working in strategic complementarity with State institutions – and supported by donors and governments who understand the long-term, structural nature of this work.

The following nine recommendations are designed to function as an operational guide for CSOs, governments, donors, and enforcement agencies seeking to strengthen the accountability pipeline. They are grounded in the practices, strategies, and lessons documented throughout this chapter, and are intended to translate the analytical findings into concrete actions that can inform policy, programming, and investment decisions. Further recommendations for governments on how to collaborate better with civil society are listed in Chapter III of this study.

#### 1. Establish secure, interoperable data-sharing platforms across borders

Nature crime does not respect national borders, yet civil society responses remain predominantly organized at the national level. Cross-border data alliances, such as AARIMO, MAAP, MapBiomias Amazonia, and Amazon Mining Watch, already demonstrate the value of shared methodologies and interoperable databases, and should serve as models for expansion.

- **CSOs** should actively seek to join or contribute to existing regional data alliances rather than building independent infrastructure, pooling monitoring assets to generate a more comprehensive and resilient picture of cross-border violations.
- **Governments** should create enabling conditions for cross-border civil society data exchange, including by recognizing the legal standing of CSO-generated evidence produced in partner countries, and by integrating CSO monitoring outputs into mechanisms such as ACTO's Public Safety Commission and the Amazon International Police Cooperation Centre (CCPI).
- **Donors** should prioritize multi-country grants that fund shared data infrastructure, recognizing that network-level investment yields greater coverage and resilience than funding isolated organizational capacity. The funds should be for larger periods, as funded projects of 2 or 3 years are not enough to maintain large projects.

#### 2. Institutionalize the admissibility of technical and spatial evidence from civil society sources

CSO-generated satellite imagery, geospatial analysis, and remote sensing data remain legally uncertain in many Amazonian jurisdictions, limiting their usability in formal proceedings even when their technical quality is high.

- **CSOs** should align their evidence-gathering methodologies with the specific evidentiary standards required by prosecutors and judges in each national context, drawing on successful models such as the technical cooperation between FEMA and civil society in Peru, and the Mining Impacts Calculator developed by CSF, which has been adapted for use across nearly all Amazonian countries.
- **Governments and judicial authorities** should establish clear, standardized protocols for the admissibility of CSO-generated technical evidence, and invest in training prosecutors and judges on how to interpret and apply spatial and environmental data in legal proceedings.
- **Donors** should fund the development of court-ready documentation templates and the legal consultancy needed to help CSOs adapt their outputs to jurisdictional requirements across the region.

### 3. Mandate public transparency of government enforcement and concession data

Independent monitoring and benchmarking are only as strong as the public data they can cross-reference. In many Amazonian countries, registries of land tenure, mining concessions, environmental permits, fines, and embargoes remain incomplete, outdated, or inaccessible.

- **CSOs** should continue to develop transparency platforms that cross-reference monitoring alerts with available public data to identify indications of illegality, and should use freedom of information mechanisms and litigation for data access where proactive disclosure is withheld.
- **Governments** should ensure that concession registries, permit databases, and enforcement records are comprehensive, up-to-date, and publicly accessible – an obligation that is consistent with commitments under the Escazú Agreement for signatory States.
- **Donors** should support CSOs in building analytical independence from official data systems, funding alternative methodologies, including remote sensing and cross-referencing of publicly available sources, that reduce dependence on government cooperation that may not be forthcoming.

### 4. Foster technical cooperation agreements between CSOs and law enforcement

The gap between detection and investigation is one of the most persistent bottlenecks in the accountability pipeline. Formal cooperation frameworks between CSOs and State investigative bodies are among the most effective tools for bridging it.

- **CSOs** should pursue formal memoranda of understanding with Public Prosecutor's Offices and environmental enforcement agencies, following models such as FCDS' MoU with the Fiscalía in Colombia, covering the provision of satellite imagery, overflight data, and technical evidence dossiers, and ACCA's formal integration into Peru's national detection and response system.
- **Governments** should create legal and institutional frameworks that recognize CSOs as formal technical partners in investigations, including by developing anonymized cooperation pathways that allow organizations to share evidence without being publicly identified as the source, a critical safeguard in contexts where investigated actors have the means to retaliate.

- **Donors** should fund not only the technical tools CSOs use to produce evidence, but also the relationship-building work needed to establish and maintain cooperation with prosecutorial institutions – through joint workshops, multi-year engagement grants, and support for coordination costs.

## 5. Develop and fund long-term litigation and legal support mechanisms

Strategic litigation is one of the most powerful tools available to civil society, but its high cost and long duration place it beyond the reach of most organizations operating in the Amazon.

- **CSOs** should identify cases where prior monitoring and documentation involvement positions them as credible contributors to litigation, and should map past cases with positive outcomes to extract replicable legal strategies. Participation as *amicus curiae* or technical expert, rather than lead litigant, offers a lower-cost entry point that maximizes impact without requiring organizations to absorb the full burden of legal proceedings.
- **Governments** should ensure that legal frameworks in each country allow for CSO participation in environmental litigation, including as *amicus curiae*, and should create dedicated environmental courts or specialized chambers where these cases can be heard by judges with relevant expertise.
- **Donors** should fund training programs that build CSO capacity to navigate both national legal routes and international mechanisms such as the IACHR, ensuring that organizations are aware of and able to access the full range of available legal pathways before they are needed. Donors should also consider funding structures that allow for multi-year legislative engagement. Short funding cycles are particularly damaging at this stage because legal reform depends on accumulated relationships and institutional trust that cannot be rebuilt quickly, and organisations that disappear between funding rounds lose access that takes years to rebuild.

## 6. Expand specialized capacity-building for judicial and administrative operators

Even where strong evidence exists and formal cooperation mechanisms are in place, cases frequently stall at the adjudication stage due to a lack of judicial and prosecutorial capacity to interpret complex environmental, spatial, and financial data.

- **CSOs** should expand their role in training judges, prosecutors, and environmental police, moving beyond basic environmental law to cover the mechanics of transnational organized crime, commodity laundering, and the interpretation of geospatial and financial evidence. The Mining Impacts Calculator, developed by CSF and adapted across nearly all Amazonian countries, is a model for how CSO-developed tools can become embedded in judicial practice.
- **Governments** should institutionalize environmental crime capacity-building as a recurring component of judicial and prosecutorial training, rather than a one-off intervention dependent on CSO or donor initiative.
- **Donors** should fund the development and adaptation of technical tools, such as damage quantification models, geospatial evidence monitoring, and legal translation guides, that CSOs can deploy repeatedly across jurisdictions, reducing the cost of each individual capacity-building intervention and allowing organizations to scale their impact. Donors should also fund dedicated communications capacity within CSOs — including staff, tools, and training — recognizing that evidence which never reaches the public has limited accountability impact, yet communications functions are consistently treated as overhead rather than as core programmatic work.

## 7. Address environmental defenders' safety through institutional protection and adaptive civil society strategies

The documentation of environmental crimes carries severe security risks. Without adequate protection, the accountability pipeline loses its most essential actors.

- **CSOs** should develop internal security protocols, including encrypted communications, chain-of-information structures that shield field monitors from direct attribution, and collective publication strategies that distribute reputational risk across multiple organizations. In politically hostile environments, operating through coalitions or academic networks can maintain pressure for accountability while reducing direct exposure.
- **Governments** should strengthen State protection protocols for environmental defenders, recognize the specific criminal nature of violence against them, and create legal frameworks, including confidential informant status for CSOs in high-risk contexts, that allow organizations to cooperate with authorities without placing their staff or partners at risk.
- **Donors** should treat security budgets as non-negotiable line items in CSO grants, allowing for flexible allocations dedicated specifically to the physical and digital security of field researchers, community leaders and overall staff. This should be seen as a step in the due diligence process of granting a dedicated fund for environmental defenders in the region.

## 8. Track sentencing and the execution of sanctions to close the accountability loop

Generating evidence and securing legal judgments are insufficient if sanctions are not enforced. The final stage of the pipeline, execution of sentences and compliance monitoring, remains the least resourced and least documented in the region.

- **CSOs** should dedicate resources to systematically tracking the implementation of judicial rulings and administrative penalties, building on models such as Monitor da Fiscalização and JusAmazônia in Brazil, and working to adapt these approaches to other Amazonian countries.
- **Governments** should establish open reporting mechanisms on the enforcement of environmental sanctions, making compliance data publicly available so that CSOs and citizens can independently verify whether rulings are being implemented.
- **Donors** should prioritize initiatives that monitor compliance and publicly highlight implementation gaps, recognizing that the deterrent effect of the entire accountability pipeline depends on sanctions being visibly enforced.

## 9. Support trans-Amazonian civil society initiatives and Pan-Amazonian exchange platforms

The transnational nature of environmental crime networks requires a civil society response that is equally transnational in its coordination, knowledge-sharing, and advocacy.

- **CSOs** should actively seek partnerships with organizations in other Amazonian countries, contributing to and drawing on shared legal strategies, monitoring approaches, and lessons from engagement with enforcement institutions. This helps reduce duplication and accelerate the spread of effective practices across the region and in specific issues CSOs aim to tackle on environmental crimes.

- **Governments** should encourage and formally recognize trans-Amazonian civil society collaboration, including by creating institutional spaces, within ACTO and other regional bodies, where CSO findings can be presented, discussed, and integrated into intergovernmental enforcement strategies.
- **Donors** should fund projects that include CSOs from more than one Amazonian country, and should resource dedicated Pan-Amazonian exchange platforms that enable regular consultation among organizations across all eight Amazonian countries, treating regional coordination as a programmatic priority rather than an add-on.

## Annex I. Detailed methodology

### Survey

To map the landscape of Civil Society Organizations (CSOs) operating across the eight Amazonian countries, an initial desk-based mapping was conducted using the Amazon Conservation Association's (ACA) existing regional network. This step aimed to identify active organizations and ensure broad geographic coverage. Building on this preliminary mapping, a structured survey was designed to systematically collect comparable information on CSOs engaged in the prevention, monitoring, and response to nature-related crimes. The survey was disseminated through ACA's partner networks and publicly shared via ACA's social media channels to reach both long-standing partners and organizations outside ACA's immediate network.

The questionnaire comprised 56 questions organized into seven thematic sections. Section 1 captured core organizational characteristics, including countries and regions of operation, year of establishment, organizational size, principal areas of work, and legal status. Section 2 focused on the organization's engagement with nature-related crimes, identifying the types of crimes addressed, primary intervention approaches, and the data collection tools and methodologies employed. Section 3 examined data use, with questions aimed at understanding whether and how organizations collect data on environmental crimes and the purposes for which such data is used, including advocacy, litigation, or policy engagement.

Sections 4 and 5 addressed legal capacity, covering organizational access to legal representation, prior involvement in legal actions, and the availability of internal or external legal support and training. Section 6 explored the main operational, institutional, and contextual challenges faced by CSOs working on environmental crime. Finally, Section 7 examined participation in partnerships, networks, and collaborative initiatives, with a view to understanding coordination dynamics and opportunities for collective action across the region.

The survey followed a non-probabilistic sampling approach and was distributed through existing professional and organizational networks. As such, the findings are not intended to be statistically representative of all CSOs operating in the Amazon region, but rather to provide an indicative and exploratory overview of organizational profiles, capacities, and challenges among active organizations working on nature-related crimes.

In total, 41 responses were collected from CSOs with operations spanning all eight Amazonian countries. Survey data was analyzed descriptively to identify recurring patterns and gaps, and responses were treated in aggregate to avoid attribution of sensitive information.

## Interviews

Following the survey phase, semi-structured interviews were conducted with a selected group of CSOs to deepen and contextualize the findings. From the 41 organizations that responded to the survey, 10 were selected for this second phase based on their affirmative response to having engaged in legal actions related to environmental or nature-related crimes at the national, regional, or international level. This selection criterion aimed to capture more detailed insights into legal strategies, institutional interactions, and implementation challenges.

In addition, a limited number of interviewees who did not fall within the initial group of ten organizations were included to ensure representation across all Amazonian countries. These additional interviewees were selected from the Amazon Conservation Association's partner network.

The semi-structured format combined a common set of 24 guiding questions with the flexibility to explore issues raised by interviewees in greater depth or to refrain from asking some questions in the cases they were not relevant for the interviewee. This approach ensured comparability across interviews while accommodating variation in organizational mandates, national contexts, and types of legal engagement.

Interviews focused on topics including organizational experience with litigation and legal complaints, interactions with judicial and administrative authorities, barriers to legal action, enforcement dynamics, perceptions of the effectiveness of existing legal and policy frameworks, and governmental relationship with CSOs in the interviewee country.

### List of CSOs interviewed

|                                                                                      |                     |
|--------------------------------------------------------------------------------------|---------------------|
| La Alianza Amazónica para la Reducción de los Impactos de la Minería de Oro (AARIMO) | Colombia            |
| Conservación Amazónica (ACCA)                                                        | Peru                |
| Fundación para la Conservación y el Desarrollo (FCDS)                                | Colombia<br>Peru    |
| Derecho, Ambiente y Recursos Naturales (DAR)                                         | Peru                |
| Conservación Amazónica (ACEAA)                                                       | Bolivia             |
| Grupo Interinstitucional de Trabajo en Oro Responsable (GIT-OR)                      | Bolivia             |
| Amazon Conservation Team (ACT)                                                       | Guyana and Suriname |
| EcoCiencia                                                                           | Ecuador             |
| Fundación Rio Napo                                                                   | Ecuador             |
| Instituto Centro Vida (ICV)                                                          | Brasil              |
| Instituto de Desenvolvimento Social (ISD)                                            | Brasil              |
| Instituto Igarapé                                                                    | Brasil              |
| Instituto Socioambiental (ISA)                                                       | Brasil              |
| Grupo de Trabajo Indígena (Universidad de los Andes)                                 | Venezuela           |

|             |           |
|-------------|-----------|
| SOS Orinoco | Venezuela |
|-------------|-----------|

**List of respondents to the survey**

|                                                                                                                                                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alianza Amazónica para la Reducción de los Impactos de la Minería de Oro (AARIMO)                                                                                                                                                                       |
| Instituto Centro de Vida (ICV)                                                                                                                                                                                                                          |
| Fundación Ecuatoriana de Estudios Ecológicos - EcoCiencia                                                                                                                                                                                               |
| Conservación Amazonica-ACEAA                                                                                                                                                                                                                            |
| Earth Genome                                                                                                                                                                                                                                            |
| World Wildlife Fund- WWF Ecuador                                                                                                                                                                                                                        |
| SOSOrinoco                                                                                                                                                                                                                                              |
| Instituto Socioambiental (ISA)                                                                                                                                                                                                                          |
| Forest Peoples Programme (FPP) - Peru                                                                                                                                                                                                                   |
| Sociedad Boliviana de Derecho Ambiental (SBDA)                                                                                                                                                                                                          |
| Amazon Rainforest Conservancy (ARC) is the registered Canadian charity working in partnership with two Peruvian non-profit sister organizations: Amazon Rainforest Conservancy Northern Peru (ARCNP) and Peruvian Amazon Rainforest Conservancy (PARC). |
| Clima21                                                                                                                                                                                                                                                 |
| Asociación COLNODO                                                                                                                                                                                                                                      |
| Ada associação dos trabalhadores rurais Deus é amor região da taboca.                                                                                                                                                                                   |
| Biome Conservation (International Conservation Fund of Canada)                                                                                                                                                                                          |
| Fundación Rio Napo                                                                                                                                                                                                                                      |
| Asociación Civil Centro de Capacitación y Gestión Comunitaria La Cosecha.                                                                                                                                                                               |
| Camara de Minería del Ecuador                                                                                                                                                                                                                           |
| Guardianes del Bosque                                                                                                                                                                                                                                   |
| Center for Climate Crime Analysis (CCCA)                                                                                                                                                                                                                |
| Programa de Promoción de los Derechos Indígenas en Venezuela "Wayamoutheri"                                                                                                                                                                             |
| Conservación Amazónica - ACCA                                                                                                                                                                                                                           |
| Grupo de Trabajo sobre Asuntos Indígenas (GTAI) Universidad de Los Andes                                                                                                                                                                                |
| Amazon Conservation Team (ACT)                                                                                                                                                                                                                          |
| Observatório do Código Florestal                                                                                                                                                                                                                        |
| Proética- Peruvian Chapter of Transparency International                                                                                                                                                                                                |
| SOS Amazônia                                                                                                                                                                                                                                            |
| Conservation Strategy Fund (CSF)                                                                                                                                                                                                                        |
| Observatório BR-319                                                                                                                                                                                                                                     |
| Fundación Natura Colombia                                                                                                                                                                                                                               |
| Universidad Católica Andrés Bello                                                                                                                                                                                                                       |
| United Nations Office on Drugs and Crime (UNODC)                                                                                                                                                                                                        |

|                                                                                 |
|---------------------------------------------------------------------------------|
| Fundación para la Conservación y el Desarrollo Sustentable (FCDS)               |
| Gaia Amazonas                                                                   |
| Derecho, Ambiente y Recursos Naturales (DAR)                                    |
| Wildlife Conservation Society Programa Ecuador                                  |
| Amazon Conservation Team Guianas                                                |
| South Rupununi Conservation Society                                             |
| Red CORAL (Red de monitoreo y análisis del Crimen Organizado en América Latina) |
| Kanuku Mountains Community Representative Group                                 |
| Amazon Underworld                                                               |

## Annex II. Directory of examples of civil society contributions

| Organization<br>(Country)                     | Examples of<br>contributions                                                                                                                                                                                                                                                                                                                                                                                                   | Contribution<br>type                                                                                                         | Geographical<br>scope or<br>coordinates | Link to<br>organization<br>/resource                               |
|-----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------------------------------------------------|
| Instituto Centro<br>de Vida - ICV<br>(Brazil) | <p>1. Engages in advocacy efforts using documented evidence from its illegal logging monitoring system (Simex) to influence legislative processes and establish technical cooperation with State secretariats in Mato Grosso.</p> <p>2. Cross-checked forest loss data with official deforestation permits to document unauthorized clearing.</p> <p>3. Transforms technical information into "digestible" technical notes</p> | Advocacy,<br>Independent<br>monitoring &<br>detection,<br>Legality Analysis,<br>Sharing of<br>evidence, Court<br>proceedings | Brazil                                  | <a href="https://www.icv.org.br/">https://<br/>www.icv.org.br/</a> |

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|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------|-------------------------------------------------------------|
|                                                                 | <p>and evidence for overloaded prosecutors and judges who lack environmental expertise.</p> <p>4. Pursuing participation as amicus curiae in the "Soy Moratorium" landmark case before the Supreme Federal Court to provide technical analysis on the environmental impacts of deforestation.</p> |                                    |         |                                                             |
| Centro de Documentación e Información Bolivia - CEDIB (Bolivia) | <p>Successfully advocated for the creation of specific legal frameworks targeting illicit supply chains, resulting in Supreme Decree 4959 (2023), which targets the illegal mercury trade associated with gold mining.</p>                                                                        | Independent monitoring & detection | Bolivia | <a href="https://www.cedib.org/">https://www.cedib.org/</a> |
| Sociedad Peruana de Derecho Ambiental - SPDA (Peru)             | <p>Advocates for integrating organized crime frameworks into environmental law, leading to the formal inclusion of wildlife and flora trafficking into Peru's organized crime framework</p>                                                                                                       | Advocacy                           | Peru    |                                                             |

|                                       |                                                                                                                                                                                                                                                                              |                             |                  |                                                                                               |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------|-----------------------------------------------------------------------------------------------|
|                                       | in 2022 (Law. N. 31622).                                                                                                                                                                                                                                                     |                             |                  |                                                                                               |
| Igarapé Institute (Brazil / Regional) | Reframes environmental harm as a security issue, driving policy changes through high-level decision-makers and "discreet diplomacy," resulting in the inclusion of nature crime in the Belém Declaration of 2023 and the creation of a Public Safety commission within OTCA. | Advocacy                    | Brazil/ Regional | <a href="https://igarape.org.br/en/">https://igarape.org.br/en/</a>                           |
| AARIMO + Igarapé                      | Published a report recommending a minimum legal and regulatory framework for the gold supply chain across Amazon countries to address regulatory loopholes.                                                                                                                  | Advocacy                    | Regional         | <a href="https://gaiaamazonas.org/aliado/aarimo/">https://gaiaamazonas.org/aliado/aarimo/</a> |
| Amazon Mining Watch                   | 1. Constructs a criteria-based assessment of legal frameworks to evaluate national efforts against illegal gold mining, encouraging policy emulation and convergence among countries.                                                                                        | Advocacy, Legality Analysis | Regional         | <a href="https://amazonminingwatch.org/">https://amazonminingwatch.org/</a>                   |

|                    |                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                       |          |                                                                               |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------|-------------------------------------------------------------------------------|
|                    | 2. Cross-references satellite imagery of mining sites with national legal requirements for artisanal and small-scale mining to assess compliance, enabling the prioritization of cases and supporting enforcement efforts.                                                                                                                                                                                             |                                                       |          |                                                                               |
| MapBiomass Network | <p>1. Produces publicly accessible land-use and environmental datasets based on satellite imagery on deforestation and forest cover change, and machine learning analysis, aggregating data from multiple partners across all Amazonian countries.</p> <p>2. Validates alerts using high-resolution imagery and cross-references them with territorial datasets (e.g., rural property registries, protected areas,</p> | Independent monitoring & detection, Legality Analysis | Regional | <a href="https://amazonia.mapbiomas.org/">https://amazonia.mapbiomas.org/</a> |

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                          |          |                                                                             |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|----------|-----------------------------------------------------------------------------|
|                                                          | embargoes).<br>Uses a "law enforcement dashboard" method to identify alerts without authorizations as an "indication of illegality." (Alerts undergo manual validation before publication, typically requiring 30–90 days from initial detection.)                                                                                                                                                                                                      |                                                                          |          |                                                                             |
| Monitoring of the Andes Amazon Program - MAAP (Regional) | <p>1. Combines high- and medium-resolution satellite imagery, drone data, radar, and AI-assisted algorithms to produce rapid-response analyses of illegal mining, logging and deforestation across all eight Amazonian countries, with a focus on cross-border hotspots in collaboration with ACCA, ACEAA, ACT, and EcoCiencia.</p> <p>2. Documented extensive illegal gold mining in Yapacana National Park, gaining international visibility that</p> | Independent monitoring & detection, Sharing of evidence with authorities | Regional | <a href="https://www.maaprogram.org/es/">https://www.maaprogram.org/es/</a> |

|                                                          |                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                            |           |                                                                           |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------|
|                                                          | <p>contributed to triggering a military intervention to dismantle mining camps in 2022.</p> <p>3. Delivers confidential intelligence reports to government agencies and law enforcement to support field enforcement operations, in addition to public-facing analyses.</p>                                                                                                                         |                                                                            |           |                                                                           |
| Grupo de Trabajo de Asuntos Indígenas - GTAI (Venezuela) | <p>Operates primarily as an academic initiative to provide legal assistance to Indigenous communities, navigating restrictive political environments.</p> <p>1. Triangulates satellite imagery with primary evidence from Indigenous communities, who provide information on illegal mining activities, including georeferenced locations and details of those involved.</p> <p>2. Utilizes the</p> | Independent monitoring & detection, Sharing of evidence, Court proceedings | Venezuela | <a href="https://gtaiula.blogspot.com/">https://gtaiula.blogspot.com/</a> |

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|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                     | <p>Special Indigenous Jurisdiction to help communities resolve conflicts and respond to territorial threats where State institutions are weak or absent.</p> <p>3. Brought a complaint before the IACHR in 2016 denouncing the State's failure to guarantee the right to a healthy environment in the Orinoco region.</p> |                                    |                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Amazon Conservation Team - ACT (Guyana / Suriname)  | Triangulates satellite imagery with primary evidence from Indigenous communities, who provide information on illegal mining activities, including georeferenced locations and details of those involved.                                                                                                                  | Independent monitoring & detection | Guyana<br>Suriname | <a href="https://www.amazonteam.org/?gad_source=1&amp;gad_campaignid=22051554362&amp;gbraid=0AAAAADlqcmfIP6N3ac9IUpaqWwC8LVGw2&amp;gclid=CjwKCAjw2rrQBhBuEiwAarLWHcQAgAiFsXurmKimZEDesPf1rWgWhzB9-BC04muiGmDKhRboLZRgWhoCpPQQAvD_BwE">https://www.amazonteam.org/?gad_source=1&amp;gad_campaignid=22051554362&amp;gbraid=0AAAAADlqcmfIP6N3ac9IUpaqWwC8LVGw2&amp;gclid=CjwKCAjw2rrQBhBuEiwAarLWHcQAgAiFsXurmKimZEDesPf1rWgWhzB9-BC04muiGmDKhRboLZRgWhoCpPQQAvD_BwE</a> |
| Fundación EcoCiencia & Fundación Río Napo (Ecuador) | Relies on community alerts and local monitoring networks, illustrating the central role of local knowledge in documenting                                                                                                                                                                                                 | Independent monitoring & detection | Ecuador            | <a href="https://www.kayakecuador.com/Jondachi%20Fest/Informacion_esp.htm">https://www.kayakecuador.com/Jondachi%20Fest/Informacion_esp.htm</a>                                                                                                                                                                                                                                                                                                                       |

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|-------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                               | environmental crimes in remote territories.                                                                                                                                                                                                                                                                                                                                                                                        |                                                         |        |                                                                                                                                                          |
| Conservación Amazónica - ACCA (Peru)                                          | <p>1. Creates initiatives to strengthen the technical and operational capacities of public officials (e.g., OSINFOR, GERFOR), environmental judges, prosecutors, and Indigenous organizations in forest governance.</p> <p>2. Uses the Radar Mining Monitoring platform (RAMI), created with the Illegal Mining Observatory coalition, relying on Sentinel-1 radar to detect mining-related deforestation through cloud cover.</p> | Independent monitoring & detection, Sharing of evidence | Peru   | <a href="https://acca.org.pe/">https://acca.org.pe/</a>                                                                                                  |
| Instituto Socioambiental - ISA & Hutukara Yanomami Association - HAY (Brazil) | 1. Combines remote sensing with the collaborative alert system "Wãñori," allowing Indigenous monitors to publicly report (to authorities, partners and the press) incidents using a mobile                                                                                                                                                                                                                                         | Independent monitoring & detection                      | Brazil | <a href="https://socioambiental.org/en/">https://socioambiental.org/en/</a><br><a href="https://hutukarayanomami.org/">https://hutukarayanomami.org/</a> |

|                                                 |                                                                                                                                                                                                                                                                       |                                    |                     |                                                                                   |
|-------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------------|-----------------------------------------------------------------------------------|
|                                                 | <p>app, radio, or WhatsApp.</p> <p>2. Collaborated to consistently expose the scale of environmental degradation and its impacts on Indigenous health through publicly accessible reports, which served as technical evidence in strategic litigation (ADPF 709).</p> |                                    |                     |                                                                                   |
| AARIMO                                          | Operates as a coalition of six organizations to collect data (e.g., images of mining barges) and facilitate information-sharing among civil society actors, creating a bridge for collaboration based on data.                                                        | Independent monitoring & detection | Colombia / Regional |                                                                                   |
| Center for Climate Crime Analysis - CCCA (Peru) | Formalized cooperation with the Public Prosecutor's Office to strengthen its capacity to address environmental crimes, providing specialized technical expertise and geospatial analysis for                                                                          | Legality Analysis                  | Peru                | <a href="https://climatecrimeanalysis.org/">https://climatecrimeanalysis.org/</a> |

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |         |                                                                                                     |
|---------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------|-----------------------------------------------------------------------------------------------------|
|                                                   | complex investigations.                                                                                                                                                                                                                                                                                                                                                                                                              |                                        |         |                                                                                                     |
| WWF (Brazil)                                      | Combined satellite monitoring with mining cadastre data to identify mining operations occurring outside authorized areas.                                                                                                                                                                                                                                                                                                            | Legality Analysis                      | Brazil  | <a href="https://www.wwf.org.br/">https://<br/>www.wwf.org.br/</a>                                  |
| Instituto Centro de Vida - ICV/ObservaMT (Brazil) | <p>1. Transforms technical information into "digestible" technical notes and evidence for overloaded prosecutors and judges who lack environmental expertise.</p> <p>2. Carefully manages public campaigns to protect Cristalino State Park in Mato Grosso to avoid violence against defenders, successfully creating a "fragile protection barrier" that led to the reopening of a legal case concerning the Park's protection.</p> | Sharing of evidence                    | Brazil  | <a href="https://observamt.org.br/">https://<br/>observamt.org.br/</a>                              |
| Conservación Amazónica - ACEAA                    | 1. Interprets geospatial data and satellite imagery, presenting findings in accessible formats for                                                                                                                                                                                                                                                                                                                                   | Sharing of evidence, Court proceedings | Bolivia | <a href="https://conservacionamazonica.org.bo/">https://<br/>conservacionama<br/>zonica.org.bo/</a> |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                       |         |                                                                                                                                                 |
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|                                    | <p>judicial authorities. Documented deforestation linked to illegal mining in Madidi National Park, supporting administrative complaints that led to precautionary legal action before the Bolivian Agro-Environmental Tribunal.</p> <p>2. Participated as amicus curiae, providing geospatial evidence documenting mining-driven deforestation to the Agro-Environmental Tribunal, leading to the recognition of the Tuichi River as a subject of rights.</p> |                                       |         |                                                                                                                                                 |
| Fundación Río Napo - FRN (Ecuador) | <p>1. Systematically documents illegal activities and submits evidence to regulatory agencies, building a continuous record that authorities cannot ignore.</p> <p>2. Used international visibility of MAAP</p>                                                                                                                                                                                                                                                | Sharing of evidence, Public campaigns | Ecuador | <a href="https://www.kayakecuador.com/Jondachi%20Fest/Informacion_esp.htm">https://www.kayakecuador.com/Jondachi%20Fest/Informacion_esp.htm</a> |

|                                                                         |                                                                                                                                                                                                                                                                                                                                                                                   |                                                         |         |                                                               |
|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|---------|---------------------------------------------------------------|
|                                                                         | reports on deforestation and gold mining to pressure the government, resulting in a resolution banning all mining activities in the Napo region.                                                                                                                                                                                                                                  |                                                         |         |                                                               |
| Fundación EcoCiencia (Ecuador)                                          | <p>1. Formally submits gathered monitoring information to multiple relevant government institutions, including the Environmental Ministry, Mining Regulatory Agency, and Prosecutor's Office.</p> <p>2. Relies on community alerts and local monitoring networks, illustrating the central role of local knowledge in documenting environmental crimes in remote territories.</p> | Sharing of evidence, Independent monitoring & detection | Ecuador | <a href="https://ecociencia.org/">https://ecociencia.org/</a> |
| Fundación para la Conservación y el Desarrollo Sostenible - FCDS (Peru) | Organizes joint capacity-building initiatives for public prosecutors from FEMA, integrating technical, evidentiary, and                                                                                                                                                                                                                                                           | Sharing of evidence                                     | Peru    | <a href="https://fcds.org.pe/">https://fcds.org.pe/</a>       |

|                                   |                                                                                                                                                                                                                                                                                                                                                                                                        |                                        |           |                                                                     |
|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|-----------|---------------------------------------------------------------------|
|                                   | operational training on satellite imagery and financial analysis.                                                                                                                                                                                                                                                                                                                                      |                                        |           |                                                                     |
| Guardianes del Bosque (Venezuela) | Operates informally as a community-based initiative to protect a municipal park from deforestation, reporting illegal logging to the National Guard and Army despite political constraints.                                                                                                                                                                                                            | Sharing of evidence                    | Venezuela |                                                                     |
| SOS Orinoco (Venezuela)           | <p>1. Operates institutionally through legally registered entities outside Venezuela to systematically document environmental crimes, mitigating risks associated with the country's weakened rule of law.</p> <p>2. Participated in public hearings before the Inter-American Commission on Human Rights (IACHR) and provided technical input to UN reporting processes to mobilize international</p> | Sharing of evidence, Court proceedings | Venezuela | <a href="https://sosorinoco.org/es/">https://sosorinoco.org/es/</a> |

|                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                       |        |                                                                             |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------|-----------------------------------------------------------------------------|
|                                         | scrutiny on illegal mining impacts.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                       |        |                                                                             |
| Instituto Socioambiental - ISA (Brazil) | <p>1. Contributed technical analyses and monitoring data (geospatial evidence, health data) in constitutional litigation (ADPF 709) demonstrating links between illegal mining and Indigenous vulnerability.</p> <p>2. Produces public-facing reports with accessible language to raise awareness, make issues visible, and pressure authorities facing political opacity, while also using these reports as a basis for legal action.</p> <p>3. Partnered with political parties and Greenpeace, using technical documentation to challenge federal government measures (timber export authorizations, Amazon Fund suspension) during the COVID-19</p> | Sharing of evidence, Public campaigns | Brazil | <a href="https://socioambiental.org/en/">https://socioambiental.org/en/</a> |

|                                                         |                                                                                                                                                                                                                                             |                   |          |                                                                                             |
|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|---------------------------------------------------------------------------------------------|
|                                                         | pandemic.                                                                                                                                                                                                                                   |                   |          |                                                                                             |
| Amazon Environmental Research Institute - IPAM (Brazil) | Developed the CCAL calculator to quantify climate damage (carbon released) from illegal deforestation and translate it into monetary values to support compensation determinations in legal proceedings.                                    | Court proceedings | Brazil   | <a href="https://ipam.org.br/en/">https://ipam.org.br/en/</a>                               |
| Conservation Strategy Fund - CSF (Regional)             | Developed deforestation and Mining Impacts Calculators to estimate financial losses and economic impacts, strengthening the evidentiary basis of legal and administrative actions for all Amazonian countries (with exception of Venezuela) | Court proceedings | Regional | <a href="https://www.conservation-strategy.org/">https://www.conservation-strategy.org/</a> |
| Dejusticia (Colombia)                                   | Supported 25 children and young people in a landmark case where the Supreme Court declared the Colombian Amazon a subject of rights, leading to a temporary decline in deforestation in                                                     | Court proceedings | Colombia | <a href="https://www.dejusticia.org/">https://www.dejusticia.org/</a>                       |

|                                                                          |                                                                                                                                                                                                                                                                                                                 |                       |         |                                                                                                                                               |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                          | 2018.                                                                                                                                                                                                                                                                                                           |                       |         |                                                                                                                                               |
| Independent legal counselor (Bolivia)                                    | Filed a complaint before the Inter-American human rights system after domestic prosecutors refused to investigate forest fires, resulting in an IACHR report recommending State investigation and prosecution.                                                                                                  | Court proceedings     | Bolivia |                                                                                                                                               |
| Monitor da Fiscalização - Coalition: ICV, MapBiomias, Brazil.IO (Brazil) | Tracks the implementation of environmental enforcement actions and sanctions, making enforcement data publicly accessible.                                                                                                                                                                                      | Systematic assessment | Brazil  | <a href="https://plataforma.alerta.mapbiomas.org/monitor-da-fiscalizacao">https://plataforma.alerta.mapbiomas.org/monitor-da-fiscalizacao</a> |
| JusAmazônia (Brazil)                                                     | 1. Functions as a search and monitoring tool that compiles dispersed judicial information, allowing users to track the progress of environmental cases across different courts and understand how disputes evolve.<br><br>Cross-references relevant data within its database to identify patterns and trends in | Systematic assessment | Brazil  | <a href="https://www.jusamazonia.org.br/">https://www.jusamazonia.org.br/</a>                                                                 |

|  |                                                                                           |  |  |  |
|--|-------------------------------------------------------------------------------------------|--|--|--|
|  | environmental litigation, supporting research and the development of new public policies. |  |  |  |
|--|-------------------------------------------------------------------------------------------|--|--|--|

## Notes

1. “The definition of “environmental crime” is not universally agreed, but it is often understood as a collective term to describe illegal activities harming the environment and aimed at benefitting individuals or groups our companies from the exploitation of, damage to, trade of thought of natural resources, including serious crimes and transnational organized crime.” More information in: Henriksen, R., Kreilhuber, A., Stewart, D., Kotsoy, M., Raxter, P., Mrema, E., and Barrat, S. (Eds). 2016. The Rise of Environmental Crime – A Growing Threat To Natural Resources Peace, Development And Security. A UNEPINTERPOL Rapid Response Assessment. United Nations Environment Programme and RHIPTO Rapid Response–Norwegian Center for Global Analyses, [www.rhipto.org](http://www.rhipto.org)
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26. The terms "Nature crime" and "environmental violation" are used distinctly throughout this report. "Nature crime" refers specifically to acts that constitute criminal offences under domestic law and are subject to criminal sanctions such as fines or imprisonment. "Environmental violation," by contrast, is a broader category that encompasses any breach of environmental regulations, including administrative infractions that may not rise to the threshold of criminal liability but nonetheless trigger regulatory responses such as administrative penalties, permit revocations, or remediation orders. Monitoring and detection activities by CSOs may identify both types of breach; the subsequent accountability pathway (criminal prosecution or administrative enforcement) will depend on the legal classification of the act in each national jurisdiction. For more information, see Chapter III.
27. Remote sensing technologies refer to methods of collecting data about the Earth's surface from a distance, typically through satellite imagery, aerial photography, or drone-based sensors. In the context of environmental monitoring, these tools are used to detect changes in land cover, identify deforestation, map mining activity, and track other forms of environmental degradation without requiring physical presence in the field. Commonly used platforms include Sentinel-1 and Sentinel-2 (European Space Agency), Landsat (NASA/USGS), and commercial high-resolution imagery providers, as well as processed alert systems such as Global Forest Watch and MapBiomas that build analytical layers on top of raw satellite data.
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## Chapter III. Enabling conditions for government engagement — Comparative assessment

### Introduction

This report presents a comparative assessment of the enabling conditions for civil society engagement with governments to combat Nature crime across eight Amazonian countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela.

The assessment draws on country profile research conducted by ILP through its global network of pro bono legal experts, including contributions from leading international law firms and country-based legal practitioners. This legal research was complemented by qualitative inputs from interviews with civil society organisations (CSOs) and environmental practitioners active in each jurisdiction, providing ground-level evidence on enabling conditions for collaboration with governments and the continuity of nature crime enforcement across different administrations (see [Annex I](#) for a complete overview of each country's legislation).

The report examines five dimensions of the enabling environment for civil society engagement:

- **Civil society status** – the legal space in which CSOs operate, including freedom of association, transparency, and implementation of the Escazú Agreement<sup>1</sup>.
- **Institutional landscape** – the public authorities responsible for monitoring, enforcement and prosecution, and how their mandates interact.
- **Legal pathways** – the administrative, criminal and constitutional mechanisms through which CSOs can hold the State accountable and compel enforcement.
- **Remote sensing evidence** – the admissibility of satellite-derived evidence, a growing area of CSO contribution and a key determinant of effective cooperation.
- **Challenges in engagement with authorities** – the structural, procedural and political constraints that limit cooperation in practice.

In line with the broader framework within which this report sits, the analysis focuses on three prevalent manifestations of Nature crime in the Amazon: illegal deforestation; environmental degradation linked to extractive and land-use activities; and threats or violence against environmental defenders. This report follows the same categories of nature crime as presented in [Chapter I](#), but for the purposes of this assessment they are grouped into three illegal deforestation; environmental degradation linked to extractive activities — encompassing illegal logging, illegal gold mining and the mercury contamination it generates; and threats or violence against environmental defenders. The grouping follows the logic of the assessment itself, since logging, mining and mercury pollution share the same legal pathways, institutional counterparts and remote-sensing evidence base, and so present a single enabling-environment profile, whereas deforestation and defender violence each map onto a distinct assessed dimension.

This report consists of two parts: **(i) a comparative assessment** of the eight countries across the dimensions listed above and **(ii) detailed “country profiles”**, with more detailed information relevant in their respective national context under these same dimensions, concluding with case examples of notable litigation and the use of remote sensing evidence.

## Methodology

The research for this report combines legal analysis, desk-based research, and qualitative inputs to map available legal routes, assess enabling conditions for collaboration, and identify patterns and gaps at both national and regional levels.

The assessment was developed and implemented in partnership with the International Lawyers Project (ILP), whose expertise in comparative environmental and human rights law underpins the legal and institutional dimensions of this component. ILP activated its global network of pro bono legal experts to conduct preliminary legal research on the legal routes, mechanisms, and remedies available to CSOs and Indigenous communities to defend environmental rights and challenge nature-related crimes. This research focused on each Amazonian country as a pilot jurisdiction and involved contributions from both leading international law firms and country-based legal practitioners.

ILP's legal partners conducted a comprehensive review of domestic, regional, and international legal frameworks applicable to nature crimes and associated human rights violations. The analysis mapped administrative and judicial remedies available to CSOs and Indigenous communities, including environmental enforcement mechanisms, constitutional and administrative litigation, criminal law provisions, and access to regional and international human rights systems. Particular attention was given to identifying which legal routes appear most promising in practice, based on recent case law, patterns of government action or inaction, and judicial receptiveness to environmental claims.

The four dimensions assessed together describe the structural conditions under which civil society can engage with public authorities on Nature crime. Each dimension captures a distinct enabling condition; taken together, they shape whether monitoring data, legal expertise and community testimony can move along the evidence-to-accountability pipeline described in [Chapter II](#). The order in which the dimensions are presented reflects a rough sequence of preconditions: the legal and physical space for CSOs to exist (civil society status); the existence of governmental counterparts to engage with (institutional landscape); the procedural mechanisms through which engagement can produce outcomes (legal pathways); and the admissibility of the most distinctive form of evidence civil society contributes in the Amazon today (remote sensing).

### Civil society status

This dimension assesses the baseline conditions for CSO existence and operation: whether organisations can register, operate and receive funding without disproportionate barriers; whether defenders and partner communities face threats, criminalisation or violence; and whether the State formally recognises environmental democracy obligations, including through the Escazú Agreement. The Agreement presents four pillars (access to environmental information, public participation in environmental decision-making, access to justice in environmental matters, and the protection of environmental defenders) which map directly onto the conditions a CSO needs in order to function. A State's posture towards Escazú, whether it has signed, ratified and begun to implement the Agreement or has remained outside it, therefore serves as a reliable proxy for its broader willingness to recognise and protect civil society's role in environmental governance. This formal posture is the strongest available indicator of a State's declared willingness, but formal commitment and operational reality regularly diverge. [Chapter II](#) shows that effective cooperation frequently rests on trust-based relationships with individual prosecutors. The *de facto* axis introduced below precisely capture that gap.

## Institutional landscape

Civil society engagement on Nature crime depends on having functional counterparts in government. This dimension assesses the legal mechanisms available to CSOs and affected communities when environmental violations are detected. It considers whether constitutional, administrative, civil and criminal routes provide accessible standing, remedies, enforcement tools and opportunities to obtain restoration or accountability.

## Legal pathways for civil society action on Nature crime

The legal toolkit available to CSOs and affected communities determines what they can do when potential environmental violations are detected: how accessible the mechanisms are and how broadly they grant standing to non-State actors decides whether documentation translates into enforcement, restoration, precedent, or recognition of rights violations. This is also where regional diversity is most visible across the Amazon, with the civil-law systems of Brazil and Colombia, Guyana's common-law tradition, Ecuador's rights-of-nature constitutionalism, and Suriname's Dutch-law heritage differing substantively in architecture even where they converge on similar outcomes.

## Admissibility of remote sensing evidence

Across the Amazon, the scale of territory and limited state presence make satellite and other remote sensing data foundational to detecting Nature crime. This dimension assesses whether satellite and other remote sensing data can be used in domestic proceedings. In a region where vast territories and limited state presence make remote monitoring essential, admissibility determines whether CSO-generated evidence can support enforcement or remains limited to advocacy and international reporting.

### Comparative findings across dimensions

This section summarises the findings of the country profiles across five dimensions of the enabling environment for civil society engagement on nature crime. Of these, only three lend themselves to a comparative assessment of performance, and the classification developed here is confined to them: the status of civil society, the legal pathways available, and the admissibility of remote-sensing evidence. The remaining two dimensions, the institutional and regulatory landscape and the challenges of engagement with authorities, are treated descriptively in the profiles rather than ranked, because neither reduces to a defensible single scale of performance.

For each dimension, the section first defines the thresholds used to classify countries into three categories, as defined below, and then allocates each of the eight countries assessed to its corresponding category. Thresholds are grounded in the conditions documented in the country profiles, and reflect both formal legal-institutional features and observable patterns of practice. A summary table below consolidates the assessment across all five dimensions and provides a colour-coded overview.

## Summary comparative table

The table below consolidates the assessment across the five dimensions for the eight countries assessed. Green denotes a highly enabling environment, orange a moderately enabling environment, and red a challenging environment. The thresholds applied to each dimension are those set out in the corresponding subsections above.

| COUNTRY   | Civil Society Status  |                       | Legal pathways | Admissibility of remote sensing evidence |
|-----------|-----------------------|-----------------------|----------------|------------------------------------------|
|           | <i>de jure</i>        | <i>de facto</i>       |                |                                          |
| Bolivia   | Challenging           | Challenging           | Partial        | Emerging                                 |
| Brazil    | Moderately protective | Challenging           | Robust         | Firmly established                       |
| Colombia  | Highly protective     | Challenging           | Robust         | Emerging                                 |
| Ecuador   | Highly protective     | Challenging           | Robust         | Emerging                                 |
| Guyana    | Moderately protective | Highly protective     | Partial        | Emerging                                 |
| Peru      | Challenging           | Challenging           | Partial        | Emerging                                 |
| Suriname  | Moderately protective | Moderately protective | Partial        | Emerging                                 |
| Venezuela | Challenging           | Challenging           | Restricted     | Untested                                 |

## 1. Civil society status

For this dimension the assessment is built on two axes rather than a single rating: the *de jure* legal status of civil society organisations and the *de facto* civic conditions in which they operate. The two are scored separately because across the region they frequently diverge, as a protective legal framework can coexist with severely adverse operating conditions. Each axis is classified on the same three-tier scale: **Highly protective**, **Moderately protective**, and **Challenging**.

### 1.2. Civil society - de jure: legal status of CSOs

**THRESHOLDS.** The present assessment combines two components. The first is the regulatory regime for CSOs, the rules on NGO registration, funding, foreign cooperation, advocacy and dissolution, which determines how freely organisations can constitute themselves and operate. The second is the substantive environmental-rights framework, assessed against the core guarantees of the Escazú Agreement: access to environmental information, public participation in environmental decision-making, access to justice in environmental matters, and specific protection for environmental defenders, together with the formal commitment signalled by signature, ratification and a national implementation roadmap. This axis does not assess the practical effectiveness of those mechanisms, which is addressed separately under the *de facto* axis.

**Highly protective:** no restrictive NGO, funding or foreign-cooperation legislation in force, and a developed environmental-rights framework providing access to information, broad legal standing, public participation and specific protection for defenders, whether anchored in a ratified Escazú Agreement or in an equivalent domestic framework, supported by a formal implementation commitment.

**Moderately protective:** a generally functional legal framework for CSO operation, without restrictive legislation, but with significant formal gaps in the environmental-rights framework, such as non-ratification of Escazú and absence of a national roadmap, the lack of a dedicated statutory protection mechanism for defenders, partial or absent freedom-of-information guarantees, or residual discretionary powers over registration, reporting or dissolution.

**Challenging:** restrictive NGO, funding or foreign-cooperation legislation in force or recently enacted that formally constrains the registration, operation, financing, advocacy or dissolution of CSOs — regardless of the state of the environmental-rights framework, since such legislation directly limits the actors the framework is meant to enable.

## RESULTS:

**HIGHLY PROTECTIVE: Colombia and Ecuador.** Colombia has ratified and incorporated Escazú into domestic law, recognises constitutional rights to association, expression and participation, and has formal protection mechanisms such as the National Protection Unit. However, Article 77 of the 2022–2026 Colombian National Development Plan introduces registration and reporting obligations that have received criticism from CSOs because it could lead to the automatic dissolution of organizations that fail to comply with registration requirements. Ecuador is a party to the Escazú Agreement, has freedom-of-information legislation, recognises broad legal standing through the Rights of Nature framework, provides public participation in environmental matters, affords specific protection for environmental defenders through Decree 77, and submitted an implementation roadmap in 2023.

**MODERATELY PROTECTIVE: Brazil, Suriname and Guyana.** Brazil has a generally enabling framework for civil society organisations, including the Regulatory Framework for Civil Society Organization (Law 13.019/2014) and broad associational standing, but it has not ratified the Escazú Agreement and its protection programme for defenders remains weak in practice. Suriname does not have a restrictive NGO regime, but it remains wholly outside the Escazú Agreement and lacks a statutory protection mechanism for defenders. Guyana was the first State Party to ratify the Escazú Agreement and does not have restrictive NGO or funding legislation, however, there is neither a dedicated protection mechanism for environmental defenders nor an implementation roadmap.

**CHALLENGING: Bolivia, Peru and Venezuela.** Bolivia's Law 351 and its implementing decrees require organisations to align their statutes with government-defined economic and social development policies under threat of de-registration. Peru's Law 32301 classifies the use of international cooperation funds for actions against the State as a very serious infraction, while proposed expansion of APCI powers and non-ratification of Escazú further narrow the formal legal space for CSOs. Venezuela presents the most restrictive de jure framework, with the 2024 Anti-NGO and Anti-Solidarity Laws formally constraining civil society operation, financing and advocacy, alongside neither signature nor ratification of Escazú.

### 1.3. Civil society - de facto: operational conditions for CSOs in practice

**THRESHOLDS.** The de facto axis assesses the actual civic conditions in which CSOs, environmental defenders, Indigenous leaders, community monitors and other civil society actors operate in practice. It focuses on the incidence of lethal and non-lethal violence against environmental defenders; threats, intimidation, harassment and criminalisation; state retaliation against monitors; and the

practical ability of CSOs to conduct monitoring, advocacy, litigation and engagement with authorities without systematic risk.

This dimension incorporates the evaluation derived from CIVICUS Monitor, a platform launched in 2017<sup>2</sup> that rates the conditions for the freedoms of association, peaceful assembly and expression in 198 countries and territories, drawing on national CSOs, regional researchers, international human-rights indices and its own analysts. Each country is placed on a five-point scale running from the full enjoyment of these freedoms to their complete closure: open (rights enabled and protected), narrowed (broadly respected, with isolated violations), obstructed (legal and practical constraints, with CSOs undermined and journalists self-censoring), repressed (critics risk intimidation, detention or worse, and CSOs face de-registration), and closed (civic space shut, where exercising basic freedoms can bring imprisonment, injury or death). For the Amazonian countries analysed in this report, no country has been classified as “open”.

**Highly protective:** civic space is open or narrowed, and there is no systematic pattern of lethal violence, state retaliation, criminalisation or intimidation against environmental defenders, CSOs or community monitors.

**Moderately protective:** civic space is narrowed or subject to documented pressure, with threats, intimidation or sector-specific tensions affecting CSOs or defenders, but without a systematic pattern of lethal violence, state retaliation or closed/repressed civic space.

**Challenging:** civic space is classified as obstructed, repressed or closed; and/or there is a systematic pattern of lethal violence against environmental defenders; and/or there is documented state retaliation, criminalisation or severe harassment against monitors, defenders or CSOs.

## RESULTS:

### **HIGHLY PROTECTIVE: Guyana.**

Guyana presents the most favourable de facto civic conditions among the countries assessed. Civic space is classified by CIVICUS as “narrowed” (the second-best category after “open”), and there is no documented systematic pattern of lethal violence against environmental defenders. While rising pressure linked to the oil-and-gas sector is an emerging risk, the available evidence does not yet indicate a broader pattern of repression, state retaliation or systematic violence against environmental CSOs.

### **MODERATELY PROTECTIVE: Suriname.**

Suriname’s civic space is also classified as “narrowed” by CIVICUS. While threats have been reported against Saamaka leaders following the April 2024 concession, the country does not present the same systematic pattern of lethal violence, closed civic space or state retaliation documented in the more challenging cases and occupies a middle ground.

### **CHALLENGING: Colombia, Brazil, Ecuador, Peru, Bolivia and Venezuela.**

Colombia is classified by CIVICUS as “repressed” and has recorded the highest number of environmental defender killings worldwide, with 501 killings since 2012. This violence is closely linked to conflicts over land, illegal economies, armed groups and the post-conflict reopening of frontier areas.

Brazil is classified as “obstructed” by CIVICUS and has recorded 413 killings since 2012, concentrated in the Legal Amazon. The Brazilian case illustrates the gap between a relatively developed legal and institutional framework and the risks faced by those who expose illegal deforestation, land grabbing, illegal mining and violence in forest territories. Indigenous leaders, rural communities, local associations and environmental CSOs may have formal avenues to report violations, but in practice their work often takes place in territories where criminal networks and powerful economic actors exercise significant pressure.

Ecuador is classified as “obstructed” and has one of the highest per-capita rates of lethal attacks against environmental defenders in the region, against a backdrop of rising political violence since 2024. Peru has recorded the murder of 33 Indigenous leaders in the Peruvian Amazon over the past decade, with most cases unresolved, and has been evaluated as “repressed” by CIVICUS. Bolivia has been evaluated as “obstructed” by CIVICUS, as it presents documented state retaliation against environmental monitors, including the dismissal and prosecution of a park ranger who reported forest fires. Venezuela is classified as “closed” by CIVICUS and Centro de Defensores de la Justicia recorded approximately 979 attacks on defenders in 2024, making it the most restrictive de facto civic environment among the countries assessed.

## 2. Legal pathways for civil society action on Nature crime

**Thresholds.** This dimension assesses the availability of routes to accountability through constitutional, criminal, civil and administrative mechanisms through which CSOs and affected communities can hold the State accountable, compel enforcement, and obtain reparation for environmental harm. What distinguishes the categories is not the number of mechanisms a country can list but whether they combine into a usable pathway, that is, the breadth of the toolkit and of legal standing, and whether those mechanisms have been shown to function.

**Robust:** the toolkit is comprehensive across the constitutional, criminal, civil and administrative domains, standing is broad enough for CSOs and communities to activate it, and the pathway is demonstrably functional with landmark precedents showing these mechanisms producing enforceable accountability rather than existing only in principle.

**Partial:** most mechanisms available but with key gaps – narrower legal standing, recent legislative rollback eroding pre-existing protections, narrower toolkit, or untested mechanisms.

**Restricted:** no functional route to accountability survives, either because a framework that exists on paper is neutralised by judicial politicisation, or because the toolkit is so narrow, and precedent so absent, that no effective pathway exists.

### Classification.

**ROBUST:** Brazil, Colombia and Ecuador.

Colombia offers the richest toolkit in the region: a fast constitutional injunction to protect fundamental rights (tutela), a collective action defending shared interests such as a healthy environment (acción popular), an action to force public authorities to apply the law (acción de cumplimiento), a class action for damages (acción de grupo), criminal prosecution under a 2021 Environmental Crimes Law, and litigation to overturn unlawful permits. Its courts have gone furthest in recognising nature itself as deserving protection, declaring both the Colombian Amazon and the Atrato River “subjects of rights” that the State is legally bound to conserve and restore.

Ecuador rests on the most advanced constitutional foundation in the region: since 2008 its constitution grants nature itself enforceable rights, shifts the burden of proof onto those accused of environmental harm, allows anyone to sue in Nature's defence, and provides dedicated constitutional remedies. Two Constitutional Court rulings show this is more than principle, one halted mining in a protected cloud forest (Los Cedros), the other upheld an Indigenous community's say over mining on its land (Sinangoe).

Brazil's strength is procedural and institutional rather than rooted in any recognition of the rights of Nature, which its constitution does not grant. Civil society can act through two main channels: the *ação popular*, a constitutional suit open to any citizen to challenge acts that damage the environment, and the more powerful *ação civil pública*, a collective action in defence of shared environmental interests that public prosecutors, the public defender's office and qualifying civil-society associations can bring on the public's behalf. These are reinforced by strict-liability rules, a dedicated 1998 Environmental Crimes Law, binding settlements in which offenders commit to repair the damage (*termos de ajustamento de conduta*), and a well-resourced federal enforcement and satellite-monitoring apparatus.

#### **PARTIAL: Bolivia, Guyana, Peru and Suriname.**

**Bolivia** provides constitutional protective suits (the popular action and *amparo*) and criminal offences against natural resources, but their effect is undercut by recurring amnesties ("perdonazo") that periodically forgive past illegal clearing and by penalties so low - as little as US\$0.20 per hectare cleared - that they fail to deter.

**Peru** has the mechanisms, constitutional *amparo*, a popular action, environmental offences in the penal code, and even a 2024 ruling granting the Marañón River legal personhood, but recent legislation is rolling protections back: one law retroactively legalised past illegal deforestation, another restricts civil society's use of foreign funding to act against the State.

**Guyana's** common-law system allows constitutional motions to enforce the right to a healthy environment, judicial review of official decisions, and public-interest litigation before a receptive regional court (the Caribbean Court of Justice). The toolkit works but is narrower than some of the civil-law systems alongside it.

**Suriname** relies on civil claims for unlawful harm, a Constitutional Court operating only since 2019, criminal proceedings, and rulings of the Inter-American Court of Human Rights affirming the land rights of its Indigenous and Maroon peoples. The framework's reach was shown by a 2024 injunction halting activity across 535,000 hectares of their territory. As with Guyana, the toolkit works but is narrower than some of the civil-law systems alongside it.

#### **RESTRICTED: Venezuela.**

Venezuela's formal framework is, on its face, ambitious, as Articles 127–129 of the 1999 Constitution recognise environmental rights, Article 120 establishes the right to prior consultation, and the 2012 *Ley Penal del Ambiente* introduces objective criminal liability for environmental offences. In practice, however, the politicisation of the Tribunal Supremo de Justicia and the contentious administrative courts has rendered domestic remedies structurally unavailable to CSOs and Indigenous communities. As the country profile observes, Venezuela offers no example of successful domestic CSO litigation on nature crimes, and international mechanisms (the IACHR, the UN Fact-Finding Mission and the ICC) appear to be the only available pathways for some form of accountability.

### 3. Admissibility of remote sensing evidence

**Thresholds.** This dimension assesses the extent to which satellite-derived and other remote sensing evidence is admissible in domestic administrative, criminal and constitutional proceedings, and whether institutional and technical capacities are in place to interpret and validate such evidence.

**Firmly established:** higher courts have confirmed admissibility of remote sensing evidence in nature crime cases, established institutional infrastructure (e.g. national satellite monitoring), demonstrated formal cooperation between technical CSOs and public authorities, and emerging training programmes for prosecutors and judges.

**Emerging:** admissibility recognised under general evidentiary rules, with at least one successful case precedent, but no specific framework or systematic training programme; capacity to interpret evidence concentrated in specific units or partner CSOs.

**Untested:** domestic admissibility unclear or untested; remote sensing evidence used primarily to trigger international mechanisms rather than domestic remedies.

#### Classification.

##### **FIRMLY ESTABLISHED: Brazil and Colombia.**

Brazil can be classified at the higher end of the scale because it combines advanced technical capacity with increasing judicial acceptance of geospatial evidence. The country benefits from one of the most developed satellite-based deforestation monitoring systems in the region, particularly through the IBAMA/INPE/PRODES infrastructure, which allows authorities to identify, document and respond to illegal forest clearing with a high degree of technical precision. Brazilian courts have increasingly recognised satellite imagery and official geospatial data as valid forms of evidence in environmental cases. A resolution from the National Justice Council (Conselho Nacional de Justiça) has provided guidance for the judicial use of geospatial evidence, consolidating the practice. However, this model is now contested by a proposed bill of law (PL 2.564/2025), approved by the Chamber of Deputies in 2026. If voted by the Senate, the new law would bar federal regulators from embargoing deforested areas on the basis of remote detection alone, requiring prior on-site verification and a right of reply. Such requirements could hamper the effectiveness of remote sensing evidence as a tool in the fight against Nature crime, including remote sensing evidence provided by civil society through its monitoring platforms (see [Chapter I](#)).

Colombia's classification is supported by the fact that remote sensing evidence can be admitted under the country's general evidentiary framework and has already been used in significant environmental cases. In the Atrato River litigation brought by Tierra Digna, satellite imagery helped demonstrate the extent of mining-related environmental destruction, including approximately 17 km<sup>2</sup> of affected territory. This illustrates that geospatial evidence can move beyond monitoring and advocacy to support legal arguments in court. Colombia also shows signs of institutionalisation through cooperation between Fundación para la Conservación y el Desarrollo Sostenible (FCDS) and the Fiscalía, which provides a pathway for civil society-generated evidence to inform prosecutorial action. For this reason, Colombia should not be assessed only on the formal admissibility of satellite evidence, but also on the existence of practical precedents and collaborative mechanisms that connect CSO monitoring with state enforcement.

##### **EMERGING: Bolivia, Ecuador, Guyana, Peru and Suriname.**

In **Bolivia**, remote sensing evidence is admissible under the general principle of freedom of proof, and agro-environmental jurisprudence has confirmed that satellite-based material can be used in environmental disputes. The Chiquitanía coalition case, which arose from the devastating forest fires that affected the Chiquitanía region and other parts of eastern Bolivia in 2019, illustrates that civil society actors are already able to deploy satellite imagery in a sophisticated way to document large-scale environmental harm. In that case, environmental organisations and researchers used satellite data to identify the extent and location of burned areas and to support claims regarding the environmental impacts of the fires. However, this practice remains only partially institutionalised, and Bolivia has not yet developed the kind of dedicated procedural guidance, specialised training or consistent judicial practice that would place it in the established category.

**Ecuador** also has a workable evidentiary basis for the use of geospatial evidence. Its civil and criminal procedural codes, the COGEP and COIP, allow documentary, expert and technical evidence to be assessed within ordinary proceedings, while the Constitution reverses the burden of proof in environmental matters. This gives particular practical value to well-documented satellite, drone or mapping evidence. The Sinangoe case shows how this can work in practice: in response to mining concessions and illegal mining activities that threatened rivers, biodiversity, Indigenous territory and community life, the Sinangoe Indigenous Guard carried out its own monitoring over several months, collecting photographs, drone footage, satellite images, GPS data and audiovisual material. This evidence supported a constitutional action arguing that the State had violated rights to prior consultation, water, health, territory and a healthy environment.

**Guyana** also represents an emerging case: while its technical forest-monitoring capacity is comparatively strong, its judicial use of community-generated remote sensing evidence remains limited. The country has a national forest monitoring, reporting and verification system, which gives it a developed technical basis for tracking forest loss and land-use change. In parallel, Indigenous communities and civil society partners have developed monitoring initiatives in regions such as Rupununi and Upper Mazaruni. These initiatives combine satellite-based forest-loss alerts with field verification by trained Indigenous monitors, allowing communities to identify suspected deforestation or mining incursions and document them on the ground. The resulting evidence has been used in advocacy submissions to institutions such as the Environmental Protection Agency and the Guyana Geology and Mines Commission, and in international advocacy concerning mining-driven environmental harm in Indigenous territories. However, these datasets have not yet formed the evidentiary basis of a concluded criminal or administrative proceeding.

**Peru** It is also classified as an emerging country because it has already established an important criminal precedent in the use of satellite imagery, but the formal framework surrounding the admissibility of such evidence remains uneven. In the landmark "Cacao del Perú Norte" case, the prosecution used satellite imagery to demonstrate that primary forest had, in fact, been cleared, directly contradicting the company's claim that the area contained no primary forest. The court ruled in favor of the prosecution, sentenced the company's general manager to prison, and imposed significant fines and reparations. However, Peru remains an emerging country because there are still no specific technical standards for remote sensing evidence, beyond general requirements such as authenticity, traceability, integrity, and expert support, and a program of systematic training for FEMA prosecutors and judges has not yet been institutionalized. It is worth noting that considering the use of satellite imagery as evidence in judicial proceedings strengthens the evidentiary tools available to environmental prosecutors and judges in combating environmental crimes.

**Suriname** likewise shows important but still nascent developments. Remote sensing evidence is admissible under the general rules of civil and criminal procedure, but the country has not yet developed detailed procedures for the treatment of geospatial evidence. Recent developments nevertheless show growing capacity. In 2023, the government certified officials from 19 ministries and public institutions in geospatial analysis, indicating an effort to build state capacity to understand and use remote sensing data.

**UNTESTED: Venezuela.** The Venezuelan profile records the most striking gap in the region: extensive remote sensing work by SOS Orinoco, Wataniba and partner Indigenous organisations has documented the dramatic expansion of mining-driven deforestation, but this body of evidence has been deployed almost exclusively to trigger international mechanisms (the November 2024 IACHR/REDESCA statement on the Yanomami people being the most prominent example). Domestic acceptance of CSO-generated remote sensing evidence in nature crime proceedings is effectively non-functional.

## 4. Cross-cutting observations and recommendations

The country profiles assembled in this chapter point out that the formal legal architecture is not *per se* the binding constraint on civil society engagement with Nature crime. Brazil, Colombia, Ecuador and Peru all possess sophisticated legal frameworks that produce genuine accountability outcomes when conditions align. What determines whether civil society can actually engage the State, and whether that engagement translates into enforcement, are the conditions that surround the law: the engagement of government with the idea of civic participation, the security of those who do the work, the institutional capacity to act on the evidence produced, and the continuity of the legal framework itself. Five conclusions can be drawn from the information presented in this report:

**The implementation of the Escazú Agreement is bearing fruits.** The countries that have signed or ratified it show better enabling conditions for civil society. They have developed, or are developing, the access-to-information frameworks, participation mechanisms and access-to-justice tools through which civil society engages environmental authorities. It is noticeable, then, that Suriname and Venezuela, outside the Agreement entirely, show the widest gaps in enabling conditions. Ratification can, however, be actively undermined by subsequent legislation, such as has happened with Peru's Law 32301/2025. This regulation aims to restrict the use of international cooperation funds for action against the State and cuts directly against Escazú's access-to-justice and defender-protection commitments, making Peru a cautionary example of how a normative gain can be reversed.

**The strongest legal frameworks coexist with the gravest risks to environmental defenders.** The countries with the most developed enforcement and litigation tools — Brazil, Colombia and Ecuador — are also those recording the highest numbers of defender killings, yet protection of defenders remains the least developed part of an otherwise sophisticated architecture. This gap is precisely what the division between the *de jure* and *de facto* axes was designed to expose: Colombia and Ecuador both rate highly protective in law yet challenging in practice, a divergence that a single blended score would have concealed. Each has a formal mechanism — Colombia's National Protection Unit, Ecuador's Decree 77, Brazil's Programme for the Protection of Human Rights Defenders, Communicators and Environmentalists — but these operate poorly adapted to the specific risk profile of environmental defenders, who are exposed on isolated frontiers, targeted by criminal organizations, and often attacked in the very act of producing the evidence the State relies on. The basis to close this gap already exists, as protection of defenders is the fourth pillar of the Escazú Agreement, and the commitment that has proved hardest to operationalise. Closing this gap requires

treating defender protection not as a parallel human-rights concern but as an integral component of environmental accountability, and monitoring whether the mechanisms that exist actually reach those most at risk

**Remote sensing evidence is a critical tool for civil society to engage with governments, but its admissibility rests on fragile practice rather than firmly established norms.** As seen in [Chapter II](#), a great number of CSOs dedicate their efforts to constructing evidence through the monitoring and detection of illegal environmental activities. In all eight countries remote sensing evidence is admitted under general evidentiary rules, but none has enacted a dedicated statutory framework for it. Brazil's CNJ Resolution 433/2021 is the closest regional analogue to a formal protocol, however, it has come under pressure from PL 2.564/2025, which would bar federal regulators from imposing embargoes on the basis of remote detection alone, and which has been approved by the Chamber of Deputies and is pending before the Federal Senate. The practical consequence is that admissibility remains unpredictable in most contexts, and that state-generated data often carries greater evidentiary weight than the same material generated by civil society.

This is where the relationship between CSOs and the State proves the most decisive. Cases such as the cooperation between the Fundación para la Conservación y el Desarrollo Sostenible and the Fiscalía in Colombia, the participation of Conservacion Amazonica - ACCA to the *Sistema Nacional* in Peru and the Sinangoe community monitoring model in Ecuador, show that CSO-generated geospatial evidence can be effective at compelling enforcement when a formal channel exists to receive it. Formalising these partnerships, through cooperation agreements and admissibility protocols, is among the highest-return investments available for strengthening the enabling environment.

**The recognition, whether by law or by jurisprudence, of the rights of Nature, can significantly widen the scope for legal action from civil society.** Where it has taken hold, this framework has widened legal standing, enabled constitutional actions on behalf of nature, and created powerful hooks for international advocacy. Yet recognition without enforcement is insufficient; Colombia's 2018 Amazon ruling where the Court recognised the Colombian Amazon as a subject of rights entitled to protection, conservation and restoration by the State was historic but the action plans were drawn up under very tight deadlines, coordination across national and territorial entities proved weak, and net deforestation has not been halted; the same happened with Ecuador's Los Cedros precedent, where the Court clarified that the rights of nature apply across the entire national territory, not only inside protected areas. Even so, extractive and infrastructure pressures continue to test its reach, enforcement of the reparation measures has been uneven, and the broader application of the standard to other concessions has been resisted, so that the strength of the doctrine on paper has not translated into uniform protection on the ground.

**Across the Amazon, legislative rollback is threatening to undo the collaboration built over years between civil society and government authorities.** In several of the countries studied, legislation is being passed or prepared that either retroactively legalises past environmental harm or narrows the scope for cooperation between CSOs and government agencies acting on Nature crime. Landmark jurisprudence - that recognize the contribution of civil society to the evidentiary process or validate their role as active litigants - can be reversed through such legislative changes.

Agribusiness, mining and petroleum interests yield substantial influence over legislators in Amazonian jurisdictions and are often playing an active role in the development of these bills of law.

The recommendations below are addressed in turn to donors, to civil society organisations, and to regional mechanisms, and are organised around the set of enabling conditions reviewed in the report. They are intended as practical priorities rather than an exhaustive programme, and should be read alongside the country-specific recommendations set out in each profile.

### For civil society organisations

- **Advocate for Escazú accession, ratification and implementation across the region.** The Escazú framework remains an effective regional normative tool for enabling civil society engagement. Also, implementation monitoring is an important channel for engagement by CSOs, since ratification alone is insufficient and can be eroded by subsequent legislation.
- **Combine administrative, criminal and constitutional routes strategically.** The most successful cases in the region deploy several mechanisms at once: an administrative complaint to create an official record, a criminal complaint to trigger investigation, a constitutional action for interim relief, and an international submission to generate accountability pressure.
- **Use rights-of-nature frameworks proactively where they exist.** In Bolivia, Ecuador and Colombia, rights-of-nature provisions offer the broadest standing, the most powerful constitutional remedies and the strongest hooks for international advocacy. They remain underused in Bolivia and are under practical pressure in Ecuador, and warrant more deliberate strategic deployment.

### For regional cooperation among governments (through IACHR, CCJ, ECLAC/Escazú COP, OTCA)

- **Develop a regional protocol on remote sensing evidence admissibility.** The Escazú COP is well placed for actors to develop a technically grounded protocol on the admissibility of satellite and geospatial evidence in Court. Given that no country in the region has a dedicated statutory framework, such a protocol would have immediate and practical effect on the effectiveness of measures against nature crime.
- **Continue to develop a regional framework for cross-border environmental crime.** Illegal gold mining, timber trafficking and the criminal networks behind them operate across borders, while enforcement remains national. Recent efforts such as the creation of public safety commission under ACTO (the CESPIT) and a center for police coordination in the Amazon (CCPI).
- **Monitor compliance of existing rulings.** The persistent non-implementation of landmark decisions of regional bodies shows that judicial victories without follow-through deliver little in practice. The IACHR and domestic apex courts should dedicate more sustained attention and resources to monitoring whether their orders are actually carried out.

## Annex I. Table of nature crimes<sup>3</sup>

|  | Criminal statutes for illegal deforestation | Criminal statutes for illegal logging | Criminal statutes for illegal gold mining | Criminal statutes for pollution of river courses | Criminal statutes for fire degradation | Criminal statutes for violence against environment |
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| <b>Bolivia</b> | <p>Environmental Law (Law 1,333 of 1992)</p> <p>Article 103: Carrying out actions that injure, deteriorate, degrade, or destroy the environment or performing acts described in Article 20.</p> <p>Article 109. Cutting down forests without authorization for purposes other than the domestic use of the landowner, causing damage and degradation to the environment.</p> | <p>Environmental Law (Law 1,333 of 1992)</p> <p>Article 103: Carrying out actions that injure, deteriorate, degrade, or destroy the environment or performing acts described in Article 20.</p> <p>Article 111. Inciting, promoting, capturing, possessing, collecting, or transporting animal or plant species or their derivatives without authorization, or those that are declared protected or reserved, thereby endangering their extinction.</p> | <p>Environmental Law (Law 1,333 of 1992)</p> <p>Article 103: Carrying out actions that injure, deteriorate, degrade, or destroy the environment or performing acts described in Article 20.</p> | <p>Environmental Law (Law 1,333 of 1992)</p> <p>Article 105: (a) Poisoning contaminating, or adulterating waters intended for public consumption, industrial, agricultural, or fishery use, beyond the permissible limits to be established in the respective regulations.</p> <p>Article 107. Pouring or discharging untreated wastewater, chemical or biochemical liquids, objects, or waste of any kind into watercourses, riverbanks, aquifers, basins, rivers,</p> | <p>Environmental Law (Law 1,333 of 1992)</p> <p>Article 104. Burning farmland or pasture and causing a fire on another's property, by negligence or intentionally.</p> | <i>Not found</i>  |

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|  |  |  |  | <p>lakes, lagoons, or ponds, capable of contaminating or degrading the waters beyond the limits to be established by regulations.</p> <p>Article 111. Inciting, promoting, capturing, possessing, collecting, or transporting animal or plant species or their derivatives without authorization, or those that are declared protected or reserved, thereby endangering their extinction.</p> <p>Article 113. Authorizing or allowing the deposit, introduction, or transport into national</p> |  |  |
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|               |                                                                                                                          |                                                                                                                                   |                                                                                                                                  | territory of toxic, hazardous, radioactive, and other waste of external origin, which by their characteristics pose a danger to public health and the environment, transferring or introducing polluting technology not accepted in the country of origin, as well as anyone who carries out the illicit transit of hazardous waste. |                                                                                                                                             |                                                                                                                                          |
| <b>Brazil</b> | <p>Environmental Crimes Law (Law No. 9,605/1998)</p> <p>Art. 38: Destroying or damaging a forest considered to be of</p> | <p>Environmental Crimes Law (Law No. 9,605/1998)</p> <p>Art. 39: Cutting down trees in a forest considered to be of permanent</p> | <p>Environmental Crimes Law (Law No. 9,605/1998)</p> <p>Art. 55: Perform research, mining or extraction of mineral resources</p> | <p>Environmental Crimes Law (Law No. 9,605/1998)</p> <p>Art. 54: Cause pollution of any kind at such levels as to result or may</p>                                                                                                                                                                                                  | <p>Environmental Crimes Law (Law No. 9,605/1998)</p> <p>Art. 41: Provoke fire in forest or other forms of vegetation.</p> <p>Decree No.</p> | <p>Penal Code</p> <p>Criminalize s bodily injuries to any person and crimes against individual liberties, regardless of the victim's</p> |

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| <p>permanent preservation, even if in information, or use it in violation of the protection standards.</p> <p>Art. 39: Cutting down trees in a forest considered to be of permanent preservation, without permission from the competent authority.</p> <p>Art. 50-A: Deforesting, economically exploiting or degrading forest, planted or native, on public domain or vacant lands, without authorization from the competent body.</p> <p>Decree No. 6,514/2008</p> <p>Art. 43: Destroy or damage</p> | <p>preservation, without permission from the competent authority.</p> <p>Art. 46: Receiving or acquiring, for commercial or industrial purposes, wood, firewood, charcoal and other products of plant origin, without requiring the presentation of the seller's license, granted by the competent authority, and without providing the means that should accompany the Product until final processing.</p> <p>Art. 49: Destroying, damaging, injuring or mistreating, in any way or by any</p> | <p>without the competent authorization, permission, concession or license, or in disagreement with the one obtained.</p> <p>Decree No. 6,514/2008</p> <p>Art. 45: Extract from public domain forests or preservation areas without prior authorization, stone, sand, lime or any kind of minerals.</p> | <p>result in damage to human health, or that cause the death of animals or the Significant destruction of flora.</p> <p>Art.60. Build, renovate, extend, install or operate in any part of the establishments, works or services that are potentially polluting, without license or authorization from the competent environmental agencies, or contrary to the rules.</p> <p>Decree No. 6,514/2008</p> <p>Article 61. Cause pollution of any kind at such levels as to result in or may result in damage to</p> | <p>6,514/2008</p> <p>Art. 58-A: Causing a fire in a forest or any form of native vegetation</p> <p>Article 58-B: Provoking Cultivated forest fire.</p> | <p>occupation or cause. The lack of a protected class and no enhanced punishment are believed to contribute to high impunity.</p> <p>Decree No. 9,937/2019</p> <p>Established the Protection Program for Human Rights Defenders, Communicators, and Environmentalists (PPDDH) at the Federal level. The PPDDH provides risk assessment, protective measures (such as relocation, police protection, and legal support), and coordination with law enforcement for</p> |
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|  | <p>forests or other forms of natural vegetation or use them with Violation of protection standards in an area considered to be of preservation without authorization from the competent body, when required, or in disagreement with the one obtained.</p> <p>Art. 48: Preventing or hindering the natural regeneration of forests or other forms of native vegetation in conservation units or other specially protected areas, where applicable, preservation area legal reserve or other</p> | <p>means, plants of ornamentation of public places or on private property of others.</p> <p>Art. 50: Destroying or damaging native or planted forests or vegetation that fixes dunes, protector of mangroves, object of special preservation.</p> <p>Decree No. 6,514/2008</p> <p>Art. 44: Cutting down trees in an area considered to be of permanent preservation or whose species is specially protected, without permission from the competent authority</p> |  | <p>human health, or that cause the death of or the significant destruction of biodiversity.</p> |  | <p>individuals at risk due to their work defending human rights and the environment.</p> |
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|  | <p>places whose regeneration has been indicated by the competent environmental authority.</p> <p>Art. 49: Destroy or damage forests or any type of native vegetation, object of special preservation, not subject to authorization for exploitation or suppression.</p> <p>Art. 50: Destroying or damaging forests or any type of native vegetation or of planted native species, object of special preservation, without Authorization or license</p> |  |  |  |  |  |
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|                 | <p>from the competent environmental authority.</p> <p>Art. 51: Destroy, deforest, damage or exploit forest or any type of native vegetation or native species planted, in an area of legal reserve or forest easement, of public or private domain, without prior authorization from the competent environmental agency or in disagreement with the one granted.</p> |                  |                                                                                                        |                                                                                                     |                                                                                                     |                                                                                                   |
| <b>Colombia</b> | <p>Environmental Crimes Law (Law 2,111 of 2021)</p> <p>Article 330: Deforestation - Anyone</p>                                                                                                                                                                                                                                                                       | <i>Not found</i> | <p>Environmental Crimes Law (Law 2,111 of 2021)</p> <p>Article 332: Illegal exploitation of mining</p> | <p>Environmental Crimes Law (Law 2,111 of 2021)</p> <p>Article 333: Damage to natural resources</p> | <p>Environmental Crimes Law (Law 2,111 of 2021)</p> <p>Article 333: Damage to natural resources</p> | <p>Penal Code (Law 599 of 2000)</p> <p>Articles 103 and 104: Ordinary Homicide and Aggravated</p> |

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|  | <p>who, without permission from the competent authority or in breach of existing regulations, cuts down, burns, cuts, uproots or destroys areas equal to or greater than one continuous or discontinuous hectare of natural forest.</p> <p>Article 330A: Promotion and financing of deforestation - Anyone who promotes, finances, directs, facilitates, provides means, takes economic advantage of or obtains any other benefit from the felling, burning, cutting,</p> |  | <p>deposits and other materials - Anyone who, without permission from the competent authority or in breach of existing regulations, exploits, explores or extracts mining deposits, or exploits sand, stone material or debris from river beds and banks by means capable of causing serious damage to natural resources or the environment.</p> | <p>and ecocide - Anyone who, in breach of existing regulations, destroys, renders useless, causes disappearance or causes a serious environmental impact or in any other way damages the natural resources referred to in this title or those associated with them.</p> <p>Article 334: Environmental Pollution - Anyone who, in violation of existing regulations, contaminates, causes or directly or indirectly carries out emissions, discharges, radiation, noise, deposits or disposals into the air,</p> | <p>and ecocide - Anyone who, in breach of existing regulations, destroys, renders useless, causes disappearance or causes a serious environmental impact or in any other way damages the natural resources referred to in this title or those associated with them.</p> | <p>Homicide, respectively . Ordinary homicide, defined as the intentional killing of another person. Aggravated Homicide, an intentional killing for profit, with cruelty, or with premeditation.</p> <p>Article 347: threats (Amenazas ), and criminalizes threats made to another person with the intention of causing fear or anxiety about potential harm to their person, property, or family.</p> <p>Article 348: aggravated threats, where the threat is</p> |
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|  | <p>uprooting or destruction of areas equal to or greater than one continuous or discontinuous hectare of natural forest.</p> <p>Article 333: Damage to natural resources and ecocide - Anyone who, in breach of existing regulations, destroys, renders useless, causes disappearance or causes a serious environmental impact or in any other way damages the natural resources referred to in this title or those associated with them.</p> |  |  | <p>atmosphere or other components of the airspace, soil, subsoil, surface, maritime or underground waters or other natural resources in such a way that it contaminates or generates a harmful effect on the environment, endangering human health and natural resources.</p> <p>Article 334A: Environmental pollution due to exploitation of mining or hydrocarbon deposits - Anyone who causes, contaminates or carries out, directly or indirectly, the</p> |  | <p>intended to force the victim to do, tolerate, or refrain from doing something.</p> |
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|                |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                       |                                                                                                                                                                                                                       | resources of water, soil, subsoil or atmosphere , on the occasion of the extraction or excavation, exploration, construction and assembly, exploitation, benefit, transformation, transportation of mining or hydrocarbon activity. |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                             |
| <b>Ecuador</b> | <p>Forestry and Conservation of Natural Areas and Wildlife Law (1981, amended in 2002)</p> <p>Art. 78: Whoever prunes, tails, debarks, destroys, alters, transforms, acquires, transports, markets, or uses the forests of</p> | <p>Forestry and Conservation of Natural Areas and Wildlife Law (1981, amended in 2002)</p> <p>Art. 82: Whoever transports wood, wood forest products or wildlife products without adhering to the rules of the Act will receive a</p> | <p>Criminal Code</p> <p>Offenses against land (Art. 252): Any person who, in contravention of current regulations, changes the use of forest land or land intended for the maintenance and conservation of native</p> | <p>Criminal Code</p> <p>Offenses against water (Art. 251): Any person who, contrary to current regulations, contaminates, desires or alters the bodies of water, slopes, sources, ecological flows, natural waters</p>              | <p>Forestry and Conservation of Natural Areas and Wildlife Law (1981, amended in 2002)</p> <p>Art. 78: If felling, burning or destructive action is carried out in mangroves or if it alters the climate regime, causes erosion, or</p> | <p>Criminal Code</p> <p>Art. 140: Murder.</p> <p>Art. 141: Femicide - Any person who, as a result of power relations manifested in any kind of violence, kills a woman because of her being so or because of her gender</p> |

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|  | <p>mangrove areas without the corresponding contract, license or authorization, or that, having them, exceeds what is authorized, will be sanctioned.</p> <p>Criminal Code</p> | <p>fine and have any proceeds confiscated.</p> <p>Criminal Code</p> <p>Invasion of Ecologically Important Areas (Art. 245): Any person who invades the areas of the National System of Protected Areas or Fragile Ecosystems shall be punished with imprisonment.</p> | <p>ecosystems and their ecological functions, affects or damages their fertile layer; causes erosion or desertification, causing serious damage shall be punished with imprisonment.</p> <p>Falsehood or concealment of environmental information (Art. 255): The person who issues or provides false information or hides information that is of support for the issuance and granting of environmental permits, environmental impact studies, environmental audits</p> | <p>outcropped or groundwater of the river basins and in general the hydrobiological resources or carries out discharges into the sea causing serious damage shall be punished with imprisonment.</p> | <p>is prone to disasters, it will be sanctioned.</p> <p>Criminal Code</p> <p>Forest and vegetation fires (Art. 246): Any person who directly or indirectly causes fires or instigates the commission of such acts, in native or planted forests or moors, shall be punished with imprisonment.</p> <p>Prohibited or unauthorized management of products, waste, waste or dangerous substances (Art. 254): The person who, contrary to the provisions</p> | <p>status.</p> <p>Art. 144: Homicide - A person who kills another person.</p> <p>Art. 145: Wrongful Murder - A person who by fault kills another.</p> <p>Art. 151: Torture - Any person who inflicts or orders the infliction of severe pain or suffering on another person, whether of a physical or mental nature, or subjecting him to conditions or methods that nullify his personality or diminish his physical or mental capacity, even if they do not cause physical or mental pain or suffering.</p> <p>Art. 152:</p> |
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|  |  |  | and diagnoses, permits or licenses for forest harvesting, those who cause the commission of an error by the environmental authority shall be punished with imprisonment. |  | of current regulations, develops, produces, has, disposes, burn, market, introduce, import, transport, stores, deposits or uses products, waste, wastes and chemical or dangerous substances, and with this cause serious damage to biodiversity and natural resources, shall be punished with imprisonment. | <p>Injuries - A person who injures another person.</p> <p>Art. 154: Intimidation - Any person who threatens or intimidates another with causing harm that constitutes a crime to him, to his family, to persons with whom he is intimately linked, provided that, by background, it appears credible that the fact is consummated.</p> <p>Art. 161: Kidnapping - Any person who deprives of liberty, detains, hides, seizes or transfers one or more persons to</p> |
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|               |                                                                                                                      |                                                                                                                      |                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                              | a different place, against his will.                                                                                                                                                                                                                                             |
| <b>Guyana</b> | <p>Forests Act 2009</p> <p>Section 36: prohibits the removal forest produce from state forests without a permit.</p> | <p>Forests Act 2009</p> <p>Section 36: prohibits the removal forest produce from state forests without a permit.</p> | <p>The Mining Act (Cap. 65:01, 1989, as amended)</p> <p>Removal of materials from mining area without permission.</p> | <p>Environmental Protection Act (Cap. 20:05, 1996)</p> <p>Discharging effluent (for the purposes of the Act “effluent” refers to liquid waste or sewage discharged into the environment from industrial, mining or other premises.</p> <p>Causing material environmental harm by polluting the environment intentionally or recklessly and with the knowledge that material environmental harm will or might</p> | <p>Forests Act 2009</p> <p>Section 24: prohibits the setting of fires in any state forest</p> <p>Section 27: duty to reports fires in state forests.</p> <p>Section 28: duty to put out fires in state forests or fire protection areas.</p> | <p>Criminal Law (Offences) Act (Cap. 8:01)</p> <p>Section 100: Murder.</p> <p>Criminalize s and provides penalties for acts of violence, threats, assault, and homicide, which would include under these provisions threats or violent acts against environmental activists.</p> |

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|             |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                             | result.<br><br>Failure to comply with required record keeping under the act (e.g. for contaminant releases).                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                   |
| <b>Peru</b> | <p>Penal Code (Legislative Decree No. 635)</p> <p>Article 310. Offenses Against Forests or Wooded Areas: Any person who, without a permit, license, authorization, or concession granted by a competent authority, destroys, burns, damages, or cuts down, in whole or in part, forests or other wooded areas, whether natural or planted.</p> | <p>Penal Code (Legislative Decree No. 635)</p> <p>Article 310-A. Illegal Trafficking in Timber Products: Any person who acquires, collects, stores, processes, transports, conceals, possesses, markets, ships, unloads, imports, exports, or re-exports timber products or specimens, knowing or having reason to believe that they are of illicit origin, shall be punished with</p> | <p>Penal Code (Legislative Decree No. 635)</p> <p>Article 307-A. The crime of illegal mining: Any person who engages in exploration, extraction, exploitation, or other similar activities involving mineral resources—whether metallic or non-metallic—without authorization from the competent administrative authority, and who thereby causes or is likely to cause</p> | <p>Penal Code (Legislative Decree No. 635)</p> <p>Article 304.-- Environmental pollution: Any person who, in violation of laws, regulations, or permissible limits, causes or releases discharges, emissions, toxic gas emissions, noise emissions, leaks, spills, or radioactive contamination into the atmosphere, soil, the subsoil, or in surface, marine, or groundwater, thereby</p> | <p>Penal Code (Legislative Decree No. 635)</p> <p>Article 310. Offenses Against Forests or Wooded Areas: Any person who, without a permit, license, authorization, or concession granted by a competent authority, destroys, burns, damages, or cuts down, in whole or in part, forests or other wooded areas, whether natural or planted.</p> | <p>Supreme Decree No. 004-2021-JUS</p> <p>- Establishes the Intersectoral Mechanism for the Protection of Human Rights Defenders, which involves the Ministry of the Environment and the Ministry of Energy and Mines, among other ministries</p> |

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|  | <p>Article 310-C. Aggravated Forms: In the cases provided for in Articles 310, 310-A, and 310-B, the sentence of imprisonment shall be no less than eight years and no more than ten years, under any of the following circumstances: 1. If the crime is committed on lands owned or possessed by native communities, peasant communities, indigenous peoples, or indigenous reserves; or on territorial reserves or indigenous reserves designated for indigenous peoples in initial</p> | <p>imprisonment for a term of not less than four years nor more than seven years and a fine of one hundred to six hundred days.</p> <p>Article 310-C. Aggravated Forms: In the cases provided for in Articles 310, 310-A, and 310-B, the sentence of imprisonment shall be no less than eight years and no more than ten years, under any of the following circumstances: 1. If the crime is committed on lands owned or possessed by native communities, peasant communities, indigenous</p> | <p>harm, disruption, or damage to the environment or its components, environmental quality, or environmental health.</p> <p>If the perpetrator acted through negligence, the penalty shall be imprisonment for no more than three years or community service for forty to eighty days.</p> <p>Article 307-B. Aggravated Forms: The penalty shall be imprisonment for no less than eight years and no more than ten years, along with a fine of three hundred to one</p> | <p>causing or likely to cause harm, disruption, or serious damage to the environment or its components, environmental quality, or environmental health, as determined by the environmental authority, shall be punished by imprisonment for a term of not less than four years nor more than six years and a fine of one hundred to six hundred days.</p> <p>If the perpetrator acted through negligence, the penalty shall be imprisonment for no</p> | <p>Article 310-A. Illegal Trafficking in Timber Products: Any person who acquires, collects, stores, processes, transports, conceals, possesses, markets, ships, unloads, imports, exports, or re-exports timber products or specimens, knowing or having reason to believe that they are of illicit origin, shall be punished with imprisonment for a term of not less than four years nor more than seven years and a fine of one hundred to six hundred days.</p> <p>Article 310-C. Aggravated</p> |  |
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|  | <p>contact or voluntary isolation, protected natural areas, restricted zones, forest concessions, or private conservation areas duly recognized by the competent authority. 2. If, as a result of the conduct described in the relevant articles, water sources supplying water to populated areas or irrigation systems are affected, or soil erosion occurs, thereby endangering local economic activities. 3. If the perpetrator or participant is a public</p> | <p>peoples, or indigenous reserves; or on territorial reserves or indigenous reserves designated for indigenous peoples in initial contact or voluntary isolation, protected natural areas, restricted zones, forest concessions, or private conservation areas duly recognized by the competent authority. 2. If, as a result of the conduct described in the relevant articles, water sources supplying water to populated areas or irrigation systems are affected, or</p> | <p>thousand days, when the offense provided for in the preceding article is committed in any of the following circumstances: 1. In areas where mining activities are not permitted. 2. In protected natural areas, or on lands belonging to native, peasant, or indigenous communities. 3. Using dredges, devices, or other similar tools. 4. If the perpetrator uses instruments or objects capable of endangering the life, health, or property of persons. 5. If irrigation</p> | <p>more than three years or community service for forty to eighty days. Art. 305.-- Aggravated forms: The prison sentence shall be no less than four years and no more than seven years, along with a fine of three hundred to one thousand days, if the perpetrator commits any of the following acts: 1. Falsifies or conceals information regarding the polluting incident, or the quantity or quality of the discharges, emissions, leaks, spills, or radioactive emissions referred to</p> | <p>Forms: In the cases provided for in Articles 310, 310-A, and 310-B, the sentence of imprisonment shall be no less than eight years and no more than ten years, under any of the following circumstances: 1. If the crime is committed on lands owned or possessed by native communities, peasant communities, indigenous peoples, or indigenous reserves; or on territorial reserves or indigenous reserves designated for indigenous peoples in initial contact or voluntary isolation,</p> |  |
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|  | <p>official or civil servant. 4. If the offense is committed with respect to specimens that have been marked for research purposes or have been set aside as seed stocks. 5. If the crime is committed using weapons, explosives, or similar items. 6. If the crime is committed with the participation of two or more persons. 7. If the offense is committed by holders of forest concessions. 8. If the crime involves timber products or specimens protected by national law. The</p> | <p>soil erosion occurs, thereby endangering local economic activities. 3. If the perpetrator or participant is a public official or civil servant. 4. If the offense is committed with respect to specimens that have been marked for research purposes or have been set aside as seed stocks. 5. If the crime is committed using weapons, explosives, or similar items. 6. If the crime is committed with the participation of two or more persons. 7. If the offense is committed</p> | <p>systems or water intended for human consumption are affected. 6. If the perpetrator takes advantage of their status as a public official or civil servant. 7. If the perpetrator uses minors or other persons not criminally liable to commit the crime .</p> <p>Article 307-C. Offense of Financing Illegal Mining: Anyone who finances the commission of the crimes provided for in Articles 307-A or their aggravated forms shall be</p> | <p>in Article 304, from the competent authority or the institution authorized to conduct environmental inspections or audits. 2. Obstructs or impedes the inspection or audit activities ordered by the competent administrative authority. 3. Operates clandestinely in the course of their business. If serious injury or death results from the polluting activity, the penalty shall be: 1. Imprisonment for not less than five years nor more than eight years and a</p> | <p>protected natural areas, restricted zones, forest concessions, or private conservation areas duly recognized by the competent authority. 2. If, as a result of the conduct described in the relevant articles, water sources supplying water to populated areas or irrigation systems are affected, or soil erosion occurs, thereby endangering local economic activities. 3. If the perpetrator or participant is a public official or civil servant. 4.</p> |  |
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|  | <p>term of imprisonment shall be no less than ten years and no more than twelve years when: 1. The perpetrator acts as a member of a criminal organization. 2. The perpetrator causes serious injury or death during the commission of the criminal act or as a result of such act. 3. If the criminal act is committed for the purpose of committing tax, customs, or money laundering offenses. 4. Finances or facilitates the commission of these</p> | <p>by holders of forest concessions. 8. If the crime involves timber products or specimens protected by national law.</p> <p>The term of imprisonment shall be no less than ten years and no more than twelve years when: 1. The perpetrator acts as a member of a criminal organization. 2. The perpetrator causes serious injury or death during the commission of the criminal act or as a result of such act. 3. If the criminal act is committed for the purpose of</p> | <p>punished with imprisonment for a term of not less than four years nor more than twelve years and a fine of one hundred to six hundred days.</p> <p>Article 307-D. Offense of Obstructing Administrative Oversight: Any person who obstructs or impedes the administrative authority's activities of assessment, control, and oversight related to illegal mining shall be punished by imprisonment for a term of not less than four years nor more than eight</p> | <p>fine of six hundred to one thousand days, in the case of serious injury. 2. Imprisonment for a term of not less than six years nor more than ten years and a fine of seven hundred fifty to three thousand five hundred days, in the event of death.</p> | <p>If the offense is committed with respect to specimens that have been marked for research purposes or have been set aside as seed stocks. 5. If the crime is committed using weapons, explosives, or similar items. 6. If the crime is committed with the participation of two or more persons. 7. If the offense is committed by holders of forest concessions. 8. If the crime involves timber products or specimens protected by national law.</p> <p>The term of imprisonment shall be</p> |  |
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|  | <p>crimes.</p> <p>Article 313.-- Alteration of the Environment or Landscape: Anyone who, in violation of the provisions of the competent authority, alters the natural environment or the urban or rural landscape, or alters the flora or fauna, through the construction of structures or the felling of trees, shall be punished with imprisonment for no more than four years and a fine of sixty to ninety days.</p> | <p>committing tax, customs, or money laundering offenses. 4. Finances or facilitates the commission of these crimes.</p> | <p>years.</p> <p>Article 307-E. Illegal trafficking of chemical supplies and machinery intended for illegal mining: Any person who, in violation of laws and regulations, acquires, sells, distributes, markets, transports, imports, possesses, or stores chemical supplies with the intent to use such goods in the commission of crimes related to illegal mining shall be punished by imprisonment for a term of not less than three years nor more than six years and a</p> |  | <p>no less than ten years and no more than twelve years when: 1. The perpetrator acts as a member of a criminal organization. 2. The perpetrator causes serious injury or death during the commission of the criminal act or as a result of such act. 3. If the criminal act is committed for the purpose of committing tax, customs, or money laundering offenses. 4. Finances or facilitates the commission of these crimes.</p> |  |
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|  |  |  | <p>fine of one hundred to six hundred days.</p> <p>Anyone who acquires, sells, leases, transfers, or assigns for use under any title, distributes, markets, transports, imports, possesses, or stores machinery, knowing that it will be used to commit the crimes of illegal mining, shall be punished with imprisonment for a term of not less than three years nor more than six years and a fine of one hundred to six hundred days.</p> <p>Article 307-F.</p> <p>Disqualification: Any</p> |  |  |  |
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|  |  |  | person who commits the offenses set forth in sections 307-A, 307-B, 307-C, 307-D, and 307-E shall also be punished, in accordance with Article 36, paragraph 4, with disqualification from obtaining, in their own name or through third parties, mining concessions, general work concessions, processing concessions, or transportation concessions for metallic or non-metallic minerals, as well as from marketing such |  |  |  |
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|                 |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                           | minerals, for a period equal to that of the principal penalty.                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                             |                  |                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Suriname</b> | <p>Forest Management Act 1992</p> <p>Art. 52: An imprisonment not exceeding three months or a fine not exceeding one hundred and fifty thousand guilders will be imposed on:</p> <p>a) he who, without being authorised to do so, fells trees on state land and/or removes cultivation and/or harvest forest by-products or orders this to be done.</p> <p>b) he who, contrary to the provisions of Article</p> | <p>Nature Conservation Act 1954</p> <p>Art. 5: It is prohibited in a nature reserve:</p> <p>a) to intentionally or negligently cause damage to the soil, natural beauty, fauna, flora, or to perform actions that diminish the value of the reserve as such;</p> <p>b) to camp, make fires, cut wood, or produce charcoal, unless with written permission obtained from the Head of the State Forestry Service and in</p> | <p>Environmental Framework Act 2020</p> <p>Art. 48(3): Intentional violation of environmental provisions listed in Art. 47(1) (incl. the Act and mining, forestry, nature protection, water, fisheries, planning, public health/hygiene laws), committing offenses specified in Arts. 59 (evasion of enforcement), 60 (civil nullity of avoidance acts), 68 (criminal procedures or lawful orders), or deliberate non-compliance</p> | <p>Environmental Framework Act 2020</p> <p>Art. 48(1): Intentional pollution, depletion, or degradation of the environment or environmental quality.</p> <p>Art. 48(2): Pollution, depletion, or degradation of the environment or environmental quality by negligence.</p> | <i>Not found</i> | <p>Criminal Code</p> <p>This is the primary law addressing acts of violence, threats, assault, murder, and related crimes against any individual, including environmental activists and defenders.</p> <p>Environmental Framework Act 2020</p> <p>While the Act does not specifically mention activists or defenders, it includes provisions for public participation, transparency, and access to justice in</p> |

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|                  | <p>47, operates a wood-processing industry without being in the possession of a valid licence as referred to in that article.</p> <p>c) he who violates or fails to observe any other provision prescribed in, or by virtue of, this Act and which has not already been made punishable by virtue of any other legal provision.</p> | compliance with the conditions set forth therein.                                                                                                                     | with NMA directives for sustainable development or environmental hygiene.                                                                                                |                                                                                                                                                                      |                                                                                                                                                                | environmental matters. |
| <b>Venezuela</b> | <p>Environmental Penal Law (2012)</p> <p>Art. 38: Any natural or legal person who causes degradation or harmful alteration of the topography or landscape</p>                                                                                                                                                                       | <p>Environmental Penal Law (2012)</p> <p>A natural or legal person who carries out activities to access genetic resources without the corresponding authorization</p> | <p>Environmental Penal Law (2012)</p> <p>Art. 35: A natural or legal person who omits necessary information or produces or presents false or adulterated information</p> | <p>Environmental Penal Law (2012)</p> <p>Art. 56: Any natural or legal person who modifies the water control system or runoff, obstructs the flow or natural bed</p> | <p>Environmental Penal Law (2012)</p> <p>Art. 64: Any natural or legal person who sets fire to rural estates, plantations, pastures, or breeding savannas.</p> | <i>Not found</i>       |

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                       |  |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <p>through mining, industrial, technological, forestry, urban planning, or any other type of activities, in violation of land use plans and the technical standards governing the matter.</p> <p>Art. 40: Any natural or legal person who illegally occupies protected natural areas, or who engages in commercial or industrial activities in such areas, or carries out agricultural, pastoral, or forestry work, or alters or destroys flora or vegetation, in violation of the relevant regulations.</p> | n. | <p>to obtain authorization documents.</p> <p>Art. 38: Any natural or legal person who causes degradation or harmful alteration of the topography or landscape through mining, industrial, technological, forestry, urban planning, or any other type of activities, in violation of land use plans and the technical standards governing the matter.</p> <p>Art. 90: A natural or legal person who, without authorization or in violation of the technical standards</p> | <p>of rivers, or causes sedimentation in violation of current technical standards and without the corresponding authorization.</p> <p>Art. 85: Any natural or legal person who performs work that may cause damage, contamination, or alteration of groundwater or mineral water sources.</p> <p>Any natural or legal person who discharges wastewater, effluents, products, substances, or non-biodegradable materials or waste of any kind into the marine, river, lake,</p> | <p>Art. 65: Any natural or legal person who sets fire to jungles, forests, savannas, or any area covered by natural vegetation.</p> <p>Art. 68: Natural or legal persons who carry out or order authorized burning and are responsible for the spread of fire due to their failure to implement the precautions mandated in the permits and regulations in force.</p> |  |
|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|

|  |                                                                                                                                                                                                               |  |                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                             |  |  |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|
|  | Art. 69: A natural or legal person who illegally deforests, cuts down, clears, or destroys vegetation where there are watersheds that supply water to populations, even if it belongs to private individuals. |  | governing the matter, constructs works or uses facilities capable of causing serious pollution of the river, lake, marine, or coastal environment. | or coastal environment in violation of current technical standards, containing pollutants or elements harmful to human health or to the marine, river, lake, or coastal environment.<br><br>Decree No. 2,412 (August 2016)<br><br>This decree bans the use of mercury within the process of obtaining gold and other non-metallic minerals. |  |  |
|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|

## Notes

1. Bolivia: ratified in 2019; Ecuador: ratified in 2020; Guyana: ratified in 2019; Colombia: ratified in 2024; Brazil: signed in 2018, but did not ratify; Peru: signed in 2018, but did not ratify; Suriname: never signed; Venezuela: never signed.
2. CIVICUS Monitor: <https://monitor.civicus.org/about/how-it-works/methodology/>.
3. This material was developed by International Lawyers Project.

## Chapter III. Enabling conditions for government engagement — Country profiles

### Bolivia

#### Status of CSOs, protection and transparency

Bolivia formally guarantees freedom of association under Article 21.4 of its State Political Constitution, with the central government holding authority to register NGOs operating across multiple departments (Art. 298.II.15).

However, this constitutional protection is significantly constrained in practice. Law No. 351 on Legal Entities (2013) and Supreme Decree No. 1597 require civil society organisations to align their statutes with government-defined economic and social development policies. Failure to comply may result in the revocation of legal personality, effectively creating a form of forced alignment with governmental priorities. These provisions have been widely regarded as restrictive, and several international organisations have recommended their reform.<sup>1</sup>

Since the adoption of this framework, the operational environment for CSOs has become progressively more restrictive. A series of implementing decrees (Supreme Decrees 1987/2014, 2650/2016, 3746/2018, and 4353/2020) have increased administrative requirements, adding layers of bureaucracy to registration and compliance. In practice, this has made it more difficult for organisations to obtain or maintain legal status, thereby limiting the effective exercise of freedom of association and assembly.

#### Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Bolivia, a party since 2019, demonstrates a mixed level of compliance across these pillars. While certain legal provisions exist, implementation remains uneven, and the absence of a formal national roadmap reflects broader gaps between formal commitments and institutional practice.

**(i) Access to environmental information.** Bolivia recognises the right to access information through Supreme Decree 28168 (2005). However, the absence of a comprehensive freedom of information law limits the practical enforceability of this right, as clear procedures, timelines and accountability mechanisms are lacking.<sup>2</sup>

**(ii) Public participation in environmental decision-making.** Public participation is relatively well established in Bolivia's environmental framework. Environmental Law No. 1,333 (1992) provides for citizen involvement in the management of protected areas, sustainable development processes and the use of renewable natural resources. However, the extent to which participation effectively influences decision-making in practice remains variable.

**(iii) Protection of environmental defenders.** Bolivia lacks specific legal instruments designed to protect environmental defenders. In practice, defenders face ongoing risks, including intimidation,

violence and criminalisation. Recent cases illustrate these dynamics: a park ranger who documented and reported forest fires allegedly linked to powerful economic and political actors was threatened, dismissed from his position, and subjected to legal proceedings. This reflects broader patterns of retaliation and highlights the State's failure to ensure adequate protection.<sup>3</sup>

## Institutional landscape for nature crime

Bolivia's environmental enforcement landscape is characterised by a multiplicity of agencies, which may cause overlapping and sometimes fragmented mandates. The principal bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation and attacks on defenders are grouped below by function.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**Authority for the Social Control and Inspection of Forests and Land (ABT).** The principal administrative authority for forestry and land-use, responsible for regulating, supervising and controlling forestry production, transformation and transport; granting clearing authorisations; and issuing sanctions for violations. Its enforcement mandate is primarily administrative, conducting inspections, sanctioning proceedings, preventive measures and remedial orders. ABT also has powers to initiate or support criminal actions when conduct is linked to forestry and land-use change, and its data are considered pre-constituted expert evidence, which is frequently decisive for triggering and substantiating criminal proceedings.

**Competent Environmental Authorities (AAC).** The AAC sits at the national level (Ministry of Development Planning and Environment) and at the subnational level (Departmental Governments) as the central monitoring and enforcement body for environmental compliance, particularly under the environmental licensing and control regime. Through routine inspections, compliance monitoring, environmental audits and review of operational reporting, the AAC may identify conduct that evidences environmental offences or serious non-compliance. Where facts indicate potential criminality, the AAC can refer matters for prosecution and provide technical documentation and administrative records that support criminal investigations, while continuing administrative enforcement where applicable.

**Jurisdictional Administrative Mining Authority (AJAM).** AJAM is responsible for supervising the legality of mining operations and managing mining rights and the national mining registry, under the oversight of the AAC. In practice, AJAM may initiate administrative actions, verify the existence and scope of mining rights and authorisations, and generate institutional information and documentation that can support complaints, referrals, and coordination with the Public Prosecutor's Office where the conduct may constitute a criminal offence.

**National Protected Areas Service (SERNAP).** A governmental body that plays a central role in regulating, supervising and controlling activities carried out inside national parks and protected territories. This includes administering the applicable authorisation regime and monitoring compliance with the conditions under which lawful activities may be permitted.

**National Institute of Agrarian Reform (INRA).** Responsible for land titling and distribution, defining land property regularisation procedures. Its mandate intersects with environmental enforcement where land-use changes require clearing authorisations.

## B. Policy and strategic coordination

These institutions define environmental policy, regulatory frameworks and overall governance strategies.

**Ministry of Environment, Biodiversity, Climate Change and Forest Development and Management.** Holds responsibility for national forest policy and the forestry regime through its Directorate General of Forests. It oversees the core environmental statute (Environmental Law 1,333) and its implementing regulations.

**Plurinational Authority of Mother Earth.** Created under Framework Law No. 300, this is a policy authority designed to steer climate and environmental governance. It is relevant for coordination, oversight and strategic engagement on environmental protection, although its operational capacity has been limited.

## C. Criminal investigation and enforcement

These institutions are responsible for investigating and prosecuting environmental crimes.

**Public Prosecutor's Office (Fiscalía).** Receives and investigates criminal complaints for all illegal activity, including illegal deforestation, environmental crimes, and violence or threats against environmental defenders.

**Bolivian National Police — Forest and Environmental Police (POFOMA).** Performs specialised functions related to forest and environmental protection, including field interventions, controls, seizures and support to investigations in coordination with competent administrative authorities and the Public Prosecutor's Office. POFOMA is often a key actor in operational deployments in remote areas and in securing evidence and material elements linked to illegal logging, unauthorised burning and other forms of environmental degradation.

## D. Oversight and access to justice

These institutions contribute to accountability by receiving complaints and facilitating access to justice.

**Ombudsman's Office (Defensoría del Pueblo).** The Ombudsman has investigative and oversight functions, receiving complaints regarding environmental and human rights violations, conducting investigations, and issuing recommendations to other authorities. It may also act as a mediator with public authorities in cases involving environmental rights and attacks against environmental defenders.

## Legal routes available for civil society

### A. Categories of nature crimes

Environmental crimes in Bolivia are defined under Law No. 1,333 of 1992, specifying when environmental harm constitutes a criminal offence. These definitions provide the legal basis for civil society to report violations and engage with enforcement authorities. An illustrative selection:

**Burning farmland or pasture** and causing a fire on another's property, by negligence or intentionally: 2 to 4 years imprisonment.

**Unauthorised logging** — cutting down forests without authorisation for purposes other than the domestic use of the landowner, causing damage and degradation to the environment<sup>4</sup>: 2 to 4 years imprisonment and a fine equal to 100% of the value of the forest that was cut down.

**Illicit transit or deposit of hazardous waste** — authorising or allowing the deposit, introduction or transport into national territory of toxic, hazardous, radioactive or other waste of external origin that poses a danger to public health and the environment; transferring or introducing polluting technology not accepted in the country of origin: up to 10 years imprisonment.

### B. Routes for legal action

The legal routes available to CSOs and indigenous communities to defend themselves against nature crimes fall into two broad categories: judicial mechanisms (agro-environmental jurisdiction, constitutional actions and criminal proceedings) and administrative mechanisms. In practice, these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

#### 1. Judicial Mechanisms

Judicial mechanisms provide formal avenues to seek accountability, reparation and the protection of environmental and constitutional rights. They allow CSOs and affected communities to escalate environmental harm beyond administrative processes, particularly in cases involving significant damage, rights violations or lack of effective governmental response.

##### a. Agro-Environmental Jurisdiction

The Agro-Environmental Court is the highest instance in environmental matters. It is an elected body for which judges serve six-year terms and must have specialty knowledge of agricultural and environmental laws.

The Agro-Environmental Trial Courts play an essential role as courts of first instance. They directly hear disputes concerning, among others, the exploitation of natural resources, the validity of agrarian or forestry contracts, agro-environmental enforcement proceedings, and the protection of collective rights.

The Agro-Environmental Courts also have jurisdiction to determine liability for environmental harm and, accordingly, to order compensation, reparation or restoration of the damage caused. Under the Bolivian Civil Code and Law No. 1,333 of 1992 on the Environment, any person may file a claim to

seek redress in the form of compensation and/or restoration for damages resulting from environmental harm.

## b. Constitutional Mechanisms

Bolivia's Constitution provides two constitutional actions that can be used to defend environmental rights: the Popular Action and the Amparo Action.

**Popular Action (*Acción Popular*).** The Bolivian Constitution establishes popular actions, which allow any member of the public to bring a claim where authorities, individuals or collectives violate, or threaten to violate, rights and collective interests related to the environment. The Constitution expressly recognises that a popular action applies to the right to a healthy environment. Binding relief and interim measures are available under this action.

Check case box below on the Beni River in Mosetén Territory (2023) and Lomas de Arena (2023) for a detailed exemplification.

**Legal standing.** Any person, CSO, community or indigenous people may file a popular action. A popular action may be filed at any time while the violation or threat persists, and there is no requirement to exhaust administrative or judicial remedies beforehand.

**Amparo Action (*Acción de amparo constitucional*).** The Constitutional Amparo seeks to protect fundamental rights recognised in the Constitution. In practice, Amparo is frequently used to protect due process and related rights that have been threatened during ongoing civil, criminal or administrative proceedings.

**Legal standing.** The person whose rights have been restricted, suppressed or threatened, or someone acting on behalf of the injured person. A collective may also bring an Amparo Action if it appears as a legal person whose own rights are directly affected, or if it acts through duly authorised representatives on behalf of its members and shows a concrete, personal and certain impairment of protected rights with a causal link to the harm.

**Time limit.** The Amparo must be filed within 6 months of the alleged violation or of the date it became known. The petitioner must first exhaust ordinary and administrative remedies before filing, except where exhaustion would be untimely or where there is an imminent risk of irreparable harm. An Amparo is inadmissible against acts freely consented to by the injured party, when the effects of the challenged act have ceased, or when another constitutional action is more suitable.

## c. Criminal Proceedings

In Bolivia, environmental crimes are imprescriptible: they do not expire and the passage of time does not bar their prosecution. The Constitution also imposes liability for historical environmental damage and mandates that at all stages of production, actors must avoid, mitigate, remediate, repair and compensate for harm to the environment and to human health, linking the criminal component with administrative and civil restoration duties.

Environmental crime cases are adjudicated by the ordinary courts under the Criminal Code and the Code of Criminal Procedure.

**Ex officio prosecutions (filed by the public prosecutor).** In Bolivia, criminal investigations into environmental offences are primarily conducted ex officio by the Public Prosecutor's Office (Fiscalía),

meaning that once a potential crime is brought to its attention, the State assumes responsibility for investigating and prosecuting the case.

Any individual or entity, including civil society organisations, may trigger this process by filing a criminal complaint (*denuncia*). This mechanism does not require the complainant to demonstrate personal harm, making it particularly relevant for environmental matters involving collective or diffuse interests. It is sufficient to provide minimally verifiable information, such as the location, timing, description of the facts, and any available supporting materials (e.g. documents, photographs, coordinates, or preliminary technical reports).

Upon receipt, the Prosecutor's Office is required to register the complaint, initiate preliminary investigative steps, or refer the case to the competent jurisdiction. These initial actions may include requesting information from administrative authorities, ordering inspections, or coordinating with specialised units such as the environmental police.

**Private prosecutions.** Those who qualify as a “victim” may file a private prosecution (*querella*) to participate actively in the criminal proceedings. In Bolivian criminal procedure, the concept of “victim” may include individuals, communities or legal entities that have suffered direct harm, and in certain cases may extend to collective or diffuse interests, particularly where environmental harm affects public or community rights.

Filing a *querella* grants the complainant formal standing as a party to the proceedings, allowing for active procedural participation alongside the Public Prosecutor. This includes the ability to submit and request the production of evidence, propose and follow investigative measures, participate in hearings, challenge prosecutorial inaction or decisions, and support the development of the case throughout its stages.

While the private prosecutor may play an active and strategic role, the direction of the criminal investigation remains under the authority of the Public Prosecutor's Office. The effectiveness of this mechanism often depends on the level of coordination between the *querellante* and the prosecutor, as well as the strength and technical quality of the evidence presented.

## 2. Administrative Mechanisms

Administrative actions include sanctioning procedures for environmental infractions, administrative appeals such as revocation and hierarchical remedies, and the possibility to challenge environmental licences, permits or authorisations issued by public authorities. These mechanisms allow for the suspension, modification or annulment of administrative decisions, and can serve both to halt ongoing environmental harm and to create an official record that may support further judicial or criminal action.

CSOs and affected parties can engage the relevant administrative bodies (described in Sections III.A and III.D) through the procedures summarised below.

| Body                                                          | How to engage                                                      | Legal standing                                                          | Time limit                                                  | Cost                                           |
|---------------------------------------------------------------|--------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------|
| <b>Competent Environmental Authority (AAC)</b><br>— see III.A | Challenge environmental permits or other administrative decisions; | Any individual or collective directly affected by an administrative act | Typically 15–30 days from notification of the contested act | No filing fee; legal representation costs vary |

|                                                                                               |                                                                                                                                                                                                      |                                                                                                              |                                                             |               |
|-----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------|
|                                                                                               | request initiation of administrative proceedings under the environmental licensing regime                                                                                                            |                                                                                                              |                                                             |               |
| <b>Authority for the Supervision and Social Control of Forests and Land (ABT)</b> — see III.A | Report alleged forest or land-use violations; request initiation of sanctioning proceedings, precautionary measures (e.g. suspension of activities) or revocation of authorisations/management plans | Any person or entity (CSOs, local communities, etc.); complainant does not need to demonstrate personal harm | Typically 15–30 days from notification of the contested act | No filing fee |
| <b>Ombudsman's Office (Defensoría del Pueblo)</b> — see III.D                                 | Submit complaints related to environmental and human rights violations; request investigation, recommendations or mediation with public authorities                                                  | Any person or group, regardless of direct affectation, with supporting evidence                              | No strict limitation period                                 | No filing fee |

### Case examples of successful litigation

#### Beni River - Mosetén Territory (2023)<sup>5</sup>

In 2016, a mining cooperative applied for a contract to extract minerals in the municipalities of Alto Beni and Palos Blancos, in the Bolivian Amazon. The Mining Administrative Jurisdiction Authority (AJAM) proceeded with a prior consultation process despite the fact that the Mosetén Indigenous people had been excluded from it, and despite both municipalities having enacted laws declaring themselves free from mining activity. Communities repeatedly and formally rejected mining operations, including through collective decisions, public statements from over 25 cooperatives, and a declaration of "zero mining" across Mosetén territory. The Ombudsman of the Plurinational State of Bolivia filed the *acción popular* on behalf of the affected communities.

The Mosetén Indigenous People's Organization (OPIM) and the Mosetén Indigenous Women's Organization (OMIM) played a central role in documenting and expressing collective opposition. Agricultural cooperatives provided formal public statements of rejection that formed part of the

evidentiary record.

The Plurinational Constitutional Court granted protection in favour of the communities, the Mositén people, and the Beni River. It set aside Administrative Order No. 547/2023 and conditioned any future consultation process on full compliance with constitutional standards of good-faith, prior, informed, and concerted consultation. It also granted preventive protection to the Beni River, ordering all necessary measures to preserve its system of life.

#### **Lomas de Arena (2023)<sup>6</sup>**

In late 2022, the Centro Turístico Kim, a 109-ha private property certified as an Ecological Easement (1995) that serves as the buffer and aquifer-recharge corridor of the Lomas de Arena Regional Park, was occupied for 52 days by more than 200 people linked to land trafficking, who opened roads, staked parcels for illegal *loteamiento*, set fires, and blocked water courses. Faced with municipal inaction, the Departmental Legislative Assembly filed an *acción popular*, and the Second Constitutional Chamber of the Departmental Court of Justice granted *tutela* of the rights to water and the environment, prohibiting future settlement and recognizing the environmental damage. A departmental Environmental Administrative Pause suspended all licensing in the recharge zone.

### **Use of remote sensing evidence in nature crime prosecution**

CSOs play a central role in generating and structuring evidence of environmental harm, particularly through remote sensing technologies such as satellite imagery, geospatial mapping and digital monitoring tools. This evidence is incorporated into legal proceedings through multiple evidentiary forms, although the degree to which it is accepted by public authorities depends on the evidentiary requirements and technical standards established within national legal and institutional frameworks.

In Bolivia, remote sensing evidence is accepted under general evidentiary rules, but its effectiveness depends on technical validation, expert interpretation and institutional capacity.

- *Legal framework.* Bolivia does not have a specific legal provision regulating the admissibility of remote sensing evidence. In practice, admissibility is assessed under the general evidentiary regime of the Bolivian Code of Criminal Procedure, grounded in freedom of proof (the possibility of using any lawful means capable of producing conviction) and judicial evaluation of evidence under rules of sound judgment. Any evidence acquired must satisfy the legality requirement under the Code: a piece of evidence has probative value only if it is obtained through lawful means and incorporated into the process in accordance with local laws.
- *Court acceptance.* Satellite data has been successfully presented in Bolivian courts to demonstrate illegal land clearing and other forms of environmental degradation. Bolivian agro-environmental jurisprudence, including decisions in criminal cases, confirms that remote sensing evidence such as satellite imagery is admissible, and that parties may expressly challenge its reliability or interpretation within the proceeding.
- *Technical standards.* Evidentiary integrity is safeguarded through general criminal procedure rules and through practical evidence-control protocols applied by the Bolivian Police and the Public Prosecutor's Office, including documentation of collection, preservation, transfers and integrity measures for physical and digital items. For remote sensing evidence, the following practices reduce admissibility risks:

- *Source identification*: clear identification of the platform or provider (state entity or recognised provider), date/time, area of interest and method of acquisition;
- *Metadata preservation*: retaining original files and metadata where available, and documenting each processing step;
- *Reproducibility*: preserving the workflow so an independent expert could reproduce the same outputs from the same source data;
- *Integrity documentation*: an evidence log documenting who handled the digital files, where they were stored, how they were transferred, and what controls were used to prevent tampering.

Looking at court decisions that have accepted remote sensing evidence, this type of evidence is far more likely to be accepted, and to survive adversarial scrutiny, when it is (i) accompanied by a formal expert report, (ii) supported by institutional records, and (iii) corroborated by field verification or police inspection where feasible.

### Case example — use of remote sensing evidence in litigation

#### Chiquitanía, Chaco and Amazon v. Bolivia (2019)<sup>7</sup>

This case, brought by a coalition of CSOs and Indigenous communities before the International Rights of Nature Tribunal, relied extensively on remote sensing evidence to document the scale and causes of the 2019 forest fires. Satellite imagery, geospatial analyses, and environmental monitoring reports were used to demonstrate that approximately 6.4 million hectares had burned, particularly in the Chiquitanía region, and to map the extent of deforestation across multiple ecosystems. These data were combined with field testimonies and expert reports to establish patterns of land clearing, the expansion of the agricultural frontier, and the link between State policies and the fires. Based on this evidence, the Tribunal concluded that Bolivia had violated the Rights of Nature and that the events constituted ecocide, calling for legal and policy reforms, restoration measures, and stronger protections for affected ecosystems and Indigenous communities.

### Challenges in engagement with authorities

Engagement between CSOs and public authorities in Bolivia is constrained by structural, procedural and political barriers that weaken accountability efforts. Although formal channels exist, they often fail to produce timely or effective responses.

**Limited institutional capacity is a central issue.** Environmental agencies, prosecutors and courts frequently lack resources and technical expertise. Justice officials who lack security of tenure may be vulnerable to reprisals, including arbitrary dismissal, if they make decisions that displease those in power. These structural weaknesses are particularly acute in environmental matters: prosecution of environmental crime remains difficult because it requires specialised prosecutors; the presentation of evidence is always very complex in environmental matters; and the institutional support from the State is not yet sufficiently strong, exposing enforcement to neglect, cooptation and failure.<sup>8,9</sup>

**Challenges in attribution further hinder enforcement.** Environmental harm in Bolivia is frequently caused not by easily identifiable landholders but by organised networks operating across multiple tenure categories. Illegal deforestation is rarely penalised in Bolivia, and when it is, the fines are negligible, as low as US\$0.2 per hectare, compared to US\$200 per hectare in other neighbouring

countries. The government has retrospectively approved deforestation of land cleared without permits, further undermining incentives for compliance. Between 2016 and 2021, approximately 70% of deforestation in Bolivia occurred on lands that were once public but were retitled as private property for agricultural use, making attribution of environmental liability to specific actors structurally difficult.<sup>10</sup>

**Political interference and weak institutional integrity further undermine engagement.** Bolivia's government has fuelled destruction by weakening land-use laws, encouraging settlers and promoting agribusiness in the Amazon. According to Alcides Vadillo, regional director of Fundación Tierra, land in Bolivia's Amazon is much more valuable after being cleared, which results in various actors using legal, semi-legal and illegal means to transform forests into land for farming or cattle-rearing. Mining cooperatives have been known to hold the government hostage, to corrupt and coerce mining agency officials, and to have shady dealings with foreign mining outfits. They operate in a near state of impunity, thanks to grey areas in Bolivian law and little oversight by AJAM.<sup>11, 12</sup>

**Procedural barriers**, including delays, opacity and limited access to information, restrict CSOs' ability to follow cases and ensure continuity. Bolivia has no law guaranteeing access to public information, and elected officials' asset declarations, while required by law, are unavailable to the public. Despite ratifying the Escazú Agreement in 2019, Bolivia has done very little to implement it. Little information is publicly available about the terms of major mining and extraction agreements and their likely social and environmental impact.

**Weak enforcement outcomes reduce deterrence.** In 2023, the loss of primary forests in Bolivia increased by 27% and reached its highest number on record for the third consecutive year — nearly 500,000 hectares. Behind this destruction are out-of-control fires, the expansion of the agricultural frontier, rampant gold mining, and the construction of airports and drug laboratories inside natural parks and protected areas. Recurring amnesties have systematically eroded accountability: in 2013, under pressure from the agribusiness lobby, the Bolivian government passed the *perdonazo*, a land use law enabling landowners who had illegally deforested prior to 2011 to pay nominal fines to legalise their farms.<sup>13, 14</sup>

## Conclusion & recommendations

While Bolivia offers a broad range of legal mechanisms to address environmental harm, their effectiveness is limited by institutional fragility, political interference, evidentiary constraints and weak enforcement. In this context, CSOs play a crucial role in bridging gaps through evidence production, but their impact depends on institutional responsiveness, access to information and broader political dynamics. Engagement with authorities therefore goes beyond formal legal routes, requiring strategic, persistent and collective action. Strengthening environmental accountability therefore demands both institutional reforms and targeted support for civil society.

**1. Strengthen institutional capacity and specialisation.** Enhance the technical and operational capacity of environmental agencies, prosecutors and courts. This includes: developing specialised environmental units within the Public Prosecutor's Office and judiciary; providing training on the use and evaluation of scientific and geospatial evidence; ensuring continuity of institutional functions during political transitions to avoid administrative paralysis; and strengthening inter-institutional coordination mechanisms to facilitate information sharing and enable more coherent responses across administrative and criminal pathways.

**2. Strengthen protection and enabling environment for CSOs.** CSOs operate under increasing constraints and risks. Reform restrictive provisions under Law 351 and related decrees; establish specific protections for environmental defenders in line with Escazú obligations; and support collective action mechanisms (e.g. platforms like GIT-OR) that reduce individual risk and enhance advocacy capacity.

**3. Enhance access to environmental information.** Adopt a comprehensive freedom of information framework aligned with the Escazú Agreement; ensure public access to key datasets such as mining cadastres and land-use authorisations; and standardise data systems to improve usability and interoperability.

**4. Strengthen evidentiary frameworks for remote sensing.** Develop formal guidelines or protocols for the admissibility of geospatial evidence; promote collaboration between CSOs, technical experts and public authorities; and encourage the institutionalisation of remote sensing within monitoring and enforcement systems.

**5. Improve sanction effectiveness and deterrence.** Revise sanction levels to reflect the scale and economic value of environmental damage; avoid policy measures that incentivise non-compliance, such as recurring amnesties; and link sanctions more effectively to restoration and remediation obligations.

## Brazil

### Status of CSOs, protection and transparency

Brazil maintains a regulatory framework that, in principle, allows civil society organizations (CSOs) to function and operate. This framework is anchored in the Federal Constitution (Art. 5, XVII), which guarantees freedom of association, and is further structured by Law 13.019/2014 - the Regulatory Framework for Civil Society Organizations (Marco Regulatório das Organizações da Sociedade Civil - MROSC) - along with its implementing Decree 8.726/2016. Together, these instruments define the legal basis for partnerships with the state, establish procedures for public calls for proposals, and affirm the autonomy of CSOs. However, variations in implementation and interpretation, particularly at the subnational level, continue to limit the practical effectiveness of these guarantees<sup>15</sup>.

Brazil has one of the most developed civil society ecosystems in the Amazon region, with a dense network of technical NGOs, research institutes and indigenous organisations active on environmental protection. Associations with at least one year of legal existence and whose statutory purposes include the defense of the environment or public interests enjoy standing to bring certain collective actions, including the public civil action (see Section IV).

Despite this comparatively favourable legal and civic environment, the operational conditions for environmental defenders are among the most dangerous globally. Global Witness has recorded 413 defenders killed or disappeared in Brazil since 2012, the second-highest figure globally after Colombia<sup>16</sup>. Violence, threats and intimidation, particularly in the Amazon<sup>17</sup>, remain a structural constraint on the effective exercise of environmental advocacy, leading many CSOs to avoid initiating legal procedures against companies conducting illegal activities.

## Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Brazil signed the Escazú Agreement in 2018 but has not yet ratified it, meaning that the Agreement does not currently have legal effect in the domestic order. Despite this, the Agreement has been influential in practice and has been cited in judicial decisions as a normative parameter for procedural environmental rights<sup>18</sup>. Implementation of the four pillars relies on pre-existing domestic instruments.

**(i) Access to environmental information:** Brazil has a relatively robust legal framework for access to information, including Law No. 12,527 of 2011 (Access to Information Law) and specific environmental information obligations under CONAMA resolutions<sup>19</sup> and the National Environmental Information System (SINIMA)<sup>20</sup>. Federal environmental agencies such as IBAMA and ICMBio publish significant volumes of georeferenced data, embargo lists and enforcement records, which CSOs use extensively. Nevertheless, data quality and accessibility vary significantly at state and municipal level.

**(ii) Public participation in environmental decision-making:** Public participation is embedded in environmental licensing, protected-area management and the governance of the National Environmental System (SISNAMA), including through public hearings, participatory councils (e.g. CONAMA) and consultation mechanisms with indigenous peoples under ILO Convention 169. In practice, the effectiveness of these mechanisms varies, and CSOs frequently use judicial mechanisms to enforce participation rights.

**(iii) Access to justice:** Brazilian law provides a comparatively rich set of mechanisms for environmental access to justice, including constitutional actions (*mandado de segurança*, *ação popular*)<sup>21</sup>, public civil actions (*ação civil pública*)<sup>22</sup> and consent decrees (*termos de ajustamento de conduta*)<sup>23</sup>, complemented by criminal proceedings under the Environmental Crimes Law<sup>24</sup>. These mechanisms are further described in Section IV below.

**(iv) Protection of environmental defenders:** Brazil lacks a comprehensive, specific legal instrument for the protection of environmental defenders. The federal Programme for the Protection of Human Rights Defenders, Communicators and Environmentalists (PPDDH) exists but has been criticised for limited coverage, funding and coordination.<sup>25</sup> The absence of Escazú ratification leaves an important normative gap on this fourth pillar.

## Institutional landscape for nature crime

Brazil's environmental enforcement landscape combines a federal structure (with shared competences between the Union, States and Municipalities) with specialised federal agencies for monitoring, licensing and protected areas. The principal bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation and attacks on defenders are grouped below by function.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**Brazilian Institute of Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis - IBAMA):** The principal federal executive agency of the National Environmental System. IBAMA conducts inspections, issues infraction notices and applies administrative sanctions including fines, seizures, embargoes and suspensions. It operates rapid-response enforcement architecture that can halt ongoing harm (e.g. through embargoes on deforested areas) and is a key referrer of cases for criminal investigation. IBAMA data (e.g. embargo lists, satellite-based deforestation alerts from DETER/PRODES) are routinely used as pre-constituted evidence in judicial proceedings.

**Chico Mendes Institute for Biodiversity Conservation (Instituto Chico Mendes de Conservação da Biodiversidade - ICMBio):** Federal agency responsible for the management of federal protected areas. ICMBio conducts oversight within conservation units, issues sanctions for violations within these areas and coordinates with IBAMA and the police on enforcement actions.

**State Environmental Secretariats (Secretarias Estaduais de Meio Ambiente — SEMA).** State-level environmental authorities with competence for licensing, monitoring and sanctioning within their jurisdictions. Combined with IBAMA, SEMAs provide the core administrative enforcement structure and can issue embargoes, fines and equipment seizures.

**National Indigenous People Foundation (Fundação Nacional dos Povos Indígenas - FUNAI):** Federal indigenous affairs agency, competent for the demarcation and protection of indigenous lands. FUNAI plays a central role in the defence of indigenous territories, including supporting enforcement action against illegal mining, logging and invasions.

**Rural Environmental Registry (Cadastro Ambiental Rural - CAR):** A georeferenced national registry of rural properties that is essential for monitoring Forest Code compliance, environmental licensing and access to rural credit. It enables targeted inspections, embargoes and the attribution of environmental liabilities to specific properties.

## B. Policy and strategic coordination

These institutions define environmental policy, regulatory frameworks and overall governance strategies.

**Ministry of Environment and Climate Change (Ministério do Meio Ambiente e Mudança do Clima - MMA):** Sets national environmental policy, coordinates the National Environmental System (SISNAMA) and oversees the implementation of flagship plans such as the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm).

**National Environmental Council (Conselho Nacional do Meio Ambiente - CONAMA):** The main consultative and deliberative body of SISNAMA, which adopts resolutions and norms on environmental matters with participation of the federal government, states, municipalities and civil society.

## C. Criminal investigation and enforcement

These institutions are responsible for investigating and prosecuting environmental crimes.

**Public Prosecutor's Office (Ministério Público).** Acts as custodian of the law, conducts civil inquiries (an inquisitorial instrument for investigation), proposes Consent Decrees (Termo de Ajustamento de Conduta - TAC), and holds exclusive standing for criminal proceedings in

environmental matters. The Public Prosecutor's Office may be Federal (MPF) or State (MPE), with jurisdictional conflicts of competence being common. The Federal Public Prosecutor's Office (MPF) has competence for crimes affecting the Union, indigenous communities, or those transcending state boundaries.

**Federal Police (Polícia Federal) and State Military/Civil Police, including Environmental Police units.** Responsible for criminal investigations, field operations and coordination with environmental authorities. The Federal Police conducts large-scale operations against illegal gold mining, deforestation and organised environmental crime, often in coordination with IBAMA and the Brazilian Armed Forces.

## D. Oversight and access to justice

These institutions contribute to accountability by receiving complaints, conducting oversight and facilitating access to justice.

**Public Defender's Office (Defensoria Pública):** Provides legal representation to vulnerable populations, including communities affected by environmental harm, and has standing to file certain collective actions, including public civil actions (*ação civil pública*).

**Federal Court of Accounts (Tribunal de Contas da União — TCU):** Exercises external oversight of the use of public resources, including audits of environmental policy and enforcement programmes.

## Legal routes available for civil society

### A. Categories of nature crimes

Two key legal instruments regulate nature crimes and environmental protection under Brazilian law:

**Law No. 12,651 of 2012 — Forest Code<sup>26</sup>.** The Forest Code is the foundation of Brazil's forest governance and is regarded as one of the most comprehensive forest laws in the world. It establishes strict requirements for the maintenance of Legal Reserves and Permanent Preservation Areas (APPs). Deforestation is illegal where it takes place outside those rules and limits. Compliance is monitored through the Rural Environmental Registry (CAR), a georeferenced database that links property boundaries to environmental liabilities and enables targeted inspections and embargoes. The 2012 revision of the Forest Code introduced significant amnesties for deforestation that occurred prior to 22 July 2008, reducing the area subject to mandatory restoration and fuelling ongoing debate about the balance between environmental protection and rural development. Restoration obligations apply where (i) the area was illegally cleared, (ii) the deforestation occurred after 22 July 2008, and (iii) the land has not been regularised through the Environmental Regularisation Programme (PRA).

**Law No. 9,605 of 1998 - Environmental Crimes Law<sup>27</sup>.** The principal criminal statute for environmental protection. It establishes three categories of offences: **crimes against fauna, crimes against flora, and pollution and other environmental crimes**. The law provides for both administrative and criminal penalties, with liability extending to both individuals and legal entities. Penalties can be aggravated for crimes committed in protected areas and in cases of recidivism. Illustrative offences include:

- **Destroying or damaging a forest within a Permanent Preservation Area** — 1 to 3 years imprisonment and/or a fine.

- **Causing pollution of any kind** at levels resulting in harm to human health, death of animals or significant destruction of flora — imprisonment and/or fines, with aggravated penalties in serious cases.
- **Crimes against fauna**, including illegal hunting, fishing and trade in protected species.

The law is frequently applied in the Amazon context, where illegal deforestation and land grabbing are often linked to organised criminal networks that use document fraud, intimidation and violence.

## B. Routes for legal action

The legal routes available to CSOs and indigenous communities to defend against nature crimes fall into four broad categories: constitutional mechanisms, criminal proceedings, public civil actions, and administrative mechanisms, complemented by international mechanisms. In practice, these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

### 1. Judicial Mechanisms

Judicial mechanisms provide formal avenues to seek accountability, reparation and the protection of environmental and constitutional rights. They allow CSOs and affected communities to escalate environmental harm beyond administrative processes, particularly in cases involving significant damage, rights violations or lack of effective governmental response.

#### a. Constitutional Mechanisms

The Brazilian Constitution provides two constitutional actions of particular relevance to environmental protection: the writ of security (*mandado de segurança*) and the popular action (*ação popular*).

**Writ of security (*Mandado de segurança*).** The *mandado de segurança* is designed to protect constitutional rights against illegal acts or omissions by public authorities, and provides for expeditious interim relief. In the environmental context, it may be used, for example, to challenge an unlawful environmental licence issued by a public authority. Legal standing is granted to individuals, political parties represented in Congress, unions, class entities, and associations with at least one year of legal existence.

**Popular action (*Ação popular*).** Any citizen may file a popular action to challenge acts that are harmful to the environment, administrative morality or public assets. Standing is restricted to Brazilian citizens as individuals; legal entities and CSOs as such cannot bring popular actions, although they frequently support citizen-plaintiffs.

#### b. Criminal Proceedings

Criminal proceedings are governed by the Criminal Code (*Código Penal*), the Criminal Procedure Code (*Código de Processo Penal*) and, for environmental offences, by the Environmental Crimes Law. Prosecutions are brought by the *Ministério Público* (Federal or State, depending on jurisdiction).

Individuals and CSOs may file criminal complaints to the Federal or State Police, the *Ministério Público*, or authorised agencies such as IBAMA (which has a mandate for administrative enforcement and referral of cases for criminal prosecution). Where administrative action is delayed or

insufficient, cases can be escalated to the Federal or State *Ministério Público*, which may seek injunctive relief, criminal prosecution of perpetrators, court-ordered restoration and structural remedies.

Enforcement of environmental criminal law remains a key challenge. A study by Imazon of 3,551 lawsuits brought by the Federal Public Prosecutor’s Office showed that although convictions increased from 2017 to 2020, only **5% of cases resulted in compensation being paid**, and by December 2023 only **57% of the total had resulted in criminal sentences**<sup>28</sup>. These figures illustrate a persistent gap between formal accountability and effective reparation.

c. Public Civil Actions

The public civil action (*ação civil pública*) is one of the most powerful tools for environmental protection in Brazil. It is a collective judicial action available for the protection of *diffuse and collective rights*, including environmental protection, consumer rights and public interests. Legal standing is limited to certain entities, including the *Ministério Público*, the *Defensoria Pública*, trade unions, and associations established at least one year before the lawsuit whose statutory purposes include the defence of public interests or the environment.

Remedies include injunctive relief and interlocutory measures, taking the form of mandatory orders compelling the defendant to perform an obligation (*obrigação de fazer*) or to refrain from engaging in unlawful or harmful conduct (*obrigação de não fazer*), as well as civil compensation for collective damages. Courts have consistently applied strict liability and *propter rem* liability (attaching environmental obligations to the property itself, binding on successive owners), particularly in cases involving protected areas and federal environmental assets. The public civil action is particularly effective for addressing large-scale or systemic environmental harm, such as illegal deforestation, illegal mining and environmental harm in protected areas.

2. Administrative Mechanisms

Administrative actions include sanctioning procedures for environmental infractions, the issuance of embargoes and fines, and the possibility to challenge environmental licences, permits or authorisations issued by public authorities. A distinctive feature of the Brazilian system is the **consent decree (*termo de ajustamento de conduta — TAC*)**, a formal and binding agreement proposed by the *Ministério Público* or other legitimate bodies, whereby responsible parties assume reparation obligations in an alternative, consensual dispute resolution framework within the administrative sphere.

CSOs and affected parties can engage the relevant administrative bodies (described in Sections III.A and III.D) through the procedures summarised below.

| Body              | How to engage                                                                                  | Legal standing                                                                       | Time limit                                                                                              | Cost                                           |
|-------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------------|
| IBAMA — see III.A | File complaints concerning federal-level environmental violations (e.g. illegal deforestation, | Any person, CSO or community; complainant does not need to demonstrate personal harm | No strict limitation for reporting violations; specific time limits apply to challenging administrative | No filing fee; legal representation costs vary |

|                                                            |                                                                                                                                                                                    |                                                                                |                                                                                                                           |               |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------|
|                                                            | wildlife crimes); request inspections, embargoes, fines and seizures; provide technical evidence (e.g. geospatial data)                                                            |                                                                                | acts                                                                                                                      |               |
| <b>ICMBio</b> — see III.A                                  | Report violations within federal protected areas; request enforcement action, revocation of authorisations or precautionary measures                                               | Any person, CSO or community                                                   | No strict limitation for reporting violations; standard administrative time limits apply to contest specific acts         | No filing fee |
| <b>State Environmental Secretariats (SEMA)</b> — see III.A | Report violations within state jurisdiction; request initiation of sanctioning proceedings, precautionary measures (e.g. suspension of activities) or revocation of authorisations | Any person or entity, without the need to demonstrate personal harm            | No strict limitation for reporting; time limits set by state administrative procedure rules for challenging specific acts | No filing fee |
| <b>Ministério Público (Federal and State)</b> — see III.C  | Submit a representation requesting civil or criminal investigation, negotiation of a consent decree (TAC), filing of a public civil action or referral for criminal prosecution    | Any person or group with supporting evidence; CSOs are commonly key informants | No strict limitation period for reporting; procedural deadlines apply to specific legal acts                              | No filing fee |

### Case examples of successful litigation

**IBAMA v. Kruger (Amazonas Federal Court, 2024)**<sup>29</sup>

A landmark public civil action brought by IBAMA, represented by the Attorney General of Brazil, against a cattle rancher previously fined for illegal deforestation using fire. The Attorney General argued that the defendant's actions severely undermined the Amazon's function as a carbon sink, thereby accelerating the climate crisis. The Amazonas Federal Court ruled in favour of IBAMA, ordering the defendant to pay **R\$292,118,400 (approximately US\$53 million) in damages**, equivalent to the cost of the carbon emitted by his illegal actions. The Court also ordered the defendant's assets to be frozen, banned him from receiving government finance or tax benefits, and prohibited him from selling cattle and agricultural products and from purchasing machinery such as chainsaws and tractors.

## Use of remote sensing evidence in nature crime prosecution

CSOs play a central role in generating and structuring evidence of environmental harm, particularly through remote sensing technologies such as satellite imagery, geospatial mapping and digital monitoring tools. This evidence is incorporated into legal proceedings through multiple evidentiary forms, although the degree to which it is accepted by public authorities depends on the evidentiary requirements and technical standards established within national legal and institutional frameworks.

In Brazil, the use of satellite, drone, acoustic and even environmental DNA (eDNA) evidence is currently being contested through the legislative bodies. Although the formal recognition of remote sensing evidence was reinforced by **CNJ Resolution No. 433/2021**, issued by the National Council of Justice, encouraging the use of geotechnologies in environmental cases, this model is now **contested by a bill (PL 2.564/2025)** approved by the Chamber of Deputies. If approved, the new law would bar federal regulators from embargoing deforested areas on the basis of remote detection alone, requiring prior on-site verification and a right of reply. This marks legislative pressure against the satellite-based enforcement on which Brazil's leading position partly rests.

- **Legal framework:** Admissibility is assessed under the general evidentiary regime of the Code of Civil Procedure and the Code of Criminal Procedure, grounded in the principle of freedom of proof and judicial evaluation of evidence under rules of sound judgment. CNJ Resolution No. 433/2021 consolidates the judicial acceptance of geotechnologies and encourages their use in environmental cases, provided the underlying data is validated by an expert.
- **Court acceptance:** Satellite imagery from governmental systems such as PRODES and DETER, operated by the National Institute for Space Research (INPE), as well as CSO-generated data (e.g. MapBiomass, *Monitor da Fiscalização*), have been successfully used in both public civil actions and criminal proceedings. Brazilian courts have applied strict liability when evaluating such evidence, particularly in cases affecting protected areas and federal environmental assets.
- **Technical standards:** Evidentiary integrity is safeguarded through general procedural rules and, in practice, through evidence-control protocols applied by IBAMA, ICMBio, the Federal Police and the *Ministério Público*. For remote sensing evidence, the following practices reduce admissibility risks:
  - *Source identification:* clear identification of the platform or provider (state entity or recognised provider), date/time, area of interest and method of acquisition;
  - *Metadata preservation:* retaining original files and metadata where available, and documenting each processing step;

- *Reproducibility*: preserving the workflow so an independent expert could reproduce the same outputs from the same source data;
- *Integrity documentation*: an evidence log documenting who handled the digital files, where they were stored, how they were transferred, and what controls were used to prevent tampering.

Remote sensing evidence is far more likely to be accepted, and to survive adversarial scrutiny, when it is (i) accompanied by a formal expert report, (ii) supported by institutional records (e.g. IBAMA or INPE data), and (iii) corroborated by field verification or police inspection where feasible.

### Case example — use of remote sensing evidence in litigation

#### Superior Court of Justice Acceptance (2019)

The Superior Court of Justice (STJ) confirmed that satellite imagery can be used to prove illegal deforestation. The decision stressed that, given the scale of Brazil's ecosystems, monitoring them without tools like satellites and drones would be impossible. The court also recognised that satellite maps provide precise, geo-referenced evidence, showing exactly where and how much forest was cleared.<sup>30</sup> The same approach has been taken by the Supreme Federal Court (STF).<sup>31</sup>

#### The Federal Attorney General's Office - Public Civil Action (2025)<sup>32</sup>

The Federal Attorney has filed a lawsuit seeking R\$725 million in compensation for environmental damage to the Pantanal (wetland), located in Mato Grosso. The public civil action seeks compensation from three offenders accused of using chain saws and setting forest fires to clear approximately 6,400 hectares. The lawsuit includes reports and photographs documenting the environmental damage inflicted since 2020. In addition to civil liability, the defendants are expected to be held accountable for damages in criminal and administrative proceedings. The AG's office has also requested to freeze the defendant's assets and mandate the development of a plan to restore the degraded areas.

### Challenges in engagement with authorities

Engagement between CSOs and public authorities in Brazil is constrained by structural, procedural and political barriers that weaken accountability efforts. Although formal channels are comparatively well developed, they often fail to translate into timely or proportionate enforcement outcomes.

**Weak enforcement outcomes reduce deterrence.** The Imazon analysis of 3,551 lawsuits brought by the Federal Public Prosecutor's Office found that only 5% of cases resulted in compensation being paid, and by December 2023 only 57% had resulted in criminal sentences. This persistent gap between investigation and effective accountability undermines the deterrent effect of the enforcement architecture.<sup>33</sup>

**Jurisdictional conflicts and institutional fragmentation.** The division of competences between the Federal and State *Ministérios Públicos*, and between federal (IBAMA, ICMBio) and state authorities (SEMA), frequently gives rise to jurisdictional conflicts and coordination challenges. Variability in state-level capacity, combined with the sheer scale of the Legal Amazon, creates uneven enforcement outcomes across regions.<sup>34</sup>

**Policy reversals and Forest Code amnesties.** The 2012 revision of the Forest Code introduced significant amnesties for deforestation occurring prior to 2008, reducing the area subject to mandatory restoration and signalling the possibility of future amnesties. Policy discontinuity between administrations (e.g. weakening and subsequent rebuilding of IBAMA's enforcement capacity, and of PPCDam implementation) has repeatedly disrupted the continuity of enforcement action.<sup>35</sup>

**Violence and threats against defenders.** Brazil is the second-deadliest country in the world for environmental defenders, with 413 killings and disappearances since 2012.<sup>36</sup> Domestic monitoring by Terra de Direitos, Justiça Global, CPT and CIMI indicates that violence is particularly concentrated in the Legal Amazon and in rural conflict zones. This environment discourages CSOs from engaging in the most sensitive cases, raises the costs of advocacy, and constrains the willingness of witnesses and communities to provide evidence. The federal Programme for the Protection of Human Rights Defenders has limited coverage and funding.

**Political interference and criminalisation.** Powerful economic sectors linked to agribusiness, cattle ranching, logging and illegal mining exert significant political influence over environmental legislation and enforcement. CSOs engaged in sensitive cases, particularly at subnational level, face risks of strategic litigation against public participation (SLAPPs), administrative harassment and reputational attacks.<sup>37</sup>

**Procedural barriers and litigation timelines.** Judicial proceedings, particularly public civil actions, can last many years, which weakens the deterrent effect of sanctions and complicates restoration. While interim measures (injunctions and embargoes) can effectively halt ongoing harm, their issuance and enforcement remain uneven across courts and regions.<sup>38</sup>

## Conclusion & recommendations

Brazil has one of the most sophisticated legal and institutional frameworks in the Amazon region for civil society engagement on nature crime, combining a robust constitutional basis, a powerful public civil action, a well-resourced federal environmental enforcement architecture (IBAMA, ICMBio, Federal Police), and a dense ecosystem of technical CSOs capable of generating and institutionalising monitoring data. Landmark decisions such as *IBAMA v. Kruger* illustrate how these tools can, when properly combined, produce some of the most ambitious environmental accountability outcomes in the region. At the same time, persistent enforcement gaps, policy discontinuity, jurisdictional fragmentation and high levels of violence against defenders constrain the effectiveness of the system. The non-ratification of the Escazú Agreement leaves an important normative gap, particularly with respect to the protection of environmental defenders. Strengthening environmental accountability in Brazil therefore requires both the consolidation of institutional capacity and sustained investment in the security, technical capacity and legal support of civil society actors.

**1. Strengthen institutional capacity and coordination.** Consolidate the enforcement capacity of IBAMA, ICMBio and the Federal Police; reinforce specialised environmental units within the Federal and State *Ministérios Públicos* and the judiciary; address jurisdictional conflicts between federal and state competences through clearer protocols; and strengthen coordination between environmental, criminal and financial authorities to dismantle the economic chains behind illegal deforestation, mining and land grabbing.

**2. Ratify the Escazú Agreement and strengthen defender protection.** Ratify and implement the Escazú Agreement, with particular focus on the fourth pillar on environmental defenders. Expand and

adequately fund the federal Programme for the Protection of Human Rights Defenders, Communicators and Environmentalists, ensuring coverage in the Legal Amazon; and develop tailored protocols for defenders operating in high-risk contexts such as illegal gold mining, invasions of indigenous territories and land-grabbing frontiers.

**3. Enhance access to environmental information and transparency.** Build on Law 12,527 of 2011 and the Rural Environmental Registry (CAR) to strengthen the interoperability of environmental data systems at federal, state and municipal level; systematically publish sanction, embargo and licensing data in machine-readable formats; and support civil society transparency platforms such as *Monitor da Fiscalização* and MapBiomias as public goods for environmental accountability.

**4. Strengthen evidentiary frameworks for remote sensing.** Build on CNJ Resolution No. 433/2021 by developing detailed protocols for the admissibility and technical validation of geospatial evidence; institutionalise cooperation agreements between technical CSOs and public authorities (e.g. IBAMA, the Federal Police and the *Ministério Público*); and reinforce the capacity of judges, prosecutors and investigators to evaluate satellite, drone, acoustic and eDNA evidence.

**5. Improve sanction effectiveness and target enforcement on key economic actors.** Ensure that enforcement under the Environmental Crimes Law and the Forest Code targets the financial and organisational chains behind large-scale deforestation and illegal mining, rather than focusing disproportionately on small-scale actors; expand the use of public civil actions and consent decrees to combine criminal sanctions with effective restoration and monetary compensation tied to climate harm; and avoid policy measures that undermine accountability through recurring amnesties.

## Colombia

### Status of CSOs, protection and transparency

As of 2025, CSOs in Colombia operate within a formally stable legal framework that recognizes fundamental rights such as freedom of association, expression, and participation, as established in the 1991 Constitution. However, this formal recognition coexists with a complex and often restrictive operational environment that limits their autonomy and effectiveness in practice.

On the regulatory side, the framework remains fragmented and, in some respects, underdeveloped. A key concern is Article 77 of the 2022–2026 National Development Plan, which introduces registration and reporting obligations that may lead to the automatic dissolution of organizations that fail to comply. Although this provision has not yet been fully regulated, its potential implementation continues to generate uncertainty, particularly due to the risk of disproportionate administrative burdens and discretionary enforcement. These concerns are especially acute for grassroots, territorial, and ethnic organizations, which often lack the technical and financial capacity to meet such requirements.<sup>39</sup>

At the same time, there have been selective institutional advances. Notably, Decree 1229 of 2025 reformed the National Planning System following a participatory process involving civil society and territorial actors. This reform aims to strengthen citizen participation in public planning processes and improve coordination across different levels of government, opening new opportunities for CSO engagement in decision-making.

Despite these developments, significant barriers persist. Administrative requirements are inconsistently applied, and limited institutional capacity further complicates compliance, particularly

for smaller organizations. Moreover, the broader political context, marked by polarization and the approach of the 2026 elections, has constrained progress on deeper structural reforms to enhance civic space.<sup>40</sup>

## Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Colombia ratified the Escazú Agreement and incorporated it into domestic law in 2022, marking a significant normative commitment. Implementation across the four pillars is uneven, reflecting both Colombia's pre-existing legal architecture and persistent operational gaps.

**(i) Access to environmental information.** Colombia has a relatively well-developed information access regime, including Law 1712 of 2014 on Transparency and Access to Public Information. Environmental authorities such as the National Authority of Environmental Licences (ANLA) maintain online portals for complaints and licence tracking<sup>41</sup>. However, uneven local enforcement, resource constraints and fragmented data systems limit the practical usability of this framework, particularly at subnational level.

**(ii) Public participation in environmental decision-making.** Participation mechanisms are embedded in Colombian environmental law, including through prior consultation rights for indigenous and Afro-descendent communities under ILO Convention 169 and domestic jurisprudence. Recent judicial decisions, such as the 2024 ruling suspending the Uchuva-2 gas well for lack of prior consultation, confirm the justiciability of these participation rights.

Check box below about the case example of Uchuva-2 Gas Well in Colombia for more details on the obligation of community participation.

**(iii) Access to justice.** The Colombian legal system offers a particularly rich set of mechanisms for CSOs and communities to seek environmental justice, including constitutional actions (*tutela*, *acción popular*, *acción de cumplimiento*), civil class actions (*acción de grupo*), contentious administrative litigation, and criminal complaints. These are further described in Section IV below.

**(iv) Protection of environmental defenders.** While Colombia has adopted several protection programmes, including the National Protection Unit (UNP)<sup>42</sup>, their reach and effectiveness remain limited given the scale of violence. With 501 killings from 2012 to 2024, Colombia has the highest number of reported environmental defender killings globally on record<sup>43</sup>. The country's persistently high toll of murdered defenders underscores the gap between formal protection frameworks and on-the-ground realities, making this the most fragile Escazú pillar in practice.

## Institutional landscape for nature crime

Colombia's environmental enforcement landscape is characterised by a multi-level institutional architecture combining national, regional and local bodies, with specialised criminal investigation capacity at the Attorney General's Office. The principal bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation and attacks on defenders are grouped below by function.

## A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**National Authority of Environmental Licences (Autoridad Nacional de Licencias Ambientales - ANLA).** The ANLA is the licensing authority for projects and activities of national environmental relevance (e.g. large infrastructure, hydrocarbons, energy and mining projects). It processes licence applications, conducts compliance monitoring and handles sanctioning procedures. CSOs can file complaints and reports of violations through its online forms, making it a key administrative entry point for environmental accountability.

### **Regional Autonomous Corporations (Corporaciones Autónomas Regionales - CARs).**

Decentralised public agencies responsible for environmental management and enforcement at the regional level. CARs issue environmental permits and licences for projects within their jurisdictions, conduct inspections, adopt precautionary measures and impose administrative sanctions. Their proximity to local realities makes them strategic interlocutors for CSOs, although capacity and enforcement effectiveness vary considerably across regions.

**Local Environmental Authorities.** Municipal-level authorities handle local enforcement and inspections, complementing the action of the CARs in urban and peri-urban contexts.

**National Natural Parks of Colombia (Parques Nacionales Naturales de Colombia).** Responsible for administering, supervising and protecting the national protected-area system. It monitors activities inside national parks and other protected territories, adopts management plans and supports enforcement against illegal deforestation, mining and other activities occurring within these areas.

## B. Policy and strategic coordination

These institutions define environmental policy, regulatory frameworks and overall governance strategies.

**Ministry of Environment and Sustainable Development (Ministerio de Ambiente y Desarrollo Sostenible).** Sets national environmental policy, coordinates the National Environmental System (SINA), and oversees regulation of key areas such as forests, biodiversity, water resources and climate change. It provides the policy framework within which ANLA, CARs and other environmental authorities operate.

## C. Criminal investigation and enforcement

These institutions are responsible for investigating and prosecuting environmental crimes.

**Attorney General's Office (Fiscalía General de la Nación).** Investigates and prosecutes environmental crimes. Following the 2021 Environmental Crimes Law, a **Specialised Directorate for Crimes against Natural Resources and the Environment** was established within the Fiscalía, providing a dedicated unit for the investigation of complex environmental cases. Any individual, CSO or community may file a criminal complaint for environmental offences, including illegal deforestation, environmental pollution, illegal mining and crimes against environmental defenders.

**Environmental Police and specialised enforcement units.** Colombian enforcement relies on a combination of environmental police and multi-agency operational deployments, including, in recent

years, military operations targeting deforestation and illegal mining. These operations have produced mixed results and have drawn criticism where they have focused on smallholder farmers rather than the larger economic actors financing deforestation.

## D. Oversight and access to justice

These institutions contribute to accountability by receiving complaints, conducting oversight and facilitating access to justice.

**Office of the Ombudsman (Defensoría del Pueblo).** Receives complaints concerning environmental and human rights violations, monitors compliance with environmental rulings, and may file *acciones populares* on behalf of communities. The Ombudsman has played a significant role in cases involving environmental defenders and communities affected by extractive activities.

**Office of the Inspector General (Procuraduría General de la Nación).** Exercises disciplinary and preventive oversight over public officials and has used administrative non-compliance mechanisms to compel State compliance with environmental mandates, including under the 2018 climate action framework.

## Legal routes available for civil society

### A. Categories of nature crimes

Environmental crimes in Colombia are principally defined under **Law 2111 of 2021** (the Environmental Crimes Law), which replaced Title XI of the Criminal Code and amended the Criminal Procedure Code, making penalties and sanctions more severe for crimes affecting the environment. The law establishes, among others, the following standalone offences:

**Illegal deforestation** – the clearing of forests in violation of applicable authorisations and environmental regulations - 5 years to 12 years

**Ecocide** – large-scale, systematic or massive destruction of ecosystems causing serious and lasting environmental harm - 5 years to 11 years and a fine

**Illegal mining** – the exploitation of mineral resources without the required authorisations or in protected areas - 2 years and a half to 12 years and a fine

**Wildlife trafficking** – the illegal capture, trade and transport of protected species.

**Environmental pollution** – acts of contamination of air, water and soil causing significant damage to ecosystems and public health - 5 years to 12 years and a fine

**Financing of environmental crimes** - promotion, financing or facilitating the burning, cutting, uprooting or destruction of areas equal or bigger than one hectare of natural forest - 12 years to 15 years and a fine

A 2024 report published by Colombia's Ministry of Justice<sup>44</sup> identified the three most frequently reported environmental crimes as: (i) illegal exploitation of renewable natural resources (823 records), (ii) environmental pollution (237 records), and (iii) environmental pollution caused by mining or hydrocarbon exploitation. Between 2018 and 2024, the Attorney General's Office reported 2,376 criminal investigations related to environmental crimes in the Amazon region, of which only 147 resulted in a conviction, underscoring a significant enforcement gap.

## B. Routes for legal action

The legal routes available to CSOs and indigenous communities to defend against nature crimes fall into four broad categories: constitutional mechanisms, criminal proceedings, civil actions, and administrative mechanisms, complemented by international mechanisms. In practice, these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

### 1. Judicial Mechanisms

Judicial mechanisms provide formal avenues to seek accountability, reparation and the protection of environmental and constitutional rights. They allow CSOs and affected communities to escalate environmental harm beyond administrative processes, particularly in cases involving significant damage, rights violations or lack of effective governmental response.

#### a. Constitutional Mechanisms

The Colombian Constitution establishes three constitutional actions of particular relevance to environmental protection: the *acción de tutela*, the *acción popular* and the *acción de cumplimiento*.

**Constitutional action for the protection of fundamental rights (Acción de tutela).** The *tutela* is designed to provide urgent protection of fundamental rights threatened by State or private actors, including in cases where nature crime or environmental harm endangers rights to life, health, water or a healthy environment. It is available to any person or representative, including entities and communities, and Colombian jurisprudence has recognised standing for guardianship on behalf of nature itself. Judges are required to decide on a *tutela* swiftly, typically within 10 days. The *tutela* is particularly effective where environmental harm presents an urgent threat to human rights, as it enables rapid precautionary and structural measures.

See case box below on the case “Future Generations v. Ministry of Environment (2018)” for an exemplification.

**Popular action (Acción popular).** The *acción popular* is a legal action for the protection of collective rights and interests, including the right to a healthy environment. CSOs and indigenous communities may seek precautionary measures against activities that threaten collective rights, orders to cease harmful activities (e.g. illegal mining or deforestation), restorative measures and collective reparation. Colombian law provides broad standing: any person, CSO, community or the Public Ministry may file a popular action, without having to demonstrate personal harm.

**Compliance action (Acción de cumplimiento).** The *acción de cumplimiento* is designed to compel public authorities to enforce laws and comply with their administrative duties (e.g. enforcement of forest, mining and water rules, or climate and deforestation plans). Legal standing is broad, allowing any individual or entity with a legitimate interest to demand compliance. Filing a request or complaint with the relevant authority is typically a prerequisite.

#### b. Criminal Proceedings

Following the adoption of the 2021 Environmental Crimes Law and the creation of the Specialised Directorate for Crimes against Natural Resources and the Environment within the Attorney General's Office, any individual, CSO or community may file a criminal complaint (*denuncia*) regarding

environmental crimes such as illegal deforestation, pollution, illegal mining, environmental damage and crimes against environmental activists (e.g. personal injuries or homicide).

Despite these normative advances, enforcement of the law faces significant practical obstacles. Prosecutors and judges frequently lack specialised expertise in investigating environmental crimes. Civil society organisations and human rights groups have also raised concerns about corruption and selective enforcement, noting that the law may be applied disproportionately against smallholder farmers along the agricultural frontier rather than against the economic and financial actors driving large-scale deforestation.<sup>45</sup>

c. Civil Actions

**Class actions (Acción de grupo).** Class action lawsuits have long been available in Colombia to groups of at least 20 persons seeking collective redress for damages suffered. This action may be used to seek reparation for harms caused by environmental crimes, such as pollution and deforestation, where the claimant group can demonstrate that its members were similarly affected by the same harmful event.

d. Contentious Administrative Litigation

Administrative mechanisms are available for disputes involving public entities and challenges to administrative acts. CSOs and indigenous communities may file legal challenges before Colombian administrative courts against unlawful licences and permits, as well as sanctions issued by environmental authorities. Applicants may request the nullification of unlawful licences, the suspension of extractive projects that breach environmental norms or bypass consultation, and orders requiring public authorities to adopt precautionary measures. Legal standing is broad and CSOs are commonly admitted as claimants. A recent successful example is the 2024 ruling suspending operations at the **Uchuva-2 gas well**, where the court held that the project had been developed without prior consultation with affected indigenous peoples.

2. Administrative Mechanisms

Administrative actions include complaints to environmental authorities, requests for initiation of sanctioning procedures, and challenges to environmental licences, permits or authorisations. These mechanisms allow for the suspension, modification or annulment of administrative decisions, and can both halt ongoing environmental harm and create an official record to support further judicial or criminal action.

CSOs and affected parties can engage the relevant administrative bodies (described in Sections III.A and III.D) through the procedures summarised below.

| Body                                                            | How to engage                                                                                           | Legal standing                                                           | Time limit                                                                                                 | Cost                                           |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| National Authority of Environmental Licences (ANLA) - see III.A | File complaints regarding violations associated with projects or activities with national environmental | Any person or organisation with a legitimate interest; standing is broad | Typically within the time limit set by the Code of Administrative Procedure for challenging administrative | No filing fee; legal representation costs vary |

|                                                                    |                                                                                                                                                                                                  |                                                                             |                                                                                                              |               |
|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------|
|                                                                    | licences (large infrastructure, hydrocarbons, energy and mining where ANLA is the licensing authority); challenge administrative acts                                                            |                                                                             | acts                                                                                                         |               |
| <b>Regional Autonomous Corporations (CARs)</b> - see III.A         | Report alleged environmental violations within the region; request initiation of sanctioning proceedings, precautionary measures (e.g. suspension of activities) or revocation of authorisations | Any person, CSO or community, without the need to demonstrate personal harm | No strict limitation for reporting violations; time limits apply to challenging specific administrative acts | No filing fee |
| <b>Office of the Ombudsman (Defensoría del Pueblo)</b> - see III.D | Submit complaints related to environmental and human rights violations; request investigation, monitoring of compliance with rulings and filing of <i>acciones populares</i>                     | Any person or group, regardless of direct affectation                       | No strict limitation period                                                                                  | No filing fee |

### Case examples of successful litigation

#### Future Generations v. Ministry of Environment (2018)<sup>46</sup>

A *tutela* action brought by 25 young claimants challenged the Colombian government's failure to protect the Amazon rainforest from deforestation, alleging that their fundamental rights were threatened as a result. The Supreme Court of Justice ruled in favour of the claimants, recognising the direct link between deforestation, climate change and the fundamental rights to life, health and a healthy environment for present and future generations. The Court further declared the Colombian Amazon a "**subject of rights**," entitled to protection, conservation, maintenance and

restoration, and ordered the government to design and implement action plans to reduce deforestation and to develop an **Intergenerational Pact for the Life of the Colombian Amazon**.

#### **Uchuva-2 gas well (2024)**<sup>47</sup>

On September 11, 2024, a Colombian court ordered the immediate suspension of all exploration and exploitation activities at the Uchuva-2 offshore gas well, operated jointly by Ecopetrol and Petrobras in the Caribbean Sea, after finding that the project had been developed without proper prior consultation with the Indigenous community of Taganga. The ruling explicitly acknowledged the fundamental rights of the Taganga community to prior consultation, due process, and the protection of their intellectual, cultural, and environmental heritage, and ordered the Ministry of Culture to collaborate with the Taganga Indigenous Council to create a plan to safeguard cultural practices and traditional knowledge related to maritime environments. The suspension was subsequently partially overturned on appeal, with the Santa Marta Tribunal ordering the Ministry of Interior to assess the necessity of a prior consultation process within one month.

### **Use of remote sensing evidence in nature crime prosecution**

CSOs play a central role in generating and structuring evidence of environmental harm, particularly through remote sensing technologies such as satellite imagery, geospatial mapping and digital monitoring tools. This evidence is incorporated into legal proceedings through multiple evidentiary forms, although the degree to which it is accepted by public authorities depends on the evidentiary requirements and technical standards established within national legal and institutional frameworks.

In Colombia, remote sensing evidence is accepted under general evidentiary rules and has been used successfully to support both administrative and judicial actions, particularly in cases involving illegal mining, deforestation and permitting irregularities affecting protected areas, water sources and indigenous territories.

- **Legal framework.** Colombia does not have a specific legal provision regulating the admissibility of remote sensing evidence. In practice, admissibility is assessed under the general evidentiary regime of the Code of Criminal Procedure and the Code of Administrative Procedure, grounded in freedom of proof and judicial evaluation of evidence under rules of sound judgment. Any evidence must satisfy legality requirements and be incorporated into the process in accordance with applicable procedural rules.
- **Court acceptance.** Colombian courts accept geospatial and scientific data when properly authenticated. Illegal mining, illegal deforestation and permitting irregularities endangering protected areas, water sources and community health are commonly addressed with success when supported by strong technical records, including satellite monitoring, drone imagery and expert analyses. This strengthens requests for interim relief and restoration orders and is particularly effective in cases affecting indigenous territories, rivers and forests.
- **Technical standards.** Evidentiary integrity is safeguarded through general criminal and administrative procedure rules, and through practical evidence-control protocols. For remote sensing evidence, the following practices reduce admissibility risks:
  - *Source identification:* clear identification of the platform or provider (state entity or recognised provider), date/time, area of interest and method of acquisition;
  - *Metadata preservation:* retaining original files and metadata where available, and documenting each processing step;

- *Reproducibility*: preserving the workflow so an independent expert could reproduce the same outputs from the same source data;
- *Integrity documentation*: an evidence log documenting who handled the digital files, where they were stored, how they were transferred, and what controls were used to prevent tampering.

Colombian jurisprudence confirms that remote sensing evidence is far more likely to be accepted, and to survive adversarial scrutiny, when it is (i) accompanied by a formal expert report, (ii) supported by institutional records, and (iii) corroborated by field verification or police inspection where feasible. The assembly of community mandates, administrative files and expert reports early in a case has been identified as a key factor in obtaining robust judicial responses.

### Case example - use of remote sensing evidence in litigation

#### **Centro de Estudios para la Justicia Social Tierra Digna and others v. Colombia (T-622/2016, Constitutional Court, 10 November 2016)<sup>48</sup>**

In January 2015, Afro-Colombian and Indigenous communities living alongside the Atrato River, represented by Tierra Digna, filed an *acción de tutela* against the Presidency and more than two dozen state institutions, arguing that by allowing illegal mechanised gold mining to continue the government was violating their rights to life, health, water, food security, and cultural and territorial integrity. Satellite imagery produced by University of Portsmouth researchers working with ABColombia documented that since 2014 some 17 km<sup>2</sup> of rainforest on the Río Quito tributary had been destroyed by illegal mining, providing spatially explicit evidence of the rate and geographic extent of the destruction. In November 2016, the Constitutional Court declared the Atrato River a legal subject with rights to protection, conservation, maintenance and restoration, finding that the state had failed to take effective measures to stop illegal mining and had thereby caused a serious humanitarian and environmental crisis. The case's contribution to remote sensing extends beyond the initial ruling: during the pandemic, satellite mapping data was transmitted to the Court's own Comité de Seguimiento, enabling it to question the Ministry of Defence directly on actions to dismantle mining operations and documenting a rapid increase in mining activity. The case demonstrates that satellite evidence can serve both as a litigation instrument and as a tool for ongoing judicial compliance monitoring.

### Challenges in engagement with authorities

Engagement between CSOs and public authorities in Colombia is constrained by structural, procedural and security-related barriers that weaken accountability efforts. Although formal legal channels are comparatively well developed, they often fail to translate into timely or effective enforcement.

**Weak enforcement outcomes reduce deterrence.** There is a marked gap between the scale of environmental harm and the number of effective sanctions. Between 2018 and 2024, only 147 convictions were recorded out of 2,376 criminal investigations relating to environmental crimes in the Amazon region<sup>49</sup>. Limited specialised capacity within prosecutors' offices and courts, combined with the complexity of environmental cases, contributes to this enforcement gap.

**Limited institutional capacity and fragmentation.** Environmental authorities, prosecutors and courts frequently lack the technical expertise required to investigate and adjudicate complex

environmental crimes, particularly those involving geospatial evidence and organised criminal networks. Responsibility is distributed across national, regional and local bodies (ANLA, CARs, Parques Nacionales, municipal authorities), with uneven coordination and significant variation in enforcement effectiveness across regions.

**Security risks and violence against defenders** are a defining feature of the Colombian context. Colombia remains the deadliest country in the world for environmental defenders, with hundreds of killings recorded since 2012. This environment of violence discourages CSOs from engaging in sensitive cases, increases the costs of advocacy, and constrains the willingness of witnesses and communities to provide evidence. Existing protection schemes, such as the National Protection Unit (UNP), have struggled to keep pace with the scale of the threat.

**Political interference, corruption and selective enforcement** further undermine engagement. Powerful sectors linked to illegal mining, agribusiness, logging and armed groups exercise significant influence over local authorities and enforcement bodies. CSOs and human rights groups have raised concerns that the 2021 Environmental Crimes Law may in practice be used against small-scale actors along the agricultural frontier rather than against the financiers and beneficiaries of large-scale deforestation.

**Militarised enforcement with mixed results.** In response to international pressure, the Colombian government has launched military operations (e.g. from 2019 onward)<sup>50</sup> to combat deforestation, illegal mining and wildlife trafficking in the Amazon.<sup>51</sup> These operations have produced some tangible enforcement outcomes but have also drawn criticism for disproportionately targeting smallholder farmers and failing to dismantle the economic chains behind environmental crime.

**Procedural barriers**, including delays, fragmented data systems and uneven transparency at subnational level, restrict CSOs' ability to follow cases and sustain engagement over time. Although Colombia has a relatively robust information access regime, in practice access to specific data such as environmental licensing files, mining cadastres and sanctioning records can be slow and uneven, with significant variation between CARs and other authorities.

## Conclusion & recommendations

Colombia has one of the most developed legal frameworks in the Amazon region for civil society engagement on nature crime, combining constitutional actions, criminal mechanisms, civil and administrative avenues with domestic incorporation of the Escazú Agreement. Landmark judicial decisions - recognising the Colombian Amazon and the Atrato River as subjects of rights - have set regionally and internationally significant precedents. At the same time, the gap between formal rights and effective enforcement remains wide, shaped by weak conviction rates, institutional fragmentation, corruption and, critically, by a persistent pattern of violence against environmental defenders. Strengthening environmental accountability in Colombia therefore requires not only institutional reform but also a sustained investment in the security, technical capacity and legal support of civil society actors.

**1. Strengthen institutional capacity and specialisation.** Build on the creation of the Specialised Directorate for Crimes against Natural Resources and the Environment within the Fiscalía by expanding specialised environmental units in the judiciary and CARs; providing systematic training on the evaluation of scientific and geospatial evidence; and reinforcing inter-institutional coordination between ANLA, CARs, Parques Nacionales, the Fiscalía and environmental police to ensure coherent administrative and criminal responses.

**2. Strengthen protection and enabling environment for defenders and CSOs.** Reinforce and adequately resource the National Protection Unit and related programmes; develop tailored protection measures for environmental defenders in Amazonian regions and territories affected by illegal economies; and consolidate mechanisms for rapid response to threats, in line with Colombia's obligations under the Escazú Agreement.

**3. Enhance access to environmental information.** Build on Law 1712 of 2014 to ensure that environmental licensing files, sanctioning records, mining cadastres and monitoring data are systematically published in machine-readable formats; harmonise information systems across national and regional authorities; and reduce inconsistencies between CARs in the disclosure of environmental information.

**4. Strengthen evidentiary frameworks for remote sensing.** Institutionalise the FCDS – Fiscalía model by encouraging formal cooperation agreements between technical CSOs and public authorities; develop guidelines or protocols for the admissibility of geospatial evidence; and support the development of in-house capacity within enforcement bodies to interpret and validate satellite and drone data.

**5. Improve sanction effectiveness and target enforcement on key economic actors.** Ensure that the 2021 Environmental Crimes Law is applied to the financial and organisational chains behind large-scale deforestation and illegal mining, rather than disproportionately to smallholders; strengthen the pursuit of financing offences; and link criminal sanctions more effectively to restoration and remediation obligations in coordination with administrative authorities.

## Ecuador

### Status of CSOs, protection and transparency

Ecuador formally guarantees freedom of association under Article 66(13) of the 2008 Constitution, which recognises the right of persons to associate, gather and demonstrate freely and peacefully. Article 96 further recognises all forms of social organisation as expressions of popular sovereignty and assigns the State the duty to guarantee their legal recognition.<sup>52</sup>

The regulatory environment for civil society, however, has varied significantly over the last decade. Executive Decree No. 16 of 2013 and Decree No. 739 of 2015 subjected NGOs to a centralised registration regime and granted the Executive broad discretionary powers to dissolve organisations on vague grounds, including interference with public policy. These provisions were criticised internationally and were applied in 2013 to dissolve the environmental organisation Fundación Pachamama shortly after it supported protests against oil expansion in the southern Amazon.<sup>53</sup>

Executive Decree No. 193 of 2017 and its 2023 reform (Decree No. 648) replaced Decrees 16 and 739, narrowing (although not eliminating) the grounds for administrative de-registration and simplifying registration. CIVICUS Monitor nonetheless continues to classify Ecuador's civic space as "obstructed", reflecting ongoing concerns about discretionary oversight and shrinking space for contentious advocacy.<sup>54</sup>

Ecuador also presents a demanding operational context for environmental defenders. Global Witness data identify Ecuador among the countries with the highest per-capita rates of lethal attacks against land and environmental defenders in Latin America, with 5 documented killings in 2023 and further cases in previous years.<sup>55</sup> High-profile cases include the killing of Shuar leader José Tendetza Antún

in December 2014, shortly before he was to testify at the International Tribunal on the Rights of Nature in Lima; the assassination of Cofán leader Eduardo Mendúa in February 2023; and the killing of anti-mining defender Andrés Durazno in April 2024 in Molleturo (Azuay).<sup>56</sup>

## Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Ecuador signed the Escazú Agreement on 27 September 2018 and deposited its instrument of ratification on 21 May 2020, making it one of the early Amazonian States Parties. The Agreement is self-executing in the Ecuadorian legal order and has been incorporated as a normative reference in administrative practice and judicial reasoning on environmental matters.<sup>57</sup>

**(i) Access to environmental information.** Ecuador adopted the Organic Law on Transparency and Access to Public Information (LOTAIP) in 2004, which requires all public entities to disseminate institutional information proactively and to respond to requests within fixed deadlines. Environmental information held by MAATE, ARCERNNR and the Fiscalía is partially available online, but coverage is uneven and data on environmental licensing, sanctions and mining concessions is often difficult to obtain in practice.<sup>58</sup>

**(ii) Public participation in environmental decision-making.** Article 57(7) of the Constitution recognises the right of Indigenous communes, communities, peoples and nationalities to free, prior and informed consultation on plans and programmes affecting their territories. Article 398 guarantees environmental consultation with the community in decisions affecting the environment. The Organic Environmental Code (CODA) of 2017 and its 2019 regulations further develop participation rights within environmental licensing, protected area management and strategic environmental assessment, although their implementation remains uneven.<sup>59</sup>

**(iii) Access to justice.** Ecuador has a particularly rich constitutional framework for access to environmental justice, combining the constitutional guarantees contained in LOGJCC (acción de protección, acción por incumplimiento, acción de acceso a la información, hábeas data and acción extraordinaria de protección) with a broad legal standing to defend the Rights of Nature under Articles 71 and 397 of the Constitution. These mechanisms are described in Section IV below.

**(iv) Protection of environmental defenders.** Ecuador does not yet have a dedicated national protection programme for environmental defenders comparable to Colombia's National Protection Unit. The Defensoría del Pueblo operates an early-warning system and occasionally issues precautionary measures, but Amnesty International and other organisations have documented significant gaps in institutional response, follow-up and risk prevention. Ecuador co-sponsored the 2024 Escazú Action Plan on Human Rights Defenders in Environmental Matters, providing a regional normative anchor for future reforms.<sup>60 61</sup>

## Institutional landscape for nature crime

Ecuador's environmental enforcement landscape combines a unitary national structure with specialised sub-units within the Public Prosecutor's Office and the National Police. The principal

bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation and attacks on defenders are grouped below by function.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**Ministry of Environment, Water and Ecological Transition (MAATE).** MAATE, created by Executive Decree No. 59 of 2021 through the merger of the former Ministry of Environment and the Secretariat of Water, is the principal national environmental authority. It grants environmental licences, administers the National System of Protected Areas (SNAP), conducts inspections and imposes administrative sanctions under the CODA. It is also the designated focal point for the Escazú Agreement.<sup>62</sup>

**Agency for the Regulation and Control of Energy and Non-Renewable Natural Resources (ARCERNR).** ARCERNR, successor to ARCOM, is the mining and energy regulator. It is responsible for granting and overseeing mining rights, verifying compliance with concession terms, and coordinating with MAATE and the Fiscalía in cases of illegal mining or non-compliance with environmental obligations.<sup>63</sup>

**Sectoral authorities and subnational governments.** Decentralised Autonomous Governments (GADs) exercise environmental competences for land use, solid waste and local environmental management under the Organic Code of Territorial Organisation (COOTAD). MAATE may accredit GADs as environmental control authorities for specific competences.

### B. Policy and strategic coordination

**Ministry of Environment, Water and Ecological Transition (MAATE)** also acts as the national policy authority, coordinating the National Environmental System and articulating biodiversity, climate and forest policy with sectoral ministries. Strategic coordination is reinforced by the National Planning Secretariat (Secretaría Nacional de Planificación).

### C. Criminal investigation and enforcement

**Fiscalía General del Estado.** The Fiscalía investigates and prosecutes environmental crimes under the COIP. Following reforms in 2022–2023, specialised environmental crime fiscalías have been established in Amazonian provinces (including Sucumbíos, Orellana, Napo and Morona Santiago), and the Directorate of Specialised Organised Crime (FEDOTI) handles environmental offences committed in the context of transnational criminal organisations.<sup>64</sup>

**National Police – Environmental Protection Unit (UPMA).** UPMA is the operational arm of the National Police specialised in the prevention, investigation and control of environmental offences, including illegal logging, wildlife trafficking and illegal mining. It supports the Fiscalía with field interventions, seizures and technical reports and increasingly deploys geospatial tools for targeting operations in the Amazon.<sup>65</sup>

**Armed Forces.** Following the declaration of an internal armed conflict in January 2024, the Armed Forces have been deployed to support the control of illegal mining and other illegal economies in remote areas, particularly in the Napo and Zamora-Chinchipe provinces, often jointly with the Police and Fiscalía.<sup>66</sup>

## D. Oversight and access to justice

**Office of the Ombudsman (Defensoría del Pueblo).** The Defensoría del Pueblo is a constitutionally autonomous body with a mandate to promote, protect and ensure human rights and rights of nature, to receive complaints, to issue non-binding recommendations and, notably, to file constitutional actions on behalf of affected persons, communities and nature itself.<sup>67</sup>

**Office of the Comptroller General (Contraloría General del Estado).** The Comptroller carries out environmental audits of public entities, oversees the legality of public contracts with environmental implications and can refer cases of administrative and criminal responsibility to the competent authorities.<sup>68</sup>

**Constitutional Court.** The Constitutional Court is the highest authority on the rights of nature and constitutional environmental rights. It hears the acción extraordinaria de protección and selects emblematic cases (including from the acción de protección) for precedent-setting jurisprudence; it has developed a consolidated rights-of-nature doctrine since 2021.

**National System of Protected Areas (SNAP).** SNAP, administered by MAATE, manages 59 protected areas covering approximately 20 per cent of national territory, including iconic Amazonian areas such as Yasuní, Cuyabeno and Limoncocha. Protected-area status triggers aggravated penalties under the COIP for a range of environmental offences.<sup>69</sup>

## Legal routes available for civil society

### A. Categories of nature crimes

Environmental crimes in Ecuador are principally defined in Book II, Title IV, Chapter IV of the Integral Organic Criminal Code (COIP, 2014), titled “Offences against the Environment and Nature or Pacha Mama”. The catalogue of offences includes, among others:<sup>70</sup>

- **Invasion of protected areas or areas of environmental importance** (Art. 245), causing serious damage to biodiversity and natural resources - imprisonment of 3 years or 13 to 16 years if the invasion causes the death of a person.
- **Offences against wild flora and fauna** (Arts. 246–248), including illegal deforestation, trafficking and unlawful management of wild species – imprisonment for 1 to 3 years.
- **Offences against water resources, soil and air** (Arts. 251–253) - imprisonment for 3 to 5 years.
- **Hazardous waste management** (Art. 254) and false environmental information (Art. 255) - imprisonment for 1 to 3 years or 16 to 19 years if the illegal management of a hazardous substance causes the death of a person.
- **Omission by public servants** (Art. 257), where the failure to prevent or report environmental crimes becomes itself a criminal offence - imprisonment for 1 to 3 years.
- **Illegal mining** (Art. 260), including extraction without authorisation or in protected areas, with aggravating circumstances for activities on Indigenous lands or in the National System of Protected Areas - imprisonment for 5 to 7 years, or 1 to 3 years if it is artisanal mining. If the illegal mining causes environmental degradation, the sentence could go up to 7 to 10 years.

Article 258 of the Integral Organic Criminal Code establishes sanctions for legal entities, providing for fines that range from 100 minimum wages to 500,000.

Article 396 of the Constitution establishes the imprescriptibility of environmental liability, and Article 397(2) reverses the burden of proof in environmental matters, requiring defendants to demonstrate that no harm was caused. These principles substantially lower the evidentiary threshold for CSOs in environmental litigation.<sup>71</sup>

## B. Routes for legal action

The legal routes available to CSOs and Indigenous communities to defend against nature crimes fall into four broad categories: constitutional mechanisms, criminal proceedings, administrative mechanisms and international mechanisms. In practice these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

### 1. Judicial Mechanisms

Judicial mechanisms provide formal avenues to seek accountability, reparation and the protection of environmental and constitutional rights. They allow CSOs and affected communities to escalate environmental harm beyond administrative processes, particularly in cases involving significant damage, rights violations or lack of effective governmental response.

#### a. Constitutional Mechanisms

The Constitution and the Organic Law of Jurisdictional Guarantees and Constitutional Control (LOGJCC, 2009) establish a coordinated set of constitutional actions directly relevant to the defence of the environment and the rights of nature.<sup>72, 73</sup>

**Constitutional protection action (Acción de protección).** The acción de protección (Art. 88 of the Constitution) is the general-purpose constitutional action against any act or omission by a public authority or private actor that violates constitutional rights, including the right to a healthy environment and the rights of nature. It is available to any person, group or community, without the need to exhaust administrative remedies where there is a risk of irreparable harm. It was the procedural vehicle of both the Vilcabamba River and Los Cedros decisions.

**Compliance action (Acción por incumplimiento).** The acción por incumplimiento (Art. 93) may be used to compel public authorities to enforce environmental laws, regulations or international obligations, including those arising under the Escazú Agreement. It is heard directly by the Constitutional Court.

**Public information action (Acción de acceso a la información pública).** Provided in Article 91 of the Constitution and developed by LOTAIP and LOGJCC, this action is widely used by CSOs to obtain environmental licensing files, inspection records and enforcement data.

**Extraordinary protection action (Acción extraordinaria de protección).** The acción extraordinaria de protección (Art. 94) lies against judicial decisions that violate constitutional rights. In environmental cases it has been used to challenge rulings that dismissed environmental claims on procedural grounds and, conversely, has been filed by public authorities and concessionaires seeking to overturn Rights of Nature rulings at first instance.

**Precautionary measures (Medidas cautelares).** LOGJCC Articles 26–39 allow the Court to adopt precautionary measures independently or jointly with a constitutional action, in order to prevent or cease the imminent violation of rights. These measures have been instrumental in securing the immediate suspension of extractive projects pending substantive adjudication.

**Legal standing for the defence of nature.** Ecuador’s Constitution grants one of the broadest standing regimes in the world in environmental matters. Article 71 entitles any person, community, people or nationality to demand compliance with the rights of nature, while Article 397(1) grants legal standing to any natural or legal person to pursue environmental protection actions, without needing to demonstrate direct personal interest.

### ***b. Criminal Proceedings***

Any individual, CSO or community may file a criminal complaint (*denuncia*) with the Fiscalía in respect of the environmental offences defined in Articles 245 to 260 of the COIP. Upon receipt of a *denuncia*, the Fiscalía is required to open preliminary investigative steps, including requesting information from MAATE and ARCERNNR, coordinating with UPMA, and ordering expert inspections. Victims, including communities and CSOs with a direct interest in the protection of affected ecosystems, may lodge a private prosecution (*acusación particular*) to participate actively in the proceedings, propose evidence and challenge prosecutorial decisions.

The establishment of specialised environmental fiscalías in Amazonian provinces from 2022–2023 has created a more accessible interface for CSO complaints, although convictions remain disproportionately low relative to the volume of reports received. Conviction rates for environmental offences are reported irregularly by the Fiscalía; civil-society estimates suggest that successful prosecutions under Articles 245 to 260 remain in the low single digits as a proportion of reported cases.<sup>74</sup>

### ***c. Civil and Contentious Administrative Litigation***

Civil and contentious administrative proceedings are governed by the Organic General Code of Processes (COGEP) of 2015. CSOs and affected communities may bring civil claims for environmental damages — including compensation and restoration orders — and may challenge administrative acts such as environmental licences, mining concessions, sanctioning decisions and decisions affecting protected areas before the contentious administrative courts. The reversal of the burden of proof provided in Article 397(2) of the Constitution applies in these proceedings, significantly strengthening the position of claimants.<sup>75</sup>

The Intag / Llorimagua litigation, in which the Provincial Court of Imbabura suspended mining operations of ENAMI and Codelco in March 2023 on the basis of inadequate consultation and violation of the rights of nature, illustrates the combined use of contentious administrative and constitutional routes.<sup>76</sup>

### ***d. Indigenous Jurisdiction***

Article 171 of the Constitution recognises the jurisdiction of the authorities of Indigenous communities, peoples and nationalities to resolve disputes within their territories on the basis of their own traditions and customary law, subject to respect for constitutional rights and the rights of women. The Constitutional Court has clarified the scope of Indigenous jurisdiction in decisions such as La Cocha II. While Indigenous jurisdiction rarely substitutes for ordinary jurisdiction in serious

environmental crime, its recognition reinforces the role of Indigenous authorities in protecting their territories and in coordinating with State authorities in cases of illegal mining, logging and trafficking.<sup>77</sup>

## 2. Administrative Mechanisms

Administrative actions before MAATE and ARCERNNR include complaints, requests for the initiation of sanctioning proceedings, challenges to environmental licences or mining titles, and requests for precautionary measures under the CODA. These mechanisms allow for the suspension, modification or annulment of administrative decisions, and can serve both to halt ongoing environmental harm and to create an official record that may support further judicial or criminal action.<sup>78</sup>

CSOs and affected parties can engage the relevant administrative bodies (described in Section IV.A and IV.D above) through the procedures summarised below.

| Body                                                                                                       | How to engage                                                                                                                                                                                           | Legal standing                                                                                                              | Time limit                                                                                                   | Cost                                           |
|------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Ministry of Environment, Water and Ecological Transition (MAATE) — see III.A                               | File complaints regarding environmental violations associated with licensed projects; request initiation of sanctioning procedures, precautionary measures or revocation of licences and authorisations | Any person or organisation; legal standing for the defence of nature is broad under Arts. 71 and 397(1) of the Constitution | No strict limitation for reporting violations; specific time-limits apply to challenging administrative acts | No filing fee; legal representation costs vary |
| Agency for the Regulation and Control of Energy and Non-Renewable Natural Resources (ARCERNNR) — see III.A | Report alleged violations of mining concessions or energy activities; request inspection, suspension or revocation of mining rights and authorisations                                                  | Any person, CSO or community, without the need to demonstrate personal harm                                                 | No strict limitation for reporting; contentious time-limits apply to administrative acts                     | No filing fee                                  |
| Office of the Ombudsman (Defensoría del Pueblo) — see III.D                                                | Submit complaints on environmental and human rights violations; request investigation,                                                                                                                  | Any person or group, regardless of direct affectation                                                                       | No strict limitation period                                                                                  | No filing fee                                  |

|  |                                                                                                         |  |  |  |
|--|---------------------------------------------------------------------------------------------------------|--|--|--|
|  | precautionary measures and filing of constitutional actions on behalf of affected communities or nature |  |  |  |
|--|---------------------------------------------------------------------------------------------------------|--|--|--|

### Case examples of successful litigation

#### Los Cedros (Constitutional Court, 2021)<sup>79</sup>

In Sentencia No. 1149-19-JP/21, the Constitutional Court annulled environmental authorisations for metallic mining in the Los Cedros Protective Forest, holding that mining was incompatible with the rights of nature, the right to water and the right to a healthy environment. The Court ordered MAATE and ARCERNNR to comply with environmental consultation obligations and developed detailed reasoning on the application of the precautionary principle to biodiversity hotspots.

#### Piatúa River Case (Provincial Court of Pastaza, 2019)<sup>80</sup>

In 2017, Ecuador's Ministry of the Environment granted a 40-year concession to the private company GENEFRAN S.A. to build a hydroelectric dam on the Piatúa River in the Pastaza province of the Ecuadorian Amazon, without following the processes of free, prior, and informed consultation and without the consent of the Kichwa People of Santa Clara. The project authorized the intake of 90% of the river's ecological flow and its relocation to the Jandayacu River, seriously affecting the environmental balance of both rivers.

In 2019, an *acción de protección* was filed jointly by the Kichwa communities of Santa Clara, Fundación Pachamama, the Pastaza Ombudsman's Office, the PUCE Human Rights Center, and the Río Napo Foundation, invoking the communities' collective rights and the rights of nature of the Piatúa River. A coalition of civil society organizations and law professors also submitted an *amicus curiae* brief before Ecuador's Constitutional Court calling for the protection of the river based on the Rights of Nature and Indigenous rights.

The Provincial Court of Pastaza accepted the action and declared the violation of the rights of the communities and the river. As a comprehensive reparation measure, it suspended the hydroelectric project and withdrew the authorization affecting the river flow, and revoked the environmental license authorized by the Ministry of the Environment. In June 2020, Ecuador's Constitutional Court selected the case to generate binding jurisprudence on the rights of nature and collective rights.

### Use of remote sensing evidence in nature crime prosecution

CSOs play a central role in generating and structuring evidence of environmental harm, particularly through remote sensing technologies such as satellite imagery, geospatial mapping and digital monitoring tools. This evidence is incorporated into legal proceedings through multiple evidentiary forms, although the degree to which it is accepted by public authorities depends on the evidentiary requirements and technical standards established within national legal and institutional frameworks.

In Ecuador, remote sensing evidence is accepted under general evidentiary rules, and has been used successfully to support constitutional, criminal and administrative actions, particularly in cases involving illegal mining, illegal deforestation and permitting irregularities affecting protected areas and Indigenous territories.

- *Legal framework.* Ecuador does not have a specific legal provision regulating the admissibility of remote sensing evidence. In practice, admissibility is assessed under the general evidentiary regime of the Organic General Code of Processes (COGEP)<sup>81</sup> for civil and contentious administrative proceedings, and under the Integral Organic Criminal Code (COIP) for criminal proceedings<sup>82</sup>. These codes admit documentary evidence (Arts. 159–166 COGEP), expert evidence (Arts. 193 COGEP and 511 COIP) and judicial inspection (Art. 228 COGEP). Article 397(2) of the Constitution reverses the burden of proof in environmental matters, which increases the practical weight of well-documented satellite evidence.<sup>83</sup>
- *Court acceptance.* Satellite imagery and geospatial data have been accepted as evidence in emblematic rights-of-nature and environmental cases, including Los Cedros, the Coca River oil spill case and the Intag / Llorimagua litigation. Courts have tended to give greater weight to satellite evidence that is accompanied by a formal expert report, linked to institutional records (MAATE, ARCERNNR, national geographic institutes) and corroborated by field verification or UPMA inspection.
- *Technical standards.* Evidentiary integrity is safeguarded through general criminal and civil procedure rules and through practical evidence-control protocols applied by the National Police and the Fiscalía, including documentation of collection, preservation, transfers and integrity measures for digital items. For remote sensing evidence, the following practices reduce admissibility risks:
  - *Source identification:* clear identification of the platform or provider (state entity, recognised international provider, or accredited CSO), date/time, area of interest and method of acquisition;
  - *Metadata preservation:* retaining original files and metadata where available, and documenting each processing step;
  - *Reproducibility:* preserving the workflow so an independent expert could reproduce the same outputs from the same source data;
  - *Integrity documentation:* an evidence log documenting who handled the digital files, where they were stored, how they were transferred, and what controls were used to prevent tampering.

### Case example — use of remote sensing evidence in litigation

#### Sinangoe Case (2018)<sup>84</sup>

The case concerned illegal and authorized gold mining activities affecting the ancestral territory of the A'L Cofán community of Sinangoe in the Ecuadorian Amazon. The mining concessions threatened rivers, biodiversity, Indigenous territory, and the community's way of life. In response, the Sinangoe Indigenous Guard conducted community-led monitoring and surveillance of mining activities over several months, collecting photographs, drone footage, satellite images, GPS data, and audiovisual evidence documenting illegal mining operations and their environmental impacts. Supported by the Ombudsman's Office, the community subsequently brought legal action against state authorities.

Plaintiffs filed a constitutional "Action for Protection" under Articles 86 and 88 of the Ecuadorian

Constitution, arguing that the State had violated Indigenous rights to prior consultation, water, health, territory, and a healthy environment by granting mining concessions without consultation.

The Provincial Court of Justice of Sucumbíos ultimately upheld the finding that constitutional rights had been violated. As a result, the court annulled active and pending mining concessions in the area, ordered environmental restoration measures, required investigations into illegal mining activities, and mandated an audit of the mining concession process.

## Challenges in engagement with authorities

Engagement between CSOs and public authorities in Ecuador is constrained by structural, procedural and security-related barriers that weaken accountability efforts. Although the formal legal framework — in particular the rights-of-nature framework — is exceptionally developed, these rights do not always translate into timely or effective enforcement on the ground.

**Deteriorating security environment.** The declaration of an internal armed conflict in January 2024<sup>85</sup> and the expansion of organised crime in the coastal and Amazonian provinces<sup>86</sup> have substantially changed the operational context for CSOs. Illegal mining, land trafficking and coca-related economies are increasingly controlled by armed actors, restricting CSO field access, increasing risks to defenders and complicating evidence gathering.

**Violence and threats against defenders.** Ecuador has recorded some of the highest per-capita rates of lethal attacks against environmental defenders in the Amazon basin.<sup>87</sup> Existing protection instruments, concentrated in the Defensoría del Pueblo and in ad-hoc responses by the Executive, have struggled to keep pace with the scale of the threat, and a dedicated national protection programme for environmental defenders remains absent despite Ecuador's commitments under the Escazú Agreement.

**Limited institutional capacity and fragmentation.** Specialised environmental fiscalías in Amazonian provinces are relatively new and face capacity constraints, including limited forensic and geospatial expertise and high caseloads. Coordination between MAATE, ARCERNNR, the Fiscalía and UPMA is uneven, and responsibility for environmental oversight is distributed among national, provincial and municipal actors under the CODA and the COOTAD, with variable enforcement effectiveness.

**Weak enforcement outcomes reduce deterrence.** There is a marked gap between the scale of environmental harm, the volume of denuncias received by the Fiscalía and the number of effective sanctions or convictions. Conviction rates for offences under Articles 245 to 260 of the COIP remain low, reflecting both the complexity of environmental cases and the limited specialised capacity of prosecutors and courts.

**Pressure on civic space.** Despite the reform of Decrees 16 and 739, CSOs continue to operate under regulatory uncertainty, with discretionary elements remaining in the registration regime. CIVICUS continues to classify Ecuador's civic space as "obstructed", and environmental CSOs report difficulties in accessing sensitive administrative files such as mining cadastres, licensing records and inspection reports.<sup>88</sup>

**Procedural barriers.** Delays in the processing of constitutional actions, fragmented data systems and uneven transparency at subnational level restrict CSOs' ability to follow cases and sustain engagement over time. Although the LOTAIP provides a formal right of access to information, in

practice access to environmental licensing files, mining cadastres and sanctioning records is often slow and uneven across authorities.

**Tension between extractive policy and rights-of-nature jurisprudence.** Successive governments have continued to promote mining expansion, including in sensitive Amazonian and Andean ecosystems,<sup>89</sup> creating recurring tension with the rights-of-nature jurisprudence developed by the Constitutional Court. The implementation of the Yasuní-ITT referendum and of rulings such as Los Cedros and Intag / Llorimagua has been contested in practice, illustrating the enduring gap between formal constitutional protection and policy execution.

## Conclusion & recommendations

Ecuador offers one of the most advanced constitutional frameworks in the world for environmental protection and civil society engagement in the fight against nature crime. Its recognition of the rights of nature, its broad legal standing for environmental actions, its robust portfolio of constitutional remedies and its ratification of the Escazú Agreement together create a uniquely favourable normative platform. However, the gap between formal rights and effective enforcement remains wide, shaped by weak conviction rates, institutional fragmentation, a demanding security context and pressure on civic space. Strengthening environmental accountability in Ecuador therefore requires not only institutional reform but also sustained investment in the security, technical capacity and legal support of civil society actors.

**1. Strengthen institutional capacity and specialisation.** Consolidate the specialised environmental fiscalías created in Amazonian provinces, expand their forensic and geospatial capacity, and provide systematic training to prosecutors, judges and police on the application of the rights of nature and on the evaluation of satellite and expert evidence. Strengthen inter-institutional coordination between MAATE, ARCERNNR, the Fiscalía, UPMA and the Armed Forces to ensure coherent administrative, criminal and operational responses.

**2. Adopt a dedicated national framework for the protection of defenders.** Building on Ecuador's commitments under the Escazú Agreement and the 2024 Action Plan, establish a dedicated national protection mechanism for environmental and human rights defenders, with specific protocols for Amazonian contexts, Indigenous defenders and CSOs operating in areas dominated by illegal economies. Reinforce the Defensoría del Pueblo's early-warning and precautionary measures functions.

**3. Strengthen the enabling environment for CSOs.** Complete the reform of the centralised registration regime to remove remaining discretionary grounds for de-registration; simplify administrative requirements for environmental CSOs; and protect the independence of CSO action in accordance with the Constitution and Ecuador's international obligations.

**4. Enhance access to environmental information.** Operationalise LOTAIP and the Escazú access-to-information pillar by ensuring that environmental licensing files, sanctioning records, mining cadastres and monitoring data are systematically published in machine-readable formats, and by harmonising information systems across MAATE, ARCERNNR and the Fiscalía.

**5. Institutionalise remote sensing evidence and technical cooperation with CSOs.** Develop formal guidelines for the admissibility and evaluation of geospatial evidence; support cooperation agreements between technical CSOs (including EcoCiencia, MAAP and RAISG partners) and public

authorities on the lines of the Colombian FCDS–Fiscalía model; and develop in-house capacity within enforcement bodies to interpret and validate satellite and drone data.

**6. Implement rights-of-nature rulings and popular mandates.** Ensure effective implementation of landmark decisions such as Los Cedros, Intag / Llorimagua and the Yasuní-ITT popular consultation, including through binding restoration plans, independent compliance monitoring and transparent reporting to the Constitutional Court and to the public.

## Guyana

### Status of CSOs, protection and transparency

Guyana recognises freedoms of conscience, expression, peaceful assembly and association in Articles 145 to 147 of its Constitution, together with the constitutional right to a healthy environment (Article 149J) and the broader constitutional commitment to the well-being of the nation through the preservation of clean air, fertile soils, pure water and biodiversity (Article 36).<sup>90</sup>

CSOs typically operate as non-profit companies under the Companies Act, as friendly societies, or as unincorporated common-law associations and trusts. There is no equivalent in Guyana to the restrictive NGO regimes in some neighbouring countries, and civic space is generally considered open, although CIVICUS notes pressure points relating to media, indigenous rights and emerging litigation around oil and gas governance.<sup>91, 92</sup>

Guyanese civil society plays a particularly active role in litigation. Organisations and individual public-interest litigants have led recent constitutional and administrative challenges to the licensing of oil and gas activities in the Stabroek Block, to the adequacy of financial guarantees against oil spills, and to the recognition of Indigenous land rights. In the Caribbean Court of Justice judgment in *Ramon Gaskin v Minister of Natural Resources & Others* (2024), the Court underlined that costs should not be awarded against “public spirited citizens intent on advancing the constitutional protection of the environment”, reinforcing the legitimacy of public-interest environmental litigation.<sup>93</sup>

Compared to several other Amazonian countries, Guyana has not been characterised by lethal violence against environmental defenders. Civil society reports, however, document increasing pressure on activists challenging oil and gas projects and on Indigenous leaders defending customary lands against mining and logging concessions. The absence of a dedicated national protection mechanism for defenders is a recognised gap, in particular in the context of Guyana’s ratification of the Escazú Agreement and of its 2024 endorsement of the Escazú Action Plan on Human Rights Defenders in Environmental Matters.<sup>94,95</sup>

### Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Guyana deposited its instrument of ratification on 18 April 2019, becoming the first State Party to the Escazú Agreement. Since then, the Government has consistently positioned Escazú as a central element of its sustainability and democratic governance discourse, including in interventions by President Irfaan Ali on the importance of the Agreement for the region. Guyana hosted the second

extraordinary meeting of the Conference of the Parties in 2025, the first Escazú COP held in the Caribbean.<sup>96</sup>

*(i) Access to environmental information.* Guyana relies on a combination of general administrative-law principles, sectoral statutes (notably the Environmental Protection Act, the Mining Act, the Forests Act and the Amerindian Act) and the EPA's public notices and authorisations register to operationalise access to environmental information. The Access to Information Act of 2011 provides the general framework, although CSOs have flagged practical limitations in its implementation, particularly around documents relating to oil and gas operations.<sup>97,98</sup>

*(ii) Public participation in environmental decision-making.* Public participation is anchored in the Environmental Protection Act and its Environmental Impact Assessment regulations, which provide for public notice, public consultation and submission of comments on major projects. Indigenous consultation rights are addressed under the Amerindian Act of 2006 and through emerging case-law on Indigenous title; both are partial implementations of the international standard of free, prior and informed consent.<sup>99</sup>

*(iii) Access to justice.* Guyana has a developed framework for environmental and constitutional litigation, with the High Court of the Supreme Court of Judicature, the Court of Appeal and, ultimately, the Caribbean Court of Justice. Recent oil-and-gas litigation has consolidated public-interest standing in environmental cases, including by way of constitutional motion and judicial review. These mechanisms are described in Section IV below.<sup>100</sup>

*(iv) Protection of environmental defenders.* Guyana has not adopted a dedicated statutory mechanism for the protection of environmental defenders. The general criminal law and police protection apply, and the Office of the Ombudsman and the Constitutional Court provide complementary avenues. The Escazú Agreement and the 2024 Action Plan on Human Rights Defenders provide the most concrete international framework for further institutional development.

## Institutional landscape for nature crime

Guyana's environmental enforcement landscape combines a relatively well-established Environmental Protection Agency with sectoral regulators for mining, forests, protected areas and Indigenous affairs, and an ordinary criminal-justice apparatus. The principal bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation and attacks on defenders are grouped below by function.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**Environmental Protection Agency (EPA).** The EPA, established under the Environmental Protection Act of 1996 (Cap. 20:05), is the principal environmental authority. It is responsible for environmental impact assessment, the issuance of environmental authorisations, compliance monitoring and the enforcement of environmental obligations. EPA officers have statutory powers of entry, inspection, the issuance of enforcement and prohibition notices, the detention of articles causing or likely to cause pollution and the initiation of administrative and criminal action.<sup>101</sup>

**Guyana Geology and Mines Commission (GGMC).** The GGMC, established by Cap. 65:09 and operating under the Mining Act, regulates and supervises the mining sector, grants mining and

exploration rights and monitors compliance with environmental and safety obligations. The GGMC plays a central role in the supervision of artisanal and small-scale gold mining, including the implementation of mercury-reduction measures under the Minamata Convention.<sup>102,103</sup>

**Guyana Forestry Commission (GFC).** The GFC, established under Cap. 67:02 and operating under the Forests Act of 2009, regulates and supervises forestry activities, grants forest concessions and community forest agreements, and operates the national forest monitoring, reporting and verification (MRV) system that supports the Norway–Guyana REDD+ partnership.<sup>104,105</sup>

**Protected Areas Commission (PAC).** The PAC, established under the Protected Areas Act of 2011, administers the national system of protected areas, including the Kanuku Mountains, Shell Beach, Iwokrama and the Kaieteur National Park. The Wildlife Conservation and Management Act of 2016 governs wildlife management and trade in species.<sup>106</sup>

**Guyana Lands and Surveys Commission (GL&SC).** The GL&SC administers State lands, including the demarcation of land titles, with a key role in Indigenous land titling and forest mapping under the Hinterland and Amerindian Land Titling Project.<sup>107</sup>

## B. Policy and strategic coordination

**Ministry of Natural Resources.** The Ministry of Natural Resources articulates policy on petroleum, mining and forests and supervises the GGMC and the GFC.

**Ministry of Agriculture and the Office of Climate Change.** These bodies coordinate environmental policy across sectors, including the implementation of the Low Carbon Development Strategy (LCDS 2030).<sup>108</sup>

**Ministry of Amerindian Affairs.** The Ministry of Amerindian Affairs administers policy on Indigenous peoples and coordinates with the National Toshias Council (NTC), the national body of village leaders established under the Amerindian Act of 2006.<sup>109</sup>

## C. Criminal investigation and enforcement

**Office of the Director of Public Prosecutions (DPP).** The DPP exercises responsibility for criminal prosecution, including environmental offences. Guyana has not established a dedicated environmental crime division within the prosecutorial system, although environmental cases may be referred by the EPA, the GGMC and the GFC for criminal action.<sup>110</sup>

**Guyana Police Force.** The Guyana Police Force conducts investigations and operational deployments in support of environmental enforcement, including jointly with the EPA, the GGMC, the GFC and, when relevant, the Guyana Defence Force, particularly in remote interior areas affected by illegal mining and logging.

## D. Oversight and access to justice

**High Court of the Supreme Court of Judicature and Court of Appeal.** The High Court has constitutional jurisdiction to hear motions for the protection of fundamental rights and judicial review of administrative action; the Court of Appeal hears appeals from the High Court. The High Court has been the primary forum for recent oil-and-gas litigation, including in *Whyte v EPA & Esso*, *Quadad de Freitas & Others v Ministry of Natural Resources* and related cases.<sup>111</sup>

**Caribbean Court of Justice (CCJ).** Since 2005, the CCJ has acted as Guyana's apex court in its appellate jurisdiction, and its 2024 judgment in *Ramon Gaskin v Minister of Natural Resources & Others* sets a regionally significant precedent on public-interest environmental litigation and the integration of Escazú and Rio principles in domestic constitutional reasoning.

**Office of the Ombudsman and Audit Office.** The Ombudsman receives complaints regarding administrative action and the Audit Office conducts external financial and performance audits, including in relation to natural-resources management.<sup>112</sup>

## Legal routes available for civil society

### A. Categories of nature crimes

Guyana's framework of environmental offences combines the Environmental Protection Act (Cap. 20:05) with sector-specific statutes, including the Mining Act, the Forests Act, the Wildlife Conservation and Management Act and the Protected Areas Act, supplemented by the general provisions of the Criminal Law (Offences) Act. Conduct constituting nature crime in Guyana includes, in particular:<sup>113</sup>

**Offences under the Environmental Protection Act** -including operating without a required environmental authorisation, breaching the conditions of an authorisation, releasing contaminants in breach of standards and obstructing EPA officers (Part V of the Act).

**Mining offences** -including conducting mining or quarrying activities without the required rights or authorisations under the Mining Act and Regulations, breaching environmental conditions of mining titles and the unauthorised use of mercury contrary to applicable regulations.

**Forestry offences** -including unauthorised cutting, transport and commercialisation of timber, breach of the terms of forest concessions or community forest agreements, and offences relating to State forest reserves under the Forests Act.

**Wildlife and protected-area offences** -including illegal capture, possession or trade of protected species under the Wildlife Conservation and Management Act and violations of the Protected Areas Act.

**Indigenous land and consultation offences** -including the breach of Amerindian Act provisions on village council consent for non-Amerindian activities on titled Amerindian lands.

### B. Routes for legal action

The legal routes available to CSOs and Indigenous (Amerindian) communities to defend against nature crimes fall into four broad categories: constitutional motions, judicial review, criminal proceedings, and international mechanisms. In practice these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

## 1. Judicial Mechanisms

### a. Constitutional motions and judicial review

Article 153 of the Constitution allows any person to apply to the High Court for redress where any of the fundamental rights protected by the Constitution, including the right to a healthy environment (Article 149J), has been, is being or is likely to be contravened. Judicial review of administrative action is available under the Civil Procedure Rules and general administrative-law principles, allowing CSOs and individuals to challenge environmental authorisations, mining concessions, forest concessions and other administrative acts. The Caribbean Court of Justice, in *Ramon Gaskin v Minister of Natural Resources*, has confirmed the importance of facilitating public-interest standing in environmental cases.

### b. Criminal Proceedings

Criminal investigations into environmental offences may be triggered by complaints made to the EPA, the GGMC, the GFC, the police or directly to the DPP. The DPP retains discretion over prosecution. Victims may, in limited circumstances, initiate private prosecutions under the Criminal Procedure Act.

### c. Civil Actions

Civil actions are available under the Civil Procedure Rules for damages arising from environmental harm (in tort and nuisance) and for declaratory and injunctive relief. CSOs and individual claimants may obtain interim injunctions against ongoing activities pending substantive adjudication.

### d. Indigenous (Amerindian) governance and consultation

The Amerindian Act of 2006 recognises the legal personality of Amerindian villages, governed by their Village and District Councils, and the role of the National Toshias Council. The Act requires non-Amerindian persons to seek the consent of the Village Council for certain activities, including mining, on titled Amerindian lands. Civil society and Indigenous federations have documented that, while the Act is a significant step, its FPIC standards do not fully meet international human rights requirements and that practice falls short of statutory requirements, in particular in relation to consultation by the GGMC.

## 2. Administrative Mechanisms

Administrative actions include complaints to the EPA, the GGMC, the GFC and the Protected Areas Commission, requests for the initiation of administrative procedures and the use of EPA enforcement and prohibition notices. EPA officers have wide investigative powers under the Environmental Protection Act, and their notices can compel the suspension or modification of polluting activities.

| Body                                                | How to engage                                                                        | Legal standing                                                                                          | Time limit                                                                                          | Cost                                     |
|-----------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|------------------------------------------|
| Environmental Protection Agency (EPA)<br>-see III.A | File complaints regarding environmental violations; request inspections, enforcement | Any natural or legal person; public-interest standing recognised in Guyanese case-law ( <i>Gaskin v</i> | No strict limitation for reporting; specific time-limits apply to judicial review of administrative | No filing fee; representation costs vary |

|                                                       |                                                                                                                                          |                                                       |                                    |               |
|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------|---------------|
|                                                       | notices, prohibition notices and initiation of sanctioning procedures                                                                    | Minister of Natural Resources)                        | acts                               |               |
| Guyana Geology and Mines Commission (GGMC) -see III.A | Report alleged mining violations; request inspections, suspensions or revocation of mining and exploration rights                        | Any person, CSO or community                          | No strict limitation for reporting | No filing fee |
| Guyana Forestry Commission (GFC) -see III.A           | Report alleged forestry violations; request supervisions, suspensions of concessions and verification of compliance with MRV obligations | Any person, CSO or community                          | No strict limitation for reporting | No filing fee |
| Office of the Ombudsman -see III.D                    | Submit complaints regarding administrative action affecting environmental and human rights                                               | Any person or group, regardless of direct affectation | No strict limitation period        | No filing fee |

## Case examples of successful litigation

### Production Guyana Ltda

(Supreme Court of Guyana, October 2020)<sup>114</sup>

Guyanese scientist Dr. Troy Thomas filed a case as an individual litigant against the Environmental Protection Agency (EPA) of Guyana in the Supreme Court, alleging that the 23-year permits the EPA had issued to Esso Exploration, a subsidiary of ExxonMobil, for oil exploration violated Regulation 19 of the Environmental Protection Act, which expressly limits environmental permits to five years. The case marks the first time a litigant relied on climate change and the Paris Agreement in support of a claim for a judicial remedy in a Guyanese court. Although Dr. Thomas filed in his personal capacity, the litigation was supported by lawyer Melinda Janki of the Justice Institute of the Americas, an organisation that has played a central role in environmental public interest litigation in Guyana, alongside Senior Counsel Seenath Jairam. On 7 October 2020, the Supreme Court issued a consent order accepting a settlement between Thomas, the EPA, and Esso. The EPA agreed to reduce the term of the permits to five years, so that they would expire in 2022 and 2024, and was ordered to pay Thomas' court costs. This forced ExxonMobil's subsidiary to apply for new permits and gave the public an opportunity to demand better environmental terms for Guyana. The case illustrates both the potential and the current limitations of civil society engagement in Guyana's environmental enforcement landscape: while CSO-supported public interest litigation can produce concrete legal outcomes, formal CSO standing before Guyanese courts in environmental proceedings has not yet been established, and effective litigation has so far depended on the initiative of individual litigants with institutional backing.

### Use of remote sensing evidence in nature crime prosecution

CSOs play a central role in generating and structuring evidence of environmental harm, particularly through remote sensing technologies such as satellite imagery, geospatial mapping and digital monitoring tools. This evidence is incorporated into legal proceedings through multiple evidentiary forms, although the degree to which it is accepted by public authorities depends on the evidentiary requirements and technical standards established within national legal and institutional frameworks.

In Guyana, remote sensing evidence is admissible under general evidentiary rules and is supported by relatively well-developed national monitoring systems, notably those operated by the Guyana Forestry Commission and the GL&SC under the Norway–Guyana REDD+ partnership.

*Legal framework.* Guyana does not have a specific statutory provision on the admissibility of remote sensing evidence. In practice, admissibility is assessed under the general evidentiary rules of the Civil Procedure Rules of the High Court (2016) and the Criminal Procedure Act, which admit documentary, expert and inspection evidence. The Environmental Protection Act provides for the use of technical and scientific evidence in environmental impact assessment and enforcement.

*Court acceptance.* Satellite imagery and geospatial data are increasingly accepted in environmental litigation and administrative proceedings, in particular when supported by formal expert reports and corroborated by institutional records (EPA, GFC, GL&SC, GGMC). Guyana's LCDS-related MRV infrastructure provides robust state-generated geospatial data that complement CSO-led monitoring.

*Technical standards.* In the absence of dedicated protocols, the same general practices observed across the region apply to reduce admissibility risks:

*Source identification:* clear identification of the platform or provider (state entity, recognised international provider, or accredited CSO), date/time, area of interest and method of acquisition;

*Metadata preservation:* retaining original files and metadata where available, and documenting each processing step;

*Reproducibility:* preserving the workflow so an independent expert could reproduce the same outputs from the same source data;

*Integrity documentation:* an evidence log documenting who handled the digital files, where they were stored, how they were transferred, and what controls were used to prevent tampering.

### Case example - use of remote sensing evidence

#### Indigenous Community Monitoring — Rupununi, Upper Mazaruni and surrounding regions (ongoing)<sup>115</sup>

Indigenous communities in the Rupununi, the upper Mazaruni, and surrounding regions have developed community-based monitoring programmes that combine satellite-based forest loss alerts with field verification by trained Indigenous monitors. These programmes have been supported by partners including Rainforest Foundation US and the South Rupununi District Council. The monitoring model mirrors approaches used in Peru's ACOMAT programme: satellite alerts are used to identify suspected deforestation or mining incursions, and community monitors conduct ground-truthing patrols to confirm and document findings. The resulting data have been used in advocacy submissions to the EPA and the Guyana Geology and Mines Commission (GGMC), and have been presented at international fora as evidence of the scale and location of mining-driven environmental harm in Indigenous territories. As with the MRV system, these community-generated datasets have not yet formed the evidential basis of a concluded criminal or administrative proceeding, but they demonstrate the practical capacity of Indigenous communities and their CSO partners to generate technically credible remote sensing evidence and deploy it in institutional and advocacy contexts. The absence of a formal legal pathway for community-generated evidence to be admitted in Guyanese proceedings represents a structural gap in the enabling conditions for nature crime enforcement.

#### Henry, Nageer and Thorington v EPA & Esso (High Court of Guyana, 2022–2023)<sup>116</sup>

Sherlina Nageer was one of three plaintiffs in a lawsuit against flaring on platforms operated by Esso. The trio of activists gathered evidence of what they say are illegal activities using satellite images. In April 2021, they alerted the Guyana Environmental Protection Agency, which oversees and licenses the nation's oil industry. In January 2022, the three women, Sinikka Henry, Sherlina Nageer and Andriska Thorington, filed a case against the EPA to put a stop to flaring by ExxonMobil, arguing that the agency had acted unlawfully when it modified Esso's environmental permit to allow flaring in exchange for a fee. The case record notes that satellite imagery showed Esso continuing to flare gas, and Esso's own affidavit in defence admitted in paragraph 29 that Esso was flaring as a result of mechanical failure. The High Court ultimately dismissed the case in October 2023, finding that the EPA's permit modification was not unlawful.

### Challenges in engagement with authorities

Engagement between CSOs and public authorities in Guyana is constrained by structural, procedural and political barriers that weaken accountability efforts. While the legal framework is relatively well

developed and civic space is comparatively open, important gaps remain in the enforcement of environmental obligations, in the protection of Indigenous land rights and in the oversight of the rapidly expanding oil and gas sector.

**Oversight of the oil and gas sector.** The rapid expansion of offshore oil production in the Stabroek Block has generated intense litigation on the adequacy of environmental authorisations, financial guarantees against oil spills and the consultation obligations of regulatory authorities. The reversal at the Court of Appeal of the High Court's ruling in *Whyte v EPA & Esso* in 2026 illustrates the contested nature of this terrain.<sup>117</sup>

**Limited recognition of Indigenous land rights.** Significant portions of customary Indigenous territories remain untitled or only partially demarcated, and the Amerindian Act of 2006 contains acknowledged gaps relative to the international standard of free, prior and informed consent. Indigenous leaders report that mining concessions are granted on or near titled Amerindian lands without the consultation and consent procedures required by the Act.<sup>118</sup>

**Persistence of mercury use in artisanal and small-scale gold mining.** Despite Guyana's accession to the Minamata Convention on Mercury in 2014 and successive policy initiatives, mercury continues to be widely used in artisanal and small-scale gold mining, with documented contamination of rivers such as the Mazaruni. Small-scale miners' pushback against alternatives remains a significant challenge for the GGMC and the EPA.<sup>119</sup>

**Limited institutional capacity and prosecutorial specialisation.** The EPA, the GGMC and the GFC face capacity constraints relative to the scale of the sectors they regulate, and there is no dedicated environmental crime division within the prosecutorial system. Coordination between agencies and with the police is improving in operational contexts but remains uneven in the investigation and prosecution phases.

**Procedural barriers.** Limited transparency in concession allocation and inconsistent access to environmental and forestry data restrict CSOs' ability to follow specific cases and sustain engagement over time. Although Guyana has an Access to Information Act, CSOs have flagged practical limitations in its implementation, in particular around oil-and-gas documents and Indigenous-territory data.<sup>120</sup>

## Conclusion & recommendations

Guyana combines a developed common-law legal framework, an active public-interest litigation culture, leadership in Escazú ratification and one of the most robust national forest monitoring systems in the Amazon basin, with significant challenges relating to oil and gas oversight, mercury use in artisanal and small-scale gold mining, Indigenous land rights and prosecutorial capacity. Strengthening environmental accountability in Guyana therefore requires consolidation of the institutional architecture, refinement of legal protections for defenders and Indigenous peoples, and sustained investment in the technical capacity of civil society and public authorities.

**1. Operationalise the Escazú Agreement at the domestic level.** Use Guyana's leadership position as the first ratifying State to develop a national implementation framework covering access to environmental information, public participation, access to justice and the protection of defenders, including in the oil-and-gas sector.

**2. Establish a dedicated mechanism for the protection of environmental and human rights defenders.** Building on the 2024 Escazú Action Plan, design a national protection mechanism tailored to Guyanese realities, with specific protocols for Indigenous defenders and for litigants engaged in oil-and-gas accountability cases.

**3. Reinforce regulatory oversight of the oil and gas sector.** Consolidate the EPA's technical capacity for monitoring offshore oil and gas operations; clarify and operationalise rules on environmental authorisations, financial guarantees against oil spills and consultation; and align licensing processes with the standards of Article 149J and with Escazú.

**4. Modernise the Amerindian Act and accelerate Indigenous land titling.** Reform the Amerindian Act to bring its consultation, consent and land-use provisions into line with international human rights standards on FPIC; accelerate the Amerindian Land Titling Project to recognise all eligible customary territories; and reinforce the National Toshiha Council's role in environmental governance.

**5. Accelerate the phase-out of mercury in artisanal and small-scale gold mining.** Implement Guyana's commitments under the Minamata Convention with measurable targets, dedicated resources and effective coordination between the GGMC, the EPA, the GFC and the Ministry of Health, with particular attention to mercury monitoring in Indigenous territories along the Mazaruni and other affected rivers.

**6. Develop dedicated capacity for environmental prosecution.** Establish a specialised environmental unit within the Office of the Director of Public Prosecutions; develop joint protocols with the EPA, the GGMC, the GFC and the police on the investigation and prosecution of environmental offences; and invest in specialised forensic and geospatial capacity.

**7. Institutionalise remote sensing evidence and technical cooperation with CSOs.** Build on the existing MRV system and the LCDS framework to develop formal guidelines for the admissibility and evaluation of geospatial evidence; integrate Indigenous and CSO monitoring data into national environmental monitoring frameworks; and ensure that monitoring data are systematically published in machine-readable formats.

## Peru

### Status of CSOs, protection and transparency

Peru's legal framework for civil society organisations is rooted in private law and traditionally limits direct executive intervention. The Civil Code recognises three forms of non-profit legal entities through which civil society operates: associations, foundations, and committees, as regulated respectively under Articles 80, 99, and 111.<sup>121</sup> Oversight of non-governmental organisations that receive international cooperation funding is entrusted to the Peruvian Agency for International Cooperation (APCI), pursuant to Article 3 of Law No. 27692,<sup>122</sup> whose mandate is formally limited to control, supervision, and monitoring functions related to the use of international funds.

This legal balance has been increasingly challenged by recent legislative initiatives. In 2024, the Congressional Foreign Relations Committee issued a report examining six bills introduced in 2023 that aimed to "strengthen oversight of NGOs". These proposals would significantly expand APCI's powers, allowing it to impose far-reaching administrative sanctions, while also granting the Executive Branch authority to dissolve civil society organisations through administrative acts, a clear departure from the existing legal order, under which the Civil Code (Articles 94, 95, and 96) reserves the power

to dissolve associations exclusively to the Judiciary. Civil society actors have warned that these changes could discourage critical or dissenting voices and disproportionately affect organisations reliant on international cooperation funding, thereby weakening both the autonomy and sustainability of Peru's civil society sector.

The legislative pressure on civil society intensified further in April 2025 with the enactment of Law No. 32301, which amends the APCI framework. The law establishes as a very serious infraction the use of international technical cooperation resources to advise, assist, or finance any type of administrative, judicial, or other action against the Peruvian State.<sup>123</sup> Although this provision does not formally nullify CSOs' legal standing, it creates a significant practical barrier to access to justice for communities and organisations that depend on international cooperation funding for legal support, particularly in the defence of collective rights in the Amazon.

Peru's civil society ecosystem includes a network of technical NGOs, research institutes, and indigenous organisations active on environmental protection. Indigenous and native communities enjoy constitutional recognition and legal personality without the need for formal registration, a protection rooted in Article 89 of the Constitution.

Despite this framework, the operational conditions for environmental defenders are dangerous. Over the past decade, 33 Indigenous leaders have been murdered in the Peruvian Amazon,<sup>124</sup> with the majority of these cases remaining unresolved. Violence and intimidation against defenders are concentrated in the Amazon, particularly around illegal logging, illegal mining, and land-trafficking frontiers, and represent a structural constraint on the effective exercise of environmental advocacy.

## Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Peru signed the Escazú Agreement but has not ratified it, meaning the Agreement does not currently have legal effect in the domestic order. The absence of ratification represents a significant normative gap, particularly with respect to the protection of environmental defenders, and weakens Peru's engagement with regional accountability mechanisms. Implementation of the four pillars relies on pre-existing domestic instruments.

**(i) Access to environmental information:** Peru's transparency framework includes Law No. 27806<sup>125</sup> (Transparency and Access to Public Information Law), which establishes enforceable rights to access information held by public bodies. Specialised environmental information can be obtained from the Ministry of Environment (MINAM) via its Transparencia MINAM portal and from OEFA via its online access form. These requests are processed within defined timeframes and do not require justification of motive. Nevertheless, data quality and accessibility vary significantly at regional and local level, and environmental information systems such as the MC-SNIFFS timber traceability platform remain only partially operational.

**(ii) Public participation in environmental decision-making:** Public participation is embedded in environmental licensing and in the governance of the National Environmental System. ILO Convention 169, in force in Peru since 1995, and Law No. 29785 (Prior Consultation Law) establish the right of Indigenous and native peoples to be consulted before legislative or administrative

measures that may directly affect their territories. In practice, the effectiveness of these mechanisms varies, and critics have noted that the 2024 amendments to the Forestry and Wildlife Law (Law No. 31973) were adopted without consulting Indigenous communities.

**(iii) Access to justice:** Peruvian law provides a range of mechanisms for environmental access to justice, including constitutional actions (*amparo*, compliance proceedings, *acción popular*), civil collective actions, administrative proceedings, and criminal proceedings under the Criminal Code. These mechanisms are further described in Section IV below.

**(iv) Protection of environmental defenders:** Peru lacks a comprehensive legal instrument for the protection of environmental defenders. Supreme Decree 004-2021-JUS<sup>126</sup> provides a risk-based protection mechanism for defenders, but implementation has been limited in practice. The enactment of Law No. 32301 in April 2025 has further restricted the ability of CSOs to provide legal support to defenders. The non-ratification of the Escazú Agreement leaves an important normative gap on this fourth pillar, with Peru being one of the top three countries with the highest number of documented killings and forced disappearances of land and environmental defenders since the Agreement entered into force in April 2021.<sup>127</sup>

## Institutional landscape for nature crime

Peru's environmental enforcement landscape combines a decentralised governance structure with specialised national agencies for monitoring, licensing, and protected areas. The principal bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation, and attacks on defenders are grouped below by function.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing, and administrative sanctions.

**Environmental Assessment and Enforcement Agency (Organismo de Evaluación y Fiscalización Ambiental – OEFA):** The principal federal technical agency for environmental supervision, inspections, and sanctions.<sup>128</sup> OEFA carries out surveillance and monitoring to ensure compliance with environmental regulations, investigates administrative violations, and imposes sanctions for non-compliance with environmental management instruments. It operates the National Environmental Complaints Information Service (SINADA), a free nationwide platform for citizen reporting of environmental harm, which between January 2024 and July 2025 processed 6,468 environmental complaints.

**Agency for Supervision of Forest Resources and Wildlife (Organismo de Supervisión de los Recursos Forestales y de Fauna Silvestre – OSINFOR):** The agency responsible for monitoring and overseeing the sustainable use and conservation of forest resources and wildlife, independent of SERFOR. OSINFOR independently supervises compliance with forest management plans and has deployed remote sensing technology to detect illegal timber, identifying over 41,000 m<sup>3</sup> of illegal timber valued at US\$19 million in 2023 through satellite-based monitoring.<sup>129</sup>

**National Forestry and Wildlife Service (Servicio Nacional Forestal y de Fauna Silvestre – SERFOR):** The national authority in charge of forestry and wildlife management,<sup>130</sup> overseeing the administration, conservation, protection, monitoring, and sustainable use of the nation's forest and

wildlife heritage. SERFOR operates the 'Alerta Serfor' complaint channel for forestry and wildlife violations and coordinates with FEMA on enforcement operations.

**National Service of Natural Protected Areas by the State (Servicio Nacional de Áreas Naturales Protegidas por el Estado – SERNANP):** The agency responsible for managing and protecting nationally designated protected areas.

**National Water Authority (Autoridad Nacional del Agua – ANA):** The technical body responsible for governing water resources at the national level. ANA has the authority to declare emergency states, protected zones, and states of contamination of natural water sources. It receives complaints related to contamination of water bodies and non-compliance with water management regulations.

**Director General of Captaincies and Coast Guard of the Peruvian Navy (Dirección General de Capitanías y Guardacostas de la Marina de Guerra del Perú – DICAPI):** Responsible for preventing and combating pollution and protecting the aquatic environment,<sup>131</sup> including by evaluating and approving environmental management instruments. DICAPI acts as a strategic ally of FEMA and other public entities in investigations involving maritime and riverine environmental damage.

## B. Policy and strategic coordination

These institutions define environmental policy, regulatory frameworks, and overall governance strategies.

**Ministry of the Environment (Ministerio del Ambiente – MINAM):** The national authority for environmental policy and governance,<sup>132</sup> responsible for ensuring compliance with environmental regulations and coordinating the National Environmental System. MINAM sets national environmental policy and oversees the broader framework within which enforcement agencies operate. Specialised agencies such as OEFA are technically attached to MINAM.

## C. Criminal investigation and enforcement

These institutions are responsible for investigating and prosecuting environmental crimes.

**Specialized Environmental Prosecutors' Offices (Fiscalías Especializadas en Materia Ambiental – FEMA):** Specialised prosecutorial units for environmental offences,<sup>133</sup> with jurisdiction to investigate crimes classified under Title XIII of the Penal Code (crimes against the environment and natural resources) and related offences, including those committed by criminal organisations. There are currently 32 FEMA offices and 15 Crime Prevention Prosecutors' Offices with environmental jurisdiction operating nationwide. FEMA has secured over 1,300 convictions for environmental crimes between 2024 and early 2025.<sup>134</sup>

**National Police of Peru – Environment/Investigation Units:** Law enforcement units tasked with investigating and addressing environmental crimes. The National Police works alongside FEMA, OEFA, and SERFOR in joint operations and field investigations.

**Office of Satellite Georeferenced Monitoring Units for Environmental Crimes (UMGSDA) / National Commission for Aerospace Research and Development (CONIDA):** UMGSDA, housed within the Public Prosecutor's Office, produces early warning reports on deforestation and illegal mining and issues official expert reports for FEMA. CONIDA operates Peru's satellite systems (including PeruSat-1, Sentinel, and Landsat) and provides satellite imagery to enforcement agencies.

The technical and scientific reports produced by UMGSDA and issued by CONIDA constitute admissible evidence in criminal proceedings.

**National Environmental Management Commission (CNGA):** The CNGA is the permanent governing body and highest authority on environmental management within the Judiciary. It has an organic and functional structure responsible for formulating, designing, promoting, and overseeing the implementation of the institution's environmental policy and Environmental Management Plan, fostering the incorporation of sustainability criteria and the strengthening of environmentally responsible institutional management.

**Judiciary (PJ):** The Judiciary, through its judicial bodies, hears, adjudicates, and, where applicable, sanctions individuals and legal entities involved in the commission of environmental crimes, as defined in Articles 304 through 314-D of Title XIII of the Criminal Code, within the framework of the powers assigned to the Judiciary by the Constitution and the law.

## D. Oversight and access to justice

These institutions contribute to accountability by receiving complaints, conducting oversight, and facilitating access to justice.

**Defensoría del Pueblo (Ombudsman):** Provides access to justice and legal representation for vulnerable populations, and has broad standing to file compliance proceedings on behalf of diffuse interests, including environmental rights. The Ombudsman may investigate complaints, issue non-binding but influential recommendations to public agencies, and intervene as an *amicus curiae* in constitutional proceedings.

**Constitutional Court:** The ultimate arbiter of constitutional rights in Peru. The Constitutional Court has developed important case law on environmental rights, recognising diffuse environmental interests and applying a flexible approach to standing requirements in cases involving indigenous communities and rights of nature.

## Legal routes available for civil society

### A. Categories of nature crimes

Two key legal instruments regulate nature crimes and environmental protection under Peruvian law:

**Forestry and Wildlife Law (Law No. 29763 of 2011, as amended).**<sup>135</sup> The foundational statute for Peru's forest governance, requiring that all commercial or industrial forest activities be conducted under approved management plans. It mandates that any person or company involved in the harvest, processing, or trade of timber and forest products must prove the legal origin of those products through the Control Module of the National Forestry and Wildlife Information System (MC-SNIFFS), a national traceability system. Legislative Decrees No. 1319 (2017) and No. 1517 (2021)<sup>136</sup> further strengthened these requirements, introducing digital recordkeeping and expanding traceability obligations.

A critical turning point in Peru's legal history came in 2024 with the enactment of Law No. 31973,<sup>137</sup> which amended the Forestry and Wildlife Law by: (i) suspending the requirement for forest zoning prior to granting enabling titles; (ii) transferring zoning authority from the Ministry of the Environment to the Ministry of Agrarian Development and Irrigation; (iii) eliminating the need for state authorisation before converting forested land to other uses; and (iv) retroactively legalising past illegal

deforestation. Although the Constitutional Court struck down some aspects of this amendment, it upheld the retroactive validation of land-use changes – a decision widely viewed as a significant setback for environmental governance and the rule of law.

**Criminal Code – Title XIII (Legislative Decree No. 635, Arts. 304–314C).**<sup>138</sup> The principal criminal statute for environmental protection, establishing pollution crimes and crimes against natural resources. Penalties range from two to twelve years of imprisonment depending on the offence and aggravating circumstances. Illustrative offences include:

**Environmental pollution** (Art. 304): imprisonment of four to six years and a fine.

**Illegal mining** (Art. 307-A): imprisonment of four to eight years and a fine; aggravated to eight to ten years in protected areas or indigenous communities.

**Financing illegal mining** (Art. 307-C): imprisonment of four to twelve years and 100 to 600 day-fine.

**Offences against forests or forest formations** (Art. 310): imprisonment of four to six years and community service of 40 to 80 days.

**Illegal trafficking of timber forest products** (Art. 310-A): imprisonment of four to seven years.

## B. Routes for legal action

The legal routes available to CSOs and indigenous communities to defend against nature crimes in Peru fall into three broad categories: judicial mechanisms (constitutional, civil, and criminal), administrative mechanisms, and international mechanisms. In practice, these mechanisms are not mutually exclusive and are often used in combination.

### 1. Judicial Mechanisms

Judicial mechanisms provide formal avenues to seek accountability, reparation, and the protection of environmental and constitutional rights.

#### a. Constitutional Mechanisms

The Peruvian Constitution<sup>139</sup> recognises the right to 'enjoy a balanced and adequate environment for the development of life' as a fundamental right. Two constitutional processes are of particular relevance to environmental protection.

**Protection Action** (*Acción de amparo*). The amparo is the constitutional process used to protect fundamental rights against acts or omissions by authorities or individuals that violate or imminently threaten those rights.<sup>140</sup> In the environmental context, it may be used to challenge unlawful actions affecting the right to a healthy environment, the right to water, or the rights of indigenous communities. Standing is currently limited under the New Constitutional Procedural Code to the "affected party",<sup>141</sup> departing from the broader 'any person' standard of the previous code. However, the Constitutional Court has consistently interpreted standing flexibly in cases involving diffuse or collective environmental interests.<sup>142</sup> CSOs have been permitted to participate as *amicus curiae* or as representatives in cases involving indigenous communities and peoples in isolation or initial contact. Courts have also adopted a relaxed approach to procedural requirements - including the exhaustion of administrative remedies - where the nature of the environmental claim warrants it. The landmark 2024 Marañón River case<sup>143</sup> illustrates this approach: a federation of Kukama-Kukamiria women filed

a successful amparo action recognising the Marañón River as a subject of rights, with the court explicitly declining to insist on exhaustion of remedies in light of the constitutional significance of the claim.

**Compliance Proceedings** (*Proceso de cumplimiento*). The compliance action may be filed to ensure that reluctant authorities enforce the provisions of legal regulations or final administrative acts, or issue rulings they are required to issue. Standing is broad: any person may initiate compliance proceedings in defence of rights involving diffuse or collective interests.<sup>144</sup> The process is well suited to situations where enforcement agencies have clear legal obligations but have failed to act. Unlike the amparo, compliance proceedings do not provide compensation for environmental harm.

## **b. Civil Actions**

At the civil procedural level, individual civil actions are available for compensation and restoration of environmental harm.<sup>145</sup> Natural or legal persons that can prove harm, causation, and damages may file a civil action.

Collective proceedings are the mechanism for protecting diffuse interests such as the environment.<sup>146</sup> Those permitted to bring or intervene in collective proceedings include the Public Prosecutor's Office, regional and local governments, peasant communities and/or native communities in whose jurisdiction the environmental damage occurred, and certain non-profit associations meeting judicial criteria. A significant limitation of the current system is that compensation awarded in collective proceedings is directed to district or provincial municipalities rather than the affected parties – a provision that may discourage litigation. Draft updates to the Civil Procedure Code<sup>147</sup> would extend standing to non-profit legal entities incorporated for at least one year with relevant statutory purposes, enable affected parties to benefit from compensation directly, and allow indigenous communities and their representative organisations to participate. However, four years after the Draft's publication in 2021, it remains unapproved and unimplemented.

## **c. Criminal Proceedings**

Environmental and forest crimes (environmental pollution, crimes against natural resources, and illegal granting of rights) are prosecuted under the Criminal Code and Peru's Forestry Law.<sup>148</sup> Environmental defenders also have the opportunity to request risk-based protection.<sup>149</sup>

A victim, a legal entity, or a private individual who considers themselves to have been harmed by a nature crime may file a complaint and drive a prosecution, although FEMA oversees and brings the vast majority of criminal cases. Precautionary measures and reparations are available. The Public Prosecutor's Office secured over 1,300 convictions for environmental crimes, including illegal mining and logging, between 2024 and early 2025.<sup>150</sup> A notable case is the Saweto trial, in which individuals responsible for the murder of four Indigenous environmental defenders received 28-year prison sentences.<sup>151</sup>

Despite these results, criminal enforcement remains substantially below the scale of illegal activities. In practice, prosecutions for forest-related crimes remain limited and insufficient relative to the scale of illegal clearing and land trafficking, with sanctions more often administrative than criminal. Between 2012 and 2021, at least 13,000 hectares were illegally cleared by companies in Loreto and Ucayali, with nearly 100% of the deforestation in those regions from 2012–2018 lacking required permits.

## 2. Administrative Mechanisms

Administrative actions include filing complaints with enforcement agencies, participating in administrative sanctioning proceedings, and challenging environmental licences, permits, or authorisations issued by public authorities. Any person, natural or legal, may file administrative complaints that lead to inspections and sanctions.<sup>152</sup> However, complainants act as informants and are not parties to the ensuing administrative proceedings, nor do they benefit from financial penalties imposed on offenders.

CSOs and affected parties can engage the relevant administrative bodies through the procedures summarised in the table below.

| Body                                                                         | How to engage                                                                                                                                                                                                                                                                                                                                                                               | Legal standing                                                                                                                                                                       | Time limit                                                                                                                                               | Cost                                                                     |
|------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| <b>OEFA</b><br>(Environmental Assessment and Enforcement Agency) - see III.A | File complaints via the National Environmental Complaints Information Service (SINADA) at <a href="https://www.oefa.gob.pe/sinada/">https://www.oefa.gob.pe/sinada/</a> or in person; provide evidence such as photos, videos, maps, GPS coordinates. OEFA may initiate administrative sanctioning proceedings, issue preventive measures, impose sanctions, and order corrective measures. | Any person, natural or legal (including CSOs and indigenous communities); complainants act as informants and are not parties to the proceedings. Anonymous complaints are permitted. | No strict limitation for reporting violations. Specific time limits apply to challenging administrative acts under general administrative procedure law. | No filing fee. Complaints can be submitted without legal representation. |
| <b>FEMA</b><br>(Specialized Environmental Prosecutors' Offices) - see III.C  | Submit complaints verbally or in writing to the competent FEMA office, nearest police station, via the Public Prosecutor's online form, or                                                                                                                                                                                                                                                  | Any person or legal entity who considers themselves harmed by an environmental crime; the Public Prosecutor's Office oversees and brings the                                         | No strict limitation for reporting. Standard criminal limitation periods apply based on the offense.                                                     | No filing fee.                                                           |

|                                                                             |                                                                                                                                                                                                                               |                                                                                                |                                                                                                                    |                |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|----------------|
|                                                                             | through the '#YoDenuncio' mobile application. No evidence is required at the time of filing; verification is carried out during the investigation.                                                                            | vast majority of cases. Precautionary measures and reparations are available.                  |                                                                                                                    |                |
| <b>SERFOR</b><br>(National Forestry and Wildlife Service) - see III.A       | File complaints through the 'Alerta Serfor' channel managed by SERFOR's Technical Forestry and Wildlife Administration (Atffs), available for forestry and wildlife violations only. Complaints can be submitted anonymously. | Any person; complainants act as informants and are not parties to the resulting proceedings.   | No strict time limit for reporting violations.                                                                     | No filing fee. |
| <b>SERNANP</b><br>(National Service of Natural Protected Areas) - see III.A | Report violations occurring within nationally designated protected areas; request enforcement action, revocation of authorisations or precautionary measures.                                                                 | Any person or entity, without the need to demonstrate personal harm.                           | No strict limitation for reporting violations; standard administrative time limits apply to contest specific acts. | No filing fee. |
| <b>Defensoría del Pueblo</b><br>(Ombudsman) - see III.D                     | File complaints about rights violations, environmental harm, or institutional inaction. The Ombudsman may investigate, issue                                                                                                  | Anyone who can show a legitimate interest. Broad standing for diffuse environmental interests. | No strict deadline.                                                                                                | No filing fee. |

|  |                                                                                                    |  |  |  |
|--|----------------------------------------------------------------------------------------------------|--|--|--|
|  | recommendations, and initiate compliance proceedings before courts on behalf of diffuse interests. |  |  |  |
|--|----------------------------------------------------------------------------------------------------|--|--|--|

### Case examples of successful litigation

#### Repsol La Pampilla Oil Spill (Ventanilla, Lima, 2022)<sup>153</sup>

On 15 January 2022, approximately 10,704 barrels of crude oil spilled from Repsol's La Pampilla Refinery off the coast of Ventanilla, Lima, the largest spill ever recorded on the Peruvian coast, spreading across 11,061 hectares and affecting two protected natural areas and the livelihoods of at least 5,000 fishers and small business owners. Artisanal fishermen and local residents were the first to detect and report the disaster, alerting authorities and the press, while the NGO CooperAcción, with Oxfam support, produced a technical report documenting the inadequacy of Repsol's remediation efforts, providing an independent evidentiary basis for subsequent proceedings. OEFA initiated 22 administrative proceedings against Repsol, establishing liability in 13 concluded cases and imposing total penalties of approximately USD 72 million. All 18 of Repsol's rehabilitation plans were rejected by the Ministry of Energy and Mines, and a civil lawsuit for USD 4.5 billion in damages was filed on behalf of affected individuals and the environment.

#### Saweto Trial (Criminal proceedings, confirmed 2025)<sup>154</sup>

In September 2014, four Asháninka Indigenous leaders of the Alto Tamaya-Saweto community — Edwin Chota, Jorge Ríos, Leoncio Quintísima, and Francisco Pinedo — were murdered by illegal loggers in a remote area of the Ucayali region near the Brazilian border. The four leaders had spent years documenting and denouncing illegal logging in the Amazon's Ucayali region, filing repeated complaints with regional and national governments showing how timber mafias were encroaching on their ancestral lands. CSOs played a sustained and decisive role throughout the decade-long pursuit of justice. Rainforest Foundation US lobbied to ensure the murders were tried as organised crime, urged courts to dismiss a lead prosecutor with undisclosed conflicts of interest, pressed for an out-of-jurisdiction prosecutor to avoid further conflicts, and provided safe housing to victim family members during trial. SPDA, Amazon Watch, and Rainforest Foundation US supported Indigenous leaders in bringing international attention to the case, including during advocacy at the United Nations Climate Week in New York. Global Witness and AIDSEP, the national Indigenous organisation, maintained sustained pressure on the judiciary throughout proceedings<sup>155</sup>. In February 2023, more than eight years after the murders, five defendants received 28-year prison sentences following relentless advocacy from the Saweto community and their support network. After an unexpected reversal and retrial, an appeals court in Pucallpa upheld convictions for aggravated homicide against four loggers, each receiving sentences of 28 years and three months in prison — a rare and landmark outcome for crimes against environmental defenders in Peru.

## Use of remote sensing evidence in nature crime prosecution

CSOs and enforcement agencies play a central role in generating and structuring evidence of environmental harm through remote sensing technologies - including satellite imagery, drone overflights, geospatial mapping, and acoustic monitoring. In Peru, this evidence is admitted and used in both administrative and criminal proceedings, although the degree of formal recognition is more developed for government-produced reports than for CSO-generated data.<sup>156</sup>

**Legal framework:** Peru has not enacted specific legislation or regulations addressing the admissibility of remote sensing evidence. Instead, admissibility is governed by general evidentiary principles applicable to documentary and technical evidence. In criminal proceedings, technical and scientific reports prepared by UMGSDA and issued by CONIDA constitute admissible official expert evidence under the general rules of the New Criminal Procedure Code. In administrative proceedings, satellite images and UMGSDA/CONIDA reports are considered adequate evidence for decision-making under the General Administrative Procedure Law.<sup>157</sup> The key standard across both contexts is that evidence must satisfy criteria of authenticity, traceability, integrity, and adequate technical support.<sup>158</sup>

**Court acceptance:** Remote sensing evidence, including data from satellites, drones, acoustic monitoring, and eDNA, is permitted and accepted by Peruvian courts when validated by an expert. In the case of *Ministerio Público v. Cacao del Perú Norte SAC* (Tamshiyacu Deforestation Case, 2019), prosecutors used satellite imagery to prove the illegal deforestation of nearly 2,000 hectares of primary forest - a precedent for the use of satellite evidence in criminal environmental prosecutions. Remote sensing evidence is also used in practice by enforcement agencies: in 2023, OSINFOR deployed remote sensing technology to detect over 41,000 m<sup>3</sup> of illegal timber valued at US\$19 million.<sup>159</sup>

**Technical standards:** No formal technical standards for evidence authentication or chain of custody specific to remote sensing have been identified in Peru beyond the general evidentiary requirements (authenticity, traceability, integrity, and expert support). Remote sensing evidence is typically used to supplement, rather than replace, field verification and other official documentation. The platforms most commonly used include the national GeoBosques system, global tools such as Global Forest Watch, and Peru's state satellite infrastructure (PeruSat-1, Sentinel, Landsat).

**Training and capacity:** No specific established training programmes for prosecutors or judges on the use or validation of remote sensing evidence have been identified in Peru, representing a significant capacity gap. UMGSDA provides some institutional capacity within the prosecutorial system, but CSO-generated satellite evidence faces higher admissibility scrutiny than government-produced reports.

### Case example - use of remote sensing evidence

#### Ministerio Público v. Cacao del Perú Norte SAC (Tamshiyacu Deforestation Case, 2019)<sup>160</sup>

Prosecutors brought criminal charges against Cacao del Perú Norte SAC (later renamed Tamshi SAC) for the illegal clearance of nearly 2,000 hectares of primary Amazon rainforest near the town of Tamshiyacu, in the Loreto region, without the required environmental permits or authorisation from the Ministry of Agriculture. The court ruled in favour of the prosecution, sentencing the general manager to eight years in prison and imposing fines and reparations exceeding 15 million soles. Satellite imagery played a central role in the outcome, directly contradicting the company's

claim that no primary forest had been cleared. The case illustrates how remote sensing evidence, when combined with field verification and expert testimony, can sustain successful criminal prosecutions for large-scale deforestation and establish a precedent for the evidentiary use of satellite data in Peruvian environmental litigation.

## Challenges in engagement with authorities

Engagement between CSOs and public authorities in Peru is constrained by structural, procedural, legislative, and political barriers that weaken accountability efforts. Although formal channels exist, they frequently fail to produce timely or proportionate enforcement outcomes.

**Weakened legal protections and retroactive amnesties.** The 2024 amendments to the Forestry and Forestry and Wildlife Law (Law No. 31973) represent the most significant recent setback for environmental governance. The law retroactively legalised past illegal deforestation, transferred forest zoning authority from conservation-focused to agriculture-oriented bodies, and decriminalised illegal logging in certain contexts. Although the Constitutional Court struck down some aspects, the retroactive validation of land-use changes was upheld. This follows a pattern of legislative rollback that undermines the deterrent effect of enforcement and signals potential impunity for future violations.<sup>161</sup>

**Institutional fragmentation and weak coordination.** Forest governance in Peru is divided between national and regional authorities, with multiple agencies - including SERFOR (under the Ministry of Agriculture) and SERNANP (under MINAM) - operating with conflicting priorities that frequently place economic development in tension with conservation objectives. Coordination mechanisms such as the National Multi-Sectoral Strategy to Fight Against Illegal Logging exist but remain weak in practice. The MC-SNIFFS timber traceability platform remains only partially operational. The decentralisation of enforcement to regional authorities, combined with stalled progress in that process, has produced inconsistent enforcement and regulatory gaps.<sup>162</sup>

**Corruption, political influence, and impunity.** Powerful agricultural and mining lobbies have shaped legislation in ways that favour economic interests and generate impunity, while organised criminal networks involved in illegal logging, illegal mining, and wildlife trafficking operate with limited risk of prosecution. Enforcement agencies - including FEMA, the National Police, MINAM, OEFA, and SERFOR - often lack the resources, specialised personnel, and coordination needed to investigate and prosecute complex environmental crimes effectively.<sup>163</sup>

**Violence and threats against defenders.** Peru ranks among the most dangerous countries in the world for environmental defenders. Over the past decade, 33 Indigenous leaders have been murdered in the Peruvian Amazon, with the majority of cases remaining unresolved. Perpetrators are frequently members of criminal organisations engaged in illegal logging, illegal mining, land trafficking, and drug trafficking. This climate of impunity discourages the reporting and prosecution of nature crimes and leaves ecosystems and communities inadequately protected. Institutional protection mechanisms, such as Supreme Decree 004-2021-JUS, have had limited practical impact in the most exposed areas.<sup>164</sup>

**Restrictions on civil society.** The enactment of Law No. 32301, APCI Law, in April 2025 represents a new structural constraint on CSO engagement. By classifying as a very serious infraction the use of international cooperation funds to advise, assist, or finance any action against the Peruvian State - including in environmental cases - the law creates a chilling effect on legally available mechanisms

and limits the technical and legal support that organisations can provide to indigenous communities and defenders, which largely depend on international cooperation funding.<sup>165</sup>

**Procedural barriers and litigation timelines.** Judicial proceedings are often slow: the Saweto case took nearly eight years from the murders to confirmed convictions. While interim measures (including precautionary injunctions before FEMA and OEFA) can effectively halt ongoing harm, administrative decisions and judicial verdicts often arrive after irreversible damage has occurred. The absence of formal legal representation for complainants in administrative proceedings further limits the depth of civil society engagement in enforcement processes.

## Conclusion & recommendations

Peru has a formally robust constitutional and legislative framework for environmental protection, combining constitutional guarantees, a General Environmental Law, a network of specialised enforcement agencies, dedicated environmental prosecutors (FEMA), and a growing body of case law on environmental and indigenous rights. Landmark decisions such as the Marañón River rights case illustrate how these tools can be combined to produce ambitious accountability outcomes. At the same time, persistent enforcement gaps, legislative rollback, institutional fragmentation, corruption, high levels of violence against defenders, and new restrictions on civil society undermine the effectiveness of the system in practice. The non-ratification of the Escazú Agreement and the enactment of Law No. 32301 leave important normative and practical gaps that urgently need to be addressed.

**1. Ratify the Escazú Agreement and strengthen defender protection.** Ratify and implement the Escazú Agreement, with particular focus on the fourth pillar on environmental defenders. Develop a comprehensive, well-resourced programme for the protection of environmental defenders, including tailored protocols for defenders operating in high-risk contexts such as illegal gold mining zones, areas subject to land trafficking, and indigenous territories under threat.

**2. Repeal or substantially reform the restrictive provisions of Law No. 31973 (AntiForestry Law), and Law No. 32301 (APCI Law).** Restore effective forest zoning requirements, repeal the retroactive legalisation of illegal deforestation, and revoke the provisions of Law No. 32301 that criminalise the use of international cooperation resources for legal assistance in environmental cases. These reforms are necessary to restore the rule of law and enable civil society to fulfil its legitimate role in environmental accountability.

**3. Strengthen institutional capacity and inter-agency coordination.** Consolidate the enforcement capacity of OEFA, FEMA, SERFOR, and the National Police; reinforce specialised environmental units and address jurisdictional overlaps and conflicting mandates through clearer protocols. Fully operationalise the MC-SNIFFS timber traceability platform and establish real-time information-sharing mechanisms between enforcement agencies.

**4. Reform civil collective proceedings.** Expedite passage of the Draft New Civil Procedure Code to enable non-profit organisations with relevant statutory purposes to initiate collective environmental actions, ensure affected communities can benefit directly from compensation awards, and remove the requirement that compensation be channelled exclusively to municipal authorities.

**5. Strengthen evidentiary frameworks for remote sensing.** Develop formal technical standards and protocols for the admissibility, authentication, and chain of custody of remote sensing evidence in both administrative and criminal proceedings. Establish training programmes for FEMA

prosecutors and judges on the evaluation of satellite, drone, and other geospatial evidence. Institutionalise cooperation agreements between technical CSOs and public authorities to enable CSO-generated monitoring data to be used as formally recognised evidence.

**6. Improve sanction effectiveness and target enforcement on key economic actors.** Ensure that enforcement under the Criminal Code and the Forestry and Wildlife Law targets the financial and organisational chains behind large-scale deforestation and illegal mining. Strengthen asset recovery and financial investigation in environmental cases, and ensure that administrative fines (such as the Petroperú fines arising from the La Pampilla oil spill) are collected and effectively implemented.

## Suriname

### Status of CSOs, protection and transparency

Suriname recognises freedom of association, assembly and demonstration in Chapter V of its 1987 Constitution (revised in 1992), together with freedom of expression and the freedom to form political organisations. CSOs are organised as associations (*verenigingen*) or foundations (*stichtingen*) under Book 2 of the Suriname Civil Code, and are generally able to operate without prior authorisation, subject to ordinary registration and reporting requirements.<sup>166 167</sup>

Suriname's civic space is more open than that of several other Amazonian countries, although CIVICUS classifies it as “narrowed”, reflecting concerns about pressure on journalists, gaps in transparency and emerging tensions over land and resource governance.<sup>168</sup>

Suriname's rights landscape is fundamentally shaped by the case-law of the Inter-American Court of Human Rights. In the *Saramaka People v. Suriname* judgment of 28 November 2007, the Court held the State internationally responsible for violating the right to property and to judicial protection of the Saramaka people through the granting of logging and mining concessions on their traditional lands without prior consultation and benefit-sharing. The Court ordered Suriname to delimit, demarcate and grant collective title to the Saramaka territory and to guarantee meaningful consultation and shared benefits in future projects.<sup>169</sup>

In the *Kaliña and Lokono Peoples v. Suriname* judgment of 25 November 2015, the Court extended this doctrine to the Indigenous Kaliña and Lokono peoples of Lower Marowijne, finding violations of the rights to recognition of juridical personality, collective property, political participation and access to information. The Court ordered, *inter alia*, the establishment of an effective domestic mechanism for the delimitation, demarcation and titling of Indigenous and tribal territories, and meaningful consultation in protected area and concession decisions.<sup>170</sup>

Implementation of these judgments has been uneven. At the 188th session of the Inter-American Commission on Human Rights in November 2023, the Association of Saamaka Authorities (VSG) and the Association of Indigenous Village Leaders in Suriname (VIDS) reported that Suriname had still not adopted the legal framework for Indigenous and tribal land recognition required by the rulings, and that new logging and mining concessions continued to be issued in collective territories.<sup>171</sup>

In April 2024, the Government of Suriname approved a gold-mining concession, a substantial part of which overlaps with Saamaka traditional territory. Saamaka leaders, including Hugo Jabini, recipient of the Goldman Environmental Prize together with Wanze Eduards in 2009 for their role in the Saramaka case, reported serious threats following their opposition to the concession. In June 2024,

more than 125 Saamaka community members issued the Goejaba Declaration, peacefully rejecting the concession and demanding the cessation of mining on their land.<sup>172,173,174</sup>

## Implementation of the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Suriname has neither signed nor ratified the Escazú Agreement. Although the Government has indicated, including in early 2024, that the question is under examination by the responsible department, no formal commitment to sign or ratify has been adopted. Suriname is therefore the only Amazonian country that remains outside the Agreement entirely.<sup>175</sup>

Despite the absence of formal accession, the four pillars of the Escazú Agreement provide a useful analytical framework for assessing the strengths and gaps of Suriname's domestic regime.

*(i) Access to environmental information.* Suriname does not yet have a comprehensive freedom of information law. Article 9 of the Environmental Framework Act of 2020 introduces obligations of public participation and consultation in environmental decision-making and provides for environmental information to be made available, but the practical operationalisation of these obligations remains limited and an institutional culture of proactive disclosure is still nascent.<sup>176, 177</sup>

*(ii) Public participation in environmental decision-making.* Public participation in environmental and social impact assessment is regulated under the Environmental Framework Act and its supporting guidelines administered by the National Environmental Authority (NMA), the successor to NIMOS as of mid-2024. The legal recognition of free, prior and informed consultation of Indigenous and tribal peoples derives from the Inter-American Court's case-law and remains incomplete in domestic law.<sup>178</sup>

*(iii) Access to justice.* Judicial protection of environmental rights is exercised through the ordinary courts and, since 2019, the Constitutional Court. Tort actions under the Civil Code provide for environmental damages claims. These mechanisms are described in Section IV below.

*(iv) Protection of environmental defenders.* Suriname does not have a dedicated legal framework or institutional mechanism for the protection of environmental and human rights defenders. The Saamaka context illustrates the operational gap, with leaders reporting threats and intimidation following their opposition to logging and mining concessions.<sup>179</sup>

## Institutional landscape for nature crime

Suriname's environmental enforcement landscape combines a comparatively recent environmental ministry and an environmental authority with a long-standing forestry foundation and a mining regulator. The principal bodies mandated with monitoring and enforcing against crimes concerning deforestation, environmental degradation and attacks on defenders are grouped below by function.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**National Environmental Authority (NMA).** The NMA, successor to the National Institute for Environment and Development (NIMOS) and operational from July 2024, is the central environmental authority for environmental and social impact assessment, environmental enforcement and oversight of compliance with the Environmental Framework Act. It is administratively attached to the Ministry of Spatial Planning and Environment (ROM).<sup>180</sup>

**Ministry of Spatial Planning and Environment (ROM).** ROM, created in 2020, is responsible for environmental policy, spatial planning and climate policy coordination. It coordinates the work of the NMA and serves as the national focal point for the UNFCCC, the CBD and the Minamata Convention on Mercury.

**Ministry of Natural Resources (NH) and Geological and Mining Department (GMD).** The Ministry of Natural Resources oversees mining, energy and water resources. The Geological and Mining Department within NH is responsible for granting and supervising mining and exploration rights under the 1986 Mining Decree.

**Foundation for Forest Management and Forest Supervision (SBB).** SBB is the principal body responsible for the supervision of forestry activities under the 1992 Forest Management Act. It administers concessions, conducts inspections and operates the national forest monitoring system, which feeds into deforestation monitoring and audit processes.

**Ministry of Land and Forest Management (GBB).** GBB is responsible for land allocation, forestry policy and the strategic supervision of the SBB. It articulates land use and forestry policy with broader spatial planning and economic development objectives.

**Nature Conservation Division (Ministry of Land and Forest Management).** The Nature Conservation Division administers Suriname's system of nature reserves and protected areas under the 1954 Nature Conservation Act, including iconic protected areas such as the Central Suriname Nature Reserve.

## B. Policy and strategic coordination

**Ministry of Spatial Planning and Environment (ROM)** coordinates environmental policy and the implementation of multilateral environmental agreements, including the Minamata Convention on Mercury (Suriname acceded in 2018) and the country's climate commitments.

## C. Criminal investigation and enforcement

**Public Prosecutor's Office (Openbaar Ministerie).** The Public Prosecutor's Office is responsible for the criminal investigation and prosecution of environmental offences, including offences under the Environmental Framework Act, the Forest Management Act and the Mining Decree. Suriname has not yet established a dedicated environmental crime division within the Public Prosecutor's Office.

**Police Force (Korps Politie Suriname).** The Suriname Police, including its environmental and nature unit, conducts investigations and joint operational deployments with SBB, the GMD and, when relevant, the National Army of Suriname, particularly against illegal gold mining and illegal logging in the interior.

## D. Oversight and access to justice

**Court of Justice (Hof van Justitie) and Cantonal Courts.** Civil and criminal claims are adjudicated by the Cantonal Courts at first instance, with appellate review by the Court of Justice. The Court of Justice also exercises functions equivalent to administrative review for certain governmental decisions.

**Constitutional Court (Constitutioneel Hof).** The Constitutional Court, established under Articles 137–144 of the Constitution and the 2019 implementing Act, has competence to test the constitutionality of statutes and the conformity of governmental measures with fundamental rights and treaty obligations. It is a relatively recent institution whose environmental case-law is still in formation.

**Audit Office (Rekenkamer van Suriname).** The Audit Office exercises external financial and performance control over the State and can identify administrative, civil and criminal liabilities, including in the management of natural resources.

**Indigenous and Maroon (tribal) governance authorities.** Indigenous and Maroon peoples in Suriname maintain their own customary governance authorities (e.g. Gaaman, Captains and Basia among Maroon peoples, and traditional village authorities among Indigenous peoples), which play a central role in territorial governance and in the operationalisation of consultation processes derived from the Inter-American Court's rulings.

## Legal routes available for civil society

### A. Categories of nature crimes

#### Two key legal instruments regulate nature crimes and environmental protection under Surinamese law:

**Forest Management Act of 1992.** The Forest Management Act is the principal statute governing forest exploitation and timber production in Suriname. It vests regulatory authority over all logging activities in the Foundation for Forest Management and Production Control (SBB, Stichting voor Bosbeheer en Bostoezicht), an autonomous body operating under the Ministry of Natural Resources. The Act establishes a permit-based system under which timber harvesting may only take place in areas where a formal cutting licence has been issued, whether a commercial forest concession, a community forest permit, or an incidental cutting licence. Compliance is tracked through a mandatory cutting register (kapregister), which is verified by SBB forest guards and uploaded to the SBB's LogPro database, enabling traceability of extracted timber from stump to export. Logging outside the terms of an issued permit, or without any permit at all, constitutes illegal exploitation under the Act.

**Environmental Framework Act (No. 97 of 2020).** The Environmental Framework Act is the overarching statute for environmental governance and represents the most significant legislative development in Suriname's environmental law in recent decades. It establishes the National Environmental Authority (NMA) as the competent authority for environmental regulation, replacing the former NIMOS. Criminal penalties apply to violations: intentional breach of statutory obligations under the Act is punishable by up to six years of imprisonment and a fine at the fifth category of the Criminal Code; non-intentional violations may attract a fine at the same level.

In addition to these two primary instruments, two older statutes remain operative and are relevant to nature crime prosecutions:

**Nature Conservation Act (No. 26 of 1954)** governs Suriname's protected areas network, currently covering over 2 million hectares and approximately 12 per cent of national territory, including the UNESCO World Heritage-listed Central Suriname Nature Reserve. The Act prohibits any activity that would negatively affect the integrity of a nature reserve. Management of protected areas and wildlife is the responsibility of the Nature Conservation Division (NCD), operating within the State Forest Management Service (LBB).

**Game Act (1954)**, as amended, establishes a general prohibition on the capture, killing, possession, purchase, trade, transport, import or export of protected wildlife species and any parts or products derived from them. Categories of wildlife, that is, protected species, game species, cage species and predominantly harmful species, are defined by regulation. Enforcement of the Game Act falls primarily to game wardens under the LBB. Practical enforcement is acknowledged to be limited in the vast interior of the country, though it is more consistently applied at export control points in the capital.

## B. Routes for legal action

The legal routes available to CSOs and Indigenous and Maroon (tribal) communities to defend against nature crimes fall into four broad categories: constitutional and judicial mechanisms, criminal proceedings, civil actions, and international mechanisms. In practice these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

### 1. Judicial Mechanisms

Judicial mechanisms provide formal avenues to seek accountability, reparation and the protection of environmental and constitutional rights.

#### a. Constitutional Review

Since the entry into force of the Act on the Constitutional Court in 2019, the Constitutional Court has jurisdiction to review the constitutionality of statutes and the conformity of governmental measures with fundamental rights and with Suriname's international obligations, including under the American Convention on Human Rights. While its environmental jurisprudence is still emerging, the Court provides a potential domestic route to enforce the rights to property and to a healthy environment, in particular for Indigenous and tribal communities relying on the Saramaka and Kaliña and Lokono judgments.

#### b. Ordinary judicial review and civil actions

Civil litigation in Suriname is governed by the Code of Civil Procedure. The Civil Code (Book 6, Title 3) provides for tort claims (*onrechtmatige daad*) for environmental damages, including against the State and private parties. The Cantonal Courts hear such claims at first instance, with appeal to the Court of Justice. CSOs and communities have used civil tort claims and provisional measures (*kort geding*) to seek injunctions against the implementation of logging and mining concessions, including in support of the implementation of the Inter-American Court rulings.

### c. Criminal Proceedings

Any individual, CSO or community may file a criminal complaint (aangifte) with the Public Prosecutor's Office in respect of environmental offences. Article 11 of the Environmental Framework Act and the relevant provisions of the Criminal Code and of the Mining Decree, Forest Management Act and Nature Conservation Act provide the substantive basis for prosecution. Victims may also intervene in criminal proceedings to claim civil reparation under the Code of Criminal Procedure.

### d. Indigenous and tribal authorities

Indigenous and Maroon traditional authorities exercise governance functions in their territories, including the operationalisation of consultation processes and the management of customary land. While not part of the formal judicial structure, these authorities are recognised as legitimate interlocutors by the Inter-American Court and by emerging Surinamese practice, and they play a central role in the design and implementation of consultation procedures, environmental monitoring and dispute resolution.

## 2. Administrative Mechanisms

Administrative actions before the NMA, SBB, the Geological and Mining Department and the Nature Conservation Division include complaints, requests for inspection, requests for the initiation of sanctioning procedures and challenges to authorisations. The Environmental Framework Act provides specific procedures for environmental and social impact assessment, including for public participation and observations. CSOs and affected parties can engage the relevant administrative bodies through the procedures summarised below.

| Body                                                                              | How to engage                                                                                                                                                                          | Legal standing                                                                                              | Time limit                                    | Cost                                     |
|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------|
| <b>National Environmental Authority (NMA)</b><br>-see III.A                       | File complaints regarding alleged environmental violations; request inspections, precautionary measures and initiation of sanctioning procedures under the Environmental Framework Act | Any natural or legal person; standing is not formally restricted to directly affected parties under the EFA | No strict limitation for reporting violations | No filing fee; representation costs vary |
| <b>SBB -Foundation for Forest Management and Forest Supervision</b><br>-see III.A | Report alleged forestry violations; request supervisions, inspections, precautionary                                                                                                   | Any person, CSO, Indigenous or Maroon community                                                             | No strict limitation for reporting            | No filing fee                            |

|                                                                        |                                                                                                                    |                              |                                                                  |               |
|------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------|---------------|
|                                                                        | measures and review of forest concessions                                                                          |                              |                                                                  |               |
| <b>Geological and Mining Department (Ministry of NH)</b><br>-see III.A | Report alleged mining violations; request inspection, suspension or revocation of mining rights and authorisations | Any person, CSO or community | Contentious time-limits apply to challenging administrative acts | No filing fee |

### Case examples of successful litigation

#### **Twelve Indigenous and Maroon communities v. State of Suriname (2024)**<sup>181</sup>

Twelve Indigenous and Maroon groups, supported by Climate Change Advisory Services, filed a civil injunction before a Surinamese court. Communities argued that the concession grants had been carried out dishonestly and would cause enormous environmental damage, and that the government had no legal authority to grant land for economic activities affecting their residential and hunting areas without first obtaining free, prior and informed consent.

The court granted the injunction, halting development across approximately 535,000 hectares. In its ruling, the court held that the government does not have the right to grant land without FPIC, and that, absent such a process, burial grounds, hunting areas and other elements of traditional life were at risk. The ruling was subsequently cited by VIDS (the Association of Indigenous Village Leaders) in demanding FPIC for a proposed Chinese bauxite mining concession, illustrating the precedential reach of the decision. Despite the ruling, agricultural development pressure continued, with new private operators entering the same areas in late 2024 and 2025.

### Use of remote sensing evidence in nature crime prosecution

In Suriname, remote sensing evidence is admissible under the general evidentiary rules of the Code of Criminal Procedure and the Code of Civil Procedure, although the development of dedicated procedures and standards for geospatial evidence remains nascent. In 2023, Surinamese government provided training in geospatial analysis, certifying 19 government ministries and institutes to be able to conduct their own analysis of remote sensing data.<sup>182</sup>

### Saamaka community mapping and the Goejaba Declaration

Faced with continued logging and mining concessions on their territory in violation of the 2007 Saramaka People v. Suriname Inter-American Court judgment, the Saamaka community deployed remote sensing as a primary documentation tool. In July 2023, EOS Data Analytics applied satellite imagery to track road construction by logging company Palmera N.V. through Saamaka forest. In June 2024, the International Land Coalition, LandMark and CIRAD released a formal geospatial analysis establishing that 32% of Saamaka territory, 447,000 hectares, had been granted in concessions without FPIC, causing over 60,000 hectares of forest degradation. This evidence underpinned the Goejaba Declaration, signed by over 125 community members rejecting a gold-mining concession, which was subsequently placed on hold. The data was presented to the President, Vice-President and Parliament in June 2024 and to the Inter-American Commission on Human Rights in November 2023. The same month, a Surinamese court granted an injunction protecting 535,000 hectares from agricultural development, ruling that land cannot be granted without FPIC. The case demonstrates that community-generated geospatial evidence can support simultaneous domestic, executive and international human rights proceedings.<sup>183 184 185</sup>

### Challenges in engagement with authorities

Engagement between CSOs and public authorities in Suriname is constrained by structural, procedural and political barriers that weaken accountability efforts. Although the country has not been characterised by the levels of lethal violence against defenders observed in other Amazonian countries, recurring patterns of pressure on Maroon and Indigenous leaders, weak implementation of international rulings and limited institutional capacity all affect the operating environment for environmental civil society.

**Non-implementation of Inter-American Court rulings.** Almost two decades after the Saramaka ruling, Suriname has still not adopted the legal framework on Indigenous and tribal land recognition required by the Court. New logging and mining concessions continue to be issued in collective territories without proper consultation, generating recurring conflicts and undermining the legitimacy of environmental governance.<sup>186</sup>

**Pressure on environmental and Indigenous defenders.** Saamaka, Indigenous and environmental defenders report threats, intimidation and pressure following their opposition to logging and mining concessions in their territories, particularly in connection with the gold-mining concession approved in April 2024. The absence of a dedicated national protection mechanism for defenders heightens these risks.<sup>187</sup>

**Limited institutional capacity.** The National Environmental Authority is a very recent institution and is still building its operational, technical and human capacity. Coordination with SBB, the GMD and the Public Prosecutor's Office is uneven, and the absence of a dedicated environmental crime division within the prosecutorial system limits the effective investigation and prosecution of organised environmental crime, including illegal gold mining networks operating across the interior.<sup>188</sup>

**Persistence of illegal and informal gold mining.** Artisanal and small-scale gold mining represents a substantial share of Suriname's gold production and is a major source of mercury contamination and deforestation. While the National Action Plan adopted in 2024 under the Minamata Convention provides a structured roadmap to reduce mercury use, implementation requires sustained political commitment, investment and coordination with affected communities.<sup>189</sup>

**Legislative drift and agricultural expansion.** Recent announcements of large-scale agricultural development plans, including in areas with high forest value, and persistent gaps in the Indigenous and tribal land rights framework risk consolidating a pattern of forest loss and territorial conflict, despite Suriname's commitments to protect a substantial share of its forests.<sup>190</sup>

**Procedural barriers.** Limited transparency in concession allocation and inconsistent access to environmental and forestry data restrict CSOs' ability to follow specific cases and sustain engagement over time. The absence of a comprehensive freedom-of-information law and the early stage of NMA operations leave significant gaps in proactive disclosure.<sup>191</sup>

## Conclusion & recommendations

Suriname combines a relatively open civic space and a strong regional human rights record -anchored in two landmark Inter-American Court rulings on Indigenous and tribal land rights -with a recent and partially built environmental governance architecture, persistent gaps in the protection of Indigenous and Maroon territories, and a structural reliance on artisanal gold mining that drives mercury pollution and deforestation. Strengthening environmental accountability in Suriname therefore requires not only continued institutional reform but also targeted action to implement the Inter-American Court rulings, to consolidate the protection of defenders, and to invest in the technical capacity of civil society and public authorities.

**1. Implement the Saramaka and Kaliña and Lokono judgments.** Adopt a legal framework on the recognition, delimitation, demarcation and titling of Indigenous and tribal territories that gives full effect to the Inter-American Court rulings; establish a dedicated mechanism with the meaningful participation of Indigenous and Maroon peoples, and align the issuance of logging and mining concessions with the obligations of prior consultation and benefit-sharing.

**2. Sign and ratify the Escazú Agreement.** Initiate the formal process to sign and ratify the Escazú Agreement; use the four-pillar framework to consolidate Suriname's instruments on environmental information, public participation, access to justice and protection of defenders.

**3. Strengthen the protection of defenders.** Establish a dedicated national mechanism for the protection of environmental and human rights defenders, with specific protocols for Indigenous and Maroon defenders, and clear obligations on the police, the Public Prosecutor's Office and the Constitutional Court.

**4. Consolidate the National Environmental Authority.** Reinforce the operational, technical and human resources of the NMA, finalise the regulatory framework under the Environmental Framework Act, and develop joint protocols with SBB, the GMD, the Public Prosecutor's Office and the police on the prevention, investigation and prosecution of environmental offences.

**5. Implement the Minamata National Action Plan.** Ensure the effective implementation of the 2024 National Action Plan on Artisanal and Small-Scale Gold Mining, with measurable targets, resources and clear coordination with the Saamaka, Indigenous and other affected communities.

**6. Enhance access to environmental information.** Adopt a comprehensive freedom of information law aligned with the Escazú framework, and ensure that environmental licensing files, sanctioning records, forest concessions, mining cadastres and monitoring data are systematically published in machine-readable formats.

**7. Institutionalise remote sensing evidence and technical cooperation with CSOs.** Support cooperation agreements between technical CSOs (Forest Peoples Programme, WRI, MAAP, RAISG partners) and public authorities; develop in-house capacity within enforcement bodies to interpret and validate satellite and drone data; and integrate Indigenous and Maroon community monitoring systems into national environmental monitoring frameworks.

## Venezuela

### Status of CSOs, protection and transparency

Venezuela formally guarantees freedom of association, peaceful assembly and political organisation in Articles 52, 53 and 67 of the 1999 Constitution. CSOs are organised as civil associations, foundations or non-profit civil companies under the Civil Code and may operate at national, regional and local level.<sup>192</sup>

In practice, the operational space for civil society has narrowed dramatically since the early 2010s, and even more so following the adoption of the Anti-Solidarity Law (Ley contra el Fascismo, el Neofascismo y Expresiones Similares) in August 2024 and the Law on Oversight, Regularisation, Operation and Financing of Non-Governmental and Non-Profit Social Organisations - known as the Anti-NGO Law - enacted on 15 November 2024. The Anti-NGO Law requires NGOs to obtain government authorisation to operate, channels international cooperation through a State fund and grants authorities broad discretion to deny or revoke authorisation on political or security grounds. UN human rights mechanisms and a wide coalition of regional and international organisations have warned that the framework is incompatible with international standards on freedom of association and access to information, and that it places Venezuela's civic space on a trajectory of effective closure.<sup>193,194</sup>

Venezuela's civic space is classified as "closed" by CIVICUS.<sup>195</sup> Provea, the FIDH–OMCT Observatory, Amnesty International and the UN Independent International Fact-Finding Mission on Venezuela have documented hundreds of attacks, threats, detentions and judicial harassment cases against human rights and environmental defenders in 2023–2025. The Centro para Defensores y Justicia recorded<sup>196</sup> approximately 979 attacks and security incidents against defenders during 2024 - almost double the figure for 2023 - and high-profile cases including the detention of Carlos Correa, director of Espacio Público, and the judicial harassment of Oscar Murillo, coordinator of Provea, illustrate a pattern of selective persecution against organisations exposing rights violations.<sup>197,198</sup>

Indigenous defenders in the Amazon basin - in particular Yanomami, Pemón, Ye'kwana, Kariña and Sanõma leaders - face a distinct and severe pattern of risk linked to the expansion of illegal mining in the Arco Minero del Orinoco. The IACHR and its Office of the Special Rapporteur on Economic, Social, Cultural and Environmental Rights (REDESCA) issued a joint statement in November 2024 calling on Venezuela to protect the Yanomami people from the advance of illegal mining and other illicit activities, including violence, sexual exploitation and forced labour associated with illegal mining camps. UN and NGO investigations document hundreds of preventable deaths in Yanomami territory in 2023–2024, attributed to disease, mercury contamination and violence linked to mining.<sup>199,200</sup>

### Position with respect to the Escazú Agreement

The Escazú Agreement, adopted in 2018 under the United Nations Economic Commission for Latin America and the Caribbean, establishes binding obligations to strengthen environmental democracy

through four pillars: access to environmental information, public participation, access to justice, and the protection of environmental defenders.

Venezuela has neither signed nor ratified the Escazú Agreement. The absence of accession leaves the country outside the regional framework on environmental democracy, although the four pillars of the Agreement provide a useful diagnostic tool for examining the strengths and gaps of the Venezuelan regime.<sup>201</sup>

*(i) Access to environmental information.* Venezuela has no comprehensive law on access to public information. The 1999 Constitution recognises a right to access information held by public authorities (Article 28 and Article 143), but in practice obtaining environmental data on mining concessions, environmental impact assessments and enforcement actions in the Arco Minero del Orinoco is extremely difficult, and several official datasets that were previously public are no longer accessible.<sup>202</sup>

*(ii) Public participation in environmental decision-making.* The Constitution and the Ley Orgánica de Pueblos y Comunidades Indígenas establish far-reaching obligations of prior consultation, including for the exploitation of natural resources in indigenous habitats (Article 120 of the Constitution). However, the establishment of the Arco Minero by Presidential Decree in 2016, without prior consultation with affected indigenous peoples, is widely regarded by domestic and international observers as a paradigmatic violation of these obligations.<sup>203,204</sup>

*(iii) Access to justice.* Venezuelan law provides a developed catalogue of constitutional and administrative remedies - including the acción de amparo and contentious administrative review - supplemented by criminal proceedings under the Ley Penal del Ambiente. These mechanisms are described in Section IV below. However, their independence and effectiveness have been severely affected by the political and institutional crisis affecting the judiciary.<sup>205,206</sup>

*(iv) Protection of environmental defenders.* Venezuela does not have a dedicated mechanism for the protection of environmental defenders. The Anti-NGO Law, the Anti-Solidarity Law and the pattern of harassment and detention documented by international human rights mechanisms in 2024–2025 illustrate the severity of the gap on this pillar.<sup>207,208</sup>

## Institutional landscape for nature crime

Venezuela's formal environmental enforcement landscape is built around a national environmental ministry, sector-specific authorities for mining and indigenous peoples, an environmental prosecutorial mandate and ordinary criminal-justice institutions. The functional independence and capacity of these bodies has, however, been significantly affected by the political and institutional context of the past decade.

### A. Monitoring, licensing, and administrative enforcement

These bodies are responsible for compliance monitoring, inspections, licensing and administrative sanctions.

**Ministry of People's Power for Ecosocialism (MinEC).** MinEC, established by Decreto N° 1.378 of 2014, is the national environmental authority. It is responsible for environmental policy, the issuance of environmental authorisations, supervision of compliance with the Ley Orgánica del Ambiente (LOA) and the Ley Penal del Ambiente (LPA) and oversight of administrative sanctioning procedures.<sup>209,210</sup>

**Ministry of People's Power for Ecological Mining Development.** Created in 2016 alongside the Arco Minero del Orinoco, this ministry is responsible for mining policy and the granting and supervision of mining rights. Its mandate has been the subject of intense controversy because of the lack of effective environmental supervision in the Arco Minero and the documented expansion of illegal mining in the Amazon basin.<sup>211</sup>

**Ministry of People's Power for Indigenous Peoples.** Established in 2007, the Ministry of Indigenous Peoples is responsible for the coordination of policies on indigenous communities, including the implementation of the constitutional duty to demarcate and guarantee collective property over ancestrally occupied lands. Land titling has progressed only partially, and substantial portions of indigenous territories in the Amazon remain without legally recognised collective title.<sup>212,213</sup>

**Instituto Nacional de Parques (Inparques).** Inparques administers the national system of protected areas, including iconic Amazonian protected areas such as the Canaima National Park, the Yacapana National Park and the Parima-Tapirapecó Biosphere Reserve. Inparques' operational capacity has been substantially eroded over the last decade.<sup>214</sup>

## B. Policy and strategic coordination

**Ministry of People's Power for Ecosocialism (MinEC)** also acts as the national policy authority on biodiversity, climate change and ecological transition, in coordination with the National Planning Office and the Ministry of Foreign Affairs for the implementation of multilateral environmental agreements.

## C. Criminal investigation and enforcement

**Ministerio Público (Public Prosecutor's Office).** The Public Prosecutor's Office is responsible for the investigation and prosecution of environmental offences under the Ley Penal del Ambiente. Pursuant to the LPA and successive resolutions of the Public Prosecutor's Office, specialised environmental prosecutors have been designated at national and regional level. Discussions on the establishment of a fully autonomous Jurisdicción Especial Penal Ambiental have not yet translated into a consolidated specialised criminal jurisdiction.<sup>215, 216</sup>

**CICPC, Guardia Nacional Bolivariana and other security bodies.** The Cuerpo de Investigaciones Científicas, Penales y Criminalísticas (CICPC) is responsible for criminal investigations, including environmental offences. The Guardia Nacional Bolivariana plays an operational role in the protection of natural resources and the control of illegal mining, particularly in border areas and in the Arco Minero del Orinoco, though its conduct in this area has been criticised in reports by international human rights mechanisms and CSOs.<sup>217</sup>

## D. Oversight and access to justice

**Defensoría del Pueblo.** The Defensoría del Pueblo is a constitutionally autonomous body (Constitution, Arts. 280–283) with the mandate to promote, defend and guarantee human rights. Its independence has been the subject of recurrent criticism by international human rights bodies and by Venezuelan civil society, and its effectiveness in addressing environmental and indigenous rights issues is, in practice, limited.<sup>218</sup>

**Tribunal Supremo de Justicia (TSJ) and Constitutional Chamber.** The TSJ is the highest judicial authority. Its Sala Constitucional has competence to review the constitutionality of statutes and acts,

including environmental matters, and to act as the appellate jurisdiction for the acción de amparo. The Sala Político-Administrativa hears contentious administrative cases of national scope, including challenges to environmental authorisations and to the acts of national authorities such as MinEC.

**Indigenous traditional authorities and the Special Indigenous Jurisdiction.** The Constitution and the Ley Orgánica de Pueblos y Comunidades Indígenas recognise indigenous traditional authorities and a Special Indigenous Jurisdiction within their territories. While this jurisdiction rarely substitutes for ordinary jurisdiction in serious environmental crime, it provides an additional avenue for community-level governance and dispute resolution, and a basis for the legitimate participation of indigenous peoples in environmental decision-making.

## Legal routes available for civil society

### A. Categories of nature crimes

Environmental crimes in Venezuela are principally defined in the Ley Penal del Ambiente (LPA) of 2012. The LPA introduces objective criminal responsibility for environmental crimes - criminal liability arising from the violation of administrative norms protecting the environment, without need to demonstrate culpa or dolo - and a broad catalogue of sanctions including imprisonment, fines, dissolution of legal entities and closure of facilities. The catalogue of offences includes, in particular:<sup>219</sup>

- **Pollution of air, water and soil** - including the discharge of contaminants in violation of environmental regulations, with aggravating circumstances in protected areas or in indigenous territories. Sentence: 2 to 4 years imprisonment (natural persons); 2,000–4,000 UT fine (legal entities).
- **Damage to flora, fauna and natural environment** - including illegal deforestation, illicit trade in protected species, illegal hunting and fishing, and damage to natural habitats. Sentence: 1 to 4 years for natural persons and 1,000–4,000 UT fines for legal entities.
- **Damage to protected areas** - including unauthorised activities in national parks, monuments, biosphere reserves and other areas under special administration. When any offence under the LPA is committed in national parks, monuments, biosphere reserves, the base penalty is increased by up to one half.
- **Illegal mining and offences against mineral resources** - including the extraction of minerals without authorisation, the use of mercury and other prohibited substances and the operation of mining activities in violation of environmental obligations. Sentence: 1 to 4 years imprisonment for natural persons; 1,000–4,000 UT fines for legal entities, with aggravated penalties where committed in protected areas or indigenous territories.
- **Hazardous waste and substance offences** - including the unlawful management, transport and disposal of hazardous waste and chemical substances. General penalty range: 1 to 4 years imprisonment for natural persons; 1,000–4,000 UT fines for legal entities.
- **Offences relating to environmental information and impact assessment** - including the provision of false information and the omission of environmental impact assessments where required by law. Sentence: 1 to 2 years imprisonment + disqualification from public office for up to 2 years after sentence.

## **B. Routes for legal action**

The legal routes available to CSOs and indigenous communities to defend against nature crimes fall into four broad categories: constitutional and judicial mechanisms, criminal proceedings, civil and contentious administrative actions, and international mechanisms. In practice these mechanisms are not mutually exclusive and are often used in combination, depending on the objective pursued (e.g. immediate suspension of activities, criminal accountability, or environmental restoration).

### **1. Judicial Mechanisms**

#### **a. Constitutional Mechanisms**

The acción de amparo constitucional, regulated by the Ley Orgánica de Amparo of 1988, is the principal constitutional remedy against acts or omissions of public authorities or private parties that violate or threaten constitutional rights, including the right to a healthy environment (Article 127), the rights of indigenous peoples (Articles 119–126) and the right to prior consultation (Article 120). The acción de amparo can also be filed jointly with provisional measures of immediate protection.

Citizens and CSOs may also invoke the broad standing for the defence of environmental rights recognised under Article 127 of the Constitution and the legitimación activa for diffuse and collective rights developed in case-law of the Tribunal Supremo de Justicia. These mechanisms have, however, been less effective in recent years, owing to delays, limited judicial independence and the politicisation of constitutional adjudication.

#### **b. Criminal Proceedings**

Criminal complaints (denuncias) for environmental offences may be filed with the Ministerio Público, the CICPC or directly with the specialised environmental prosecutors. Pursuant to the LPA, victims and affected parties - including CSOs and indigenous communities - may participate in the proceedings as víctimas o querellantes and claim civil reparation. Sanctions against legal entities include the dissolution of the entity and the closure or dismantling of facilities, providing a strong formal toolkit, although its application against actors operating in the Arco Minero remains very limited.

#### **c. Civil and Contentious Administrative Litigation**

Civil actions for environmental damages and contentious administrative actions are governed by the Civil Code, the Code of Civil Procedure and the Ley Orgánica de la Jurisdicción Contencioso Administrativa of 2010. CSOs and affected parties may seek the nullification of environmental authorisations, mining concessions and other administrative acts; the suspension of activities pending substantive adjudication; and reparation for environmental damages. The contentious administrative jurisdiction includes regional courts and the Sala Político-Administrativa of the TSJ for matters of national scope.

#### **d. Indigenous jurisdiction and authorities**

Indigenous traditional authorities, recognised in the Constitution and the Ley Orgánica de Pueblos y Comunidades Indígenas, play a central role in territorial governance and in the operationalisation of consultation processes derived from Article 120 of the Constitution. While the Special Indigenous Jurisdiction rarely substitutes for ordinary jurisdiction in serious environmental crime, it provides a

legitimate forum for community-level governance, dispute resolution and the protection of customary use of natural resources.

## 2. Administrative Mechanisms

Administrative actions before MinEC and the Ministry of Ecological Mining Development include complaints, requests for inspection, requests for the initiation of administrative sanctioning procedures and challenges to environmental authorisations and mining titles. The LOA and the LPA, together with the special regulations on protected areas, provide a structured but currently under-implemented framework for administrative oversight, especially in remote Amazonian areas.

| Body                                                            | How to engage                                                                                                                                                               | Legal standing                                                                 | Time limit                                                                                                      | Cost                                           |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Ministry of People's Power for Ecosocialism (MinEC) - see III.A | File environmental complaints; request inspections, precautionary measures and initiation of sanctioning procedures under the LOA and LPA                                   | Any natural or legal person; broad standing under Art. 127 of the Constitution | No strict limitation for reporting violations; contentious time-limits apply to challenging administrative acts | No filing fee; legal representation costs vary |
| Ministry of Ecological Mining Development - see III.A           | Report alleged mining violations; request inspections, suspension or revocation of mining rights, particularly in connection with activities in the Arco Minero del Orinoco | Any person, CSO or community                                                   | Contentious time-limits apply to administrative acts                                                            | No filing fee                                  |
| Defensoría del Pueblo - see III.D                               | Submit complaints on environmental and human rights violations; request investigation and recommendations                                                                   | Any person or group, regardless of direct affectation                          | No strict limitation period                                                                                     | No filing fee                                  |

## Case examples of litigation<sup>220</sup>

### Plataforma Ciudadana and others v. President of Venezuela

#### (TSJ, Expediente N° 2016-0358, 2016–2019)

On 24 February 2016, President Maduro created the Orinoco Mining Arc through Decree N° 2,248, designating 111,843 km<sup>2</sup> of Venezuela's territory for mineral extraction without an environmental impact assessment or prior consultation with indigenous peoples. On 31 May 2016, a civil society coalition filed an annulment claim before the Tribunal Supremo de Justicia (TSJ), arguing that Decree N° 2,248 violated environmental laws, ratified international treaties and the Constitution, and requested precautionary suspension of all activities. The TSJ admitted the claim on 21 June 2016 but never issued a substantive ruling. In February 2019, the case was dismissed on the ground of “desistimiento tácito” — deemed abandonment for failure to comply with a procedural summons requirement.

Simultaneously, three NGOs, PROVEA, Laboratorio de Paz and GTAI-ULA, presented a joint report to the IACHR documenting the absence of prior consultation, the lack of an environmental impact assessment, and the militarisation of indigenous territories. The case illustrates how procedural obstruction by domestic courts has redirected civil society engagement towards international mechanisms as the primary accountability forum.

### Use of remote sensing evidence in nature crime prosecution

CSOs play a central role in generating and structuring evidence of environmental harm in Venezuela, particularly through remote sensing technologies such as satellite imagery, geospatial mapping and digital monitoring tools. In the current context, in which official environmental data is increasingly inaccessible and judicial avenues are constrained, remote sensing has become an essential tool for advocacy and for engagement with international mechanisms.

*Legal framework.* Venezuela does not have a specific statutory provision on the admissibility of remote sensing evidence. In domestic proceedings, admissibility is assessed under the general evidentiary regime of the Código Orgánico Procesal Penal (criminal cases) and the Código de Procedimiento Civil (civil and contentious administrative cases), which admit documentary, expert and inspection evidence. The Ley Penal del Ambiente, with its model of objective criminal responsibility, supports the use of indirect and technical evidence to establish the violation of administrative norms underpinning environmental crimes.

*Use in international advocacy.* Even where domestic courts are difficult to mobilise, satellite imagery, geospatial analyses and field reports have been used extensively in submissions to the IACHR, the UN Fact-Finding Mission and the UN human rights treaty bodies. Independent providers (such as MAAP, RAISG, the World Resources Institute and Global Forest Watch) and Venezuelan CSOs (notably SOSOrinoco, Wataniba and Provita) play a central role in this work.

*Technical standards.* In the absence of dedicated domestic protocols, the same general practices observed across the region apply to reduce admissibility risks:

*Source identification:* clear identification of the platform or provider (state entity, recognised international provider, or accredited CSO), date/time, area of interest and method of acquisition;

*Metadata preservation:* retaining original files and metadata where available, and documenting each processing step;

*Reproducibility:* preserving the workflow so an independent expert could reproduce the same outputs from the same source data;

*Integrity documentation:* an evidence log documenting who handled the digital files, where they were stored, how they were transferred, and what controls were used to prevent tampering.

### Case example - use of remote sensing evidence

#### **SOSOrinoco — Monitoring the Arco Minero del Orinoco (2018–present)**<sup>221, 222</sup>

SOSOrinoco is an advocacy group established in 2018 by a group of experts working anonymously inside and outside Venezuela, due to the high risk of this type of research in the country, committed to documenting and creating an in-depth diagnostic of the region south of the Orinoco River. Working with satellite data from the EU Copernicus Sentinel-2 programme and high-resolution imagery provided by Radiant Earth Foundation and Maxar/DigitalGlobe, SOSOrinoco has systematically documented the expansion of illegal mining across the Arco Minero, inside Yapacana, Canaima and Caura National Parks, and along the Cataniapo, Caura, Cuchivero and Cuyuní river basins. In the four years following the creation of the Arco Minero, over 2,821 square kilometres of forest were destroyed, with 50 percent of that destruction occurring within protected territories. In Yapacana National Park alone, two thousand hectares were subjected to gold mining activity, with high-resolution satellite imagery confirming the accelerated pace of devastation and deforestation driven by illegal mining inside the park.

SOSOrinoco's satellite-based reports have been submitted directly to UNESCO, IUCN and inter-governmental organisations, and have informed IACHR hearings, UN Fact-Finding Mission reports and academic and investigative journalism on mercury contamination across at least 30 Venezuelan rivers.

#### **Wataniba – Yanomami Crisis Documentation (2021–2024)**<sup>223</sup>

According to monitoring carried out by Wataniba through satellite imaging and direct sources coordinated with Indigenous organisations in the field, the area of the Venezuelan Amazon directly affected by mining grew from approximately 339 km<sup>2</sup> in 2019 to 1,337 km<sup>2</sup> by 2021 – a 294% increase in just two years. The Wataniba Socio-environmental Work Group for the Amazon combined this satellite mapping with field investigations carried out in partnership with Yanomami and Ye'kwana representatives, documenting mining incursions, mercury contamination, disease outbreaks and food insecurity affecting communities in Amazonas state. Wataniba collaborated with the Horonami organisation representing the Yanomami people in southern Venezuela, one of the most recently contacted Indigenous groups severely affected by illegal mining, displacement, violence and massacres, and co-produced Sacred Sites Maps with Indigenous organisations including OIPUS, KUYUNU and ORPIA. This body of work directly underpinned the November 2024 joint statement by the IACHR and its Office of the Special Rapporteur on Economic, Social, Cultural and Environmental Rights (REDESCA). The IACHR and REDESCA expressed deep concern about the impacts of illegal mining on the life, health and survival of the Yanomami people in the Orinoco Mining Arc, calling on Venezuela to take immediate concrete steps to protect Yanomami human rights in the face of increasing violence, infectious disease and environmental degradation. The case illustrates how community-based satellite monitoring, when combined with Indigenous testimony and CSO documentation, can generate sufficient evidentiary weight to

trigger formal international human rights responses in contexts where domestic remedies are unavailable.

## Challenges in engagement with authorities

Engagement between CSOs and public authorities in Venezuela is constrained by a particularly demanding combination of legal, institutional, political and security barriers. The result is one of the largest gaps in the region between a formally rich constitutional framework and the operational reality of environmental governance.

**Closure of civic space and judicial harassment of defenders.** The Anti-NGO Law of November 2024, the Anti-Solidarity Law of August 2024 and the broader pattern of restrictions on civic space - including hundreds of documented attacks on defenders in 2023–2024 - have substantially restricted the operational capacity of environmental CSOs and indigenous federations and increased the risks faced by their leaders.<sup>224</sup>

**Disengagement from the inter-American human rights system.** Venezuela's denunciation of the American Convention on Human Rights (effective 2013) and its purported withdrawal from the OAS in 2017 have substantially limited the regional remedies available to environmental and human rights defenders. The IACHR continues to exercise jurisdiction on the basis of the OAS Charter, but the contentious jurisdiction of the Inter-American Court is no longer available for events after 10 September 2013.<sup>225</sup>

**Politicisation of the judiciary.** The independence and effectiveness of the Venezuelan judiciary, including the Tribunal Supremo de Justicia and the contentious administrative courts, have been repeatedly questioned by international human rights mechanisms. This affects the practical value of constitutional and administrative remedies for environmental defence.<sup>226</sup>

**Expansion of legal and illegal mining and erosion of protected areas.** The Arco Minero del Orinoco - encompassing approximately 111,843 km<sup>2</sup> of territory in Amazonas, Bolívar and Delta Amacuro - has been a key driver of deforestation, mercury contamination, biodiversity loss and violence in the Venezuelan Amazon, including in formally protected areas such as the Yapacana and Canaima National Parks. Illegal mining controlled by armed non-state actors has compounded these dynamics.<sup>227</sup>

**Severe risks to indigenous defenders and communities.** Yanomami, Pemón, Ye'kwana, Sanõma and Kariña leaders face the conjunction of illegal mining, armed-actor violence, mercury contamination and a humanitarian crisis with documented mass mortality patterns. The lack of effective protection by the State and the absence of a dedicated national protection mechanism for defenders increase these risks dramatically.<sup>228</sup>

**Information opacity.** Many environmental datasets that were previously public, including data on protected areas, mining concessions, environmental authorisations and enforcement actions, are no longer accessible. This severely constrains the ability of CSOs to monitor compliance, document violations and engage with public authorities.<sup>229</sup>

## Conclusion & recommendations

Venezuela combines one of the most ambitious constitutional frameworks in Latin America for environmental rights, indigenous rights and prior consultation with one of the most demanding

operational contexts in the Amazon basin. The expansion of the Arco Minero del Orinoco, the closure of civic space, the partial disengagement from the inter-American human rights system and the deterioration of the institutional architecture have created a situation in which the gap between formal protection and effective enforcement is exceptionally wide. Recommendations are accordingly framed both as essential reforms to be pursued domestically and as priorities for international engagement.

**1. Reopen civic space for environmental and human rights defenders.** Repeal or substantially reform the Anti-NGO Law of November 2024 and the Anti-Solidarity Law of August 2024 in line with international standards on freedom of association; lift restrictions on international cooperation; and end the harassment and detention of defenders.

**2. Sign and ratify the Escazú Agreement.** Use the Escazú Agreement as a framework for the consolidation of access to environmental information, public participation, access to justice and the protection of defenders, in line with constitutional commitments and international obligations.

**3. Re-engage fully with the inter-American human rights system.** Re-accede to the American Convention on Human Rights and to the contentious jurisdiction of the Inter-American Court of Human Rights, and implement IACHR recommendations on the Yanomami people, the Arco Minero del Orinoco and the broader human-rights situation.

**4. Suspend and review the Arco Minero del Orinoco.** Conduct an independent review of Decreto N° 2.248 and of the Arco Minero with the meaningful participation of affected indigenous peoples, in accordance with Article 120 of the Constitution; suspend mining activities lacking prior consultation and environmental impact assessment; and develop a programme of remediation for ecosystems and communities affected by mercury contamination.

**5. Strengthen indigenous land rights.** Accelerate the demarcation and titling of indigenous territories in accordance with the constitutional duty under Article 119, with priority for Amazonian territories affected by illegal mining; and reinforce the role of indigenous traditional authorities in environmental governance.

**6. Restore the independence and capacity of environmental institutions.** Rebuild the operational capacity of MinEC, Inparques and the specialised environmental prosecutorial network; consolidate, in practice, the special environmental criminal jurisdiction outlined in the LOA and LPA; and ensure that environmental authorisations and sanctioning procedures comply with the law.

**7. Institutionalise remote sensing and protect community monitoring.** Recognise and protect the work of Venezuelan and regional CSOs (SOSOrinoco, Wataniba, Provita, MAAP, RAISG partners and others) in environmental monitoring; develop in-house State capacity to interpret and validate satellite data; and re-establish proactive disclosure of environmental data, in line with the constitutional right of access to public information.

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<https://www.oas.org/en/iachr/sessions/>. See also Cultural Survival, “Saramaka People v Suriname: A Human Rights Victory and Its Messy Aftermath”,  
<https://www.culturalsurvival.org/news/saramaka-people-v-suriname-human-rights-victory-and-its-messy-aftermath>.
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<https://news.mongabay.com/2024/07/as-logging-booms-in-suriname-forest-communities-race-to-win-land-rights/>.

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177. Goejaba Declaration of the Saamaka people (June 2024), reported in Rights and Resources Initiative, <https://rightsandresources.org/>.
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<https://www.eia.nl/en/countries/suriname/legislation-at-project-level/> ;
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<https://freedomhouse.org/country/suriname/freedom-world/2021>
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<https://www.amnesty.org/en/documents/amr53/9026/2025/en/>; FIDH–OMCT Observatory, “Venezuela: criminalización y represión de personas defensoras”,  
<https://www.fidh.org/en/region/americas/venezuela/venezuela-the-observatory-omct-fidh-report-denounces-systematic>; US Department of State, “2024 Country Reports on Human Rights Practices: Venezuela”, <https://www.state.gov/reports/2024-country-reports-on-human-rights-practices/venezuela>.

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208. Tribunal Supremo de Justicia (TSJ), <https://www.tsj.gob.ve/>; Sala Constitucional, Sala Político-Administrativa and Sala Casación Penal.
209. Ley Orgánica de Amparo sobre Derechos y Garantías Constitucionales (1988), Gaceta Oficial N° 34.060 (27 September 1988); Ley Orgánica de la Jurisdicción Contencioso Administrativa (2010), Gaceta Oficial N° 39.451 (22 June 2010); Código Procesal Civil and Código Civil.
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211. Human Rights Watch World Report 2026: <https://www.hrw.org/world-report/2026/country-chapters/venezuela>
212. Ministerio del Poder Popular para el Ecosocialismo (MinEC), <https://www.minec.gob.ve/>; Decreto N° 1.378 of 21 October 2014, on the structure and competences of MinEC.

213. Ley Orgánica del Ambiente (LOA), Gaceta Oficial Extraordinaria N° 5.833 (22 December 2006), <https://www.asambleanacional.gob.ve/storage/documentos/leyes/ley-organica-20220210161106.pdf>. The LOA establishes the general environmental framework and creates the conditions for a special environmental criminal jurisdiction.
214. Ministerio del Poder Popular de Desarrollo Minero Ecológico (Ministry of Ecological Mining Development), <https://www.desarrollominero.gob.ve/>; created by Decreto N° 2.231 of 2016 in conjunction with the establishment of the Arco Minero del Orinoco.
215. Ministerio del Poder Popular para los Pueblos Indígenas (Ministry of Indigenous Peoples), <https://www.minpi.gob.ve/>.
216. Constitución de la República Bolivariana de Venezuela (1999), Arts. 127–129 (environmental rights) and Arts. 119–126 (indigenous rights, including the duty of the State to demarcate and guarantee collective property over the lands ancestrally and traditionally occupied by Indigenous communities).
217. Instituto Nacional de Parques (Inparques), <https://www.inparques.gob.ve/>; Ley del Instituto Nacional de Parques and Reglamento Parcial de la Ley Orgánica del Ambiente sobre las Áreas Bajo Régimen de Administración Especial.
218. Ministerio Público (Fiscalía General de la República), <https://www.mp.gob.ve/>. Pursuant to the LPA, environmental crimes are prosecuted by specialised environmental prosecutors. The Tribunal Supremo de Justicia has discussed the creation of a Jurisdicción Especial Penal Ambiental, but has not yet implemented a fully autonomous specialised environmental jurisdiction in practice. See CIMAS, “¿Y la Jurisdicción Especial Penal Ambiental en Venezuela?”, <https://cimasorg.com/2025/04/20/y-la-jurisdiccion-especial-penal-ambiental-en-venezuela/>.
219. Decreto N° 1.378 of 2014; CIMAS, “¿Y la Jurisdicción Especial Penal Ambiental en Venezuela?” (April 2025), <https://cimasorg.com/2025/04/20/y-la-jurisdiccion-especial-penal-ambiental-en-venezuela/>.
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221. Defensoría del Pueblo de Venezuela, <https://www.defensoria.gob.ve/>. The Defensoría is a constitutionally autonomous body (Arts. 280–283 of the Constitution); its independence has, however, been the subject of recurrent criticism by international human rights bodies.
222. Ley Penal del Ambiente (LPA), Gaceta Oficial N° 39.913 (2 May 2012), <https://www.asambleanacional.gob.ve/storage/documentos/leyes/ley-penal--20211109143642.pdf>. The LPA introduces objective criminal responsibility for environmental crimes (criminal liability arising from the violation of administrative norms, without need to demonstrate culpa or dolo) and a broad catalogue of sanctions, including the dissolution of legal entities and the closure of facilities.
223. Venezuela does not offer a case example of successful domestic CSO litigation on nature crimes. The country represents the most acute example in the Amazon region of a jurisdiction where domestic legal remedies are structurally unavailable, making international mechanisms, the IACHR, the UN Fact-Finding Mission, and the ICC, the only realistic accountability forums.

This finding is itself a significant analytical point about the enabling conditions for civil society engagement with nature crimes in Venezuela.

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226. IWGIA Indigenous World 2024 (Wataniba satellite data): <https://iwgia.org/en/venezuela/5390-iw-2024-venezuela.html>; Debates Indígenas (Wataniba/Horonami collaboration): <https://debatesindigenas.org/en/2025/02/01/gold-or-life-the-struggle-of-venezuelan-indigenous-peoples-against-illegal-mining/>; IACHR–REDESCA statement, November 2024: [https://www.oas.org/en/iachr/jsForm/?File=/en/iachr/media\\_center/preleases/2024/257.asp](https://www.oas.org/en/iachr/jsForm/?File=/en/iachr/media_center/preleases/2024/257.asp); Survival International (Yanomami health crisis): <https://www.survivalinternational.org/news/14300>
227. The Anti-NGO Law was passed by the National Assembly in August 2024 and mirrors restrictive NGO laws applied in Russia, Georgia and Nicaragua. It undermines the constitutional right to freedom of association and threatens the closure of many organisations. — WOLA (April 2025): <https://www.wola.org/analysis/venezuelas-new-ngo-law-and-u-s-funding-freeze-are-a-death-blow-to-the-countrys-civil-society/>
228. On 6 September 2012, Venezuela gave notice of its denunciation of the American Convention on Human Rights, with the denunciation taking effect on 6 September 2013. Venezuela expressly manifested its intention to withdraw from both the Inter-American Commission and the Inter-American Court of Human Rights. — ASIL Insights: <https://www.asil.org/insights/volume/17/issue/1/venezuelas-denunciation-american-convention-human-rights>
229. The TSJ has issued numerous decisions that favoured the Maduro regime in recent years, and UN experts have repeatedly criticised the judiciary's lack of independence. A 2021 UN report noted that prosecutors and judiciary members have effectively aided the regime's human rights abuses. — Freedom House Freedom in the World 2024: <https://freedomhouse.org/country/venezuela/freedom-world/2024>
230. MAAP Program: [https://www.maaprogram.org/ftt\\_country/venezuela/](https://www.maaprogram.org/ftt_country/venezuela/)
231. According to data compiled by Yanomami health agents in just one region, the Sierra Parima, more than 500 Yanomami in Venezuela died between 2022 and 2024 from malaria and other treatable diseases. — Survival International (July 2025): <https://www.survivalinternational.org/news/14300>
232. From roughly 2011 onward, as Venezuela spiralled into economic and social crisis, statistics began disappearing from the web and became unavailable to the public, scientific researchers and activists. Many important government environmental indices have been hidden from public view, including updated data on deforestation, ecosystem and wildlife endangerment, mining, water and air quality, and pollution. Mongabay (October 2019): <https://news.mongabay.com/2019/10/venezuelan-crisis-government-censors-environmental-and-scientific-data/>