# Amazon Mining Policy Scoreboard

## Main patterns and takeaways

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### INTRODUCTION

Gold mining is one of the most persistent drivers of deforestation, ecosystem degradation, and social conflict in the Amazon, especially through illegal and unsustainable artisanal and small-scale mining (ASM). Despite growing political commitments to halt deforestation and promote sustainable development, national governments have struggled to keep pace with rising pressures on gold-producing regions, driven by soaring international gold prices - which hit a record of USD 4,000 per ounce in 2025.[1]

To help bolster government responses to illegal ASM, Amazon Conservation developed a methodology to assess the completeness of legal frameworks and policies across the eight countries of the Amazon. The resulting policy scoreboard complements data available on Amazon Mining Watch, an online platform delivering up to date, comprehensive information on gold mining activities across the Amazon. Supported by the Gordon and Betty Moore Foundation, the platform provides wall-to-wall quarterly updates on ASM footprint across the region, information about the legality of ASM, and an integrated tool to explore the policy context of ASM in each country.

[1] J.P. Morgan. (2025). *Will gold prices break $5,000/oz in 2026?* J.P. Morgan Global Research. https://www.jpmorgan.com/insights/global-research/commodities/gold-prices

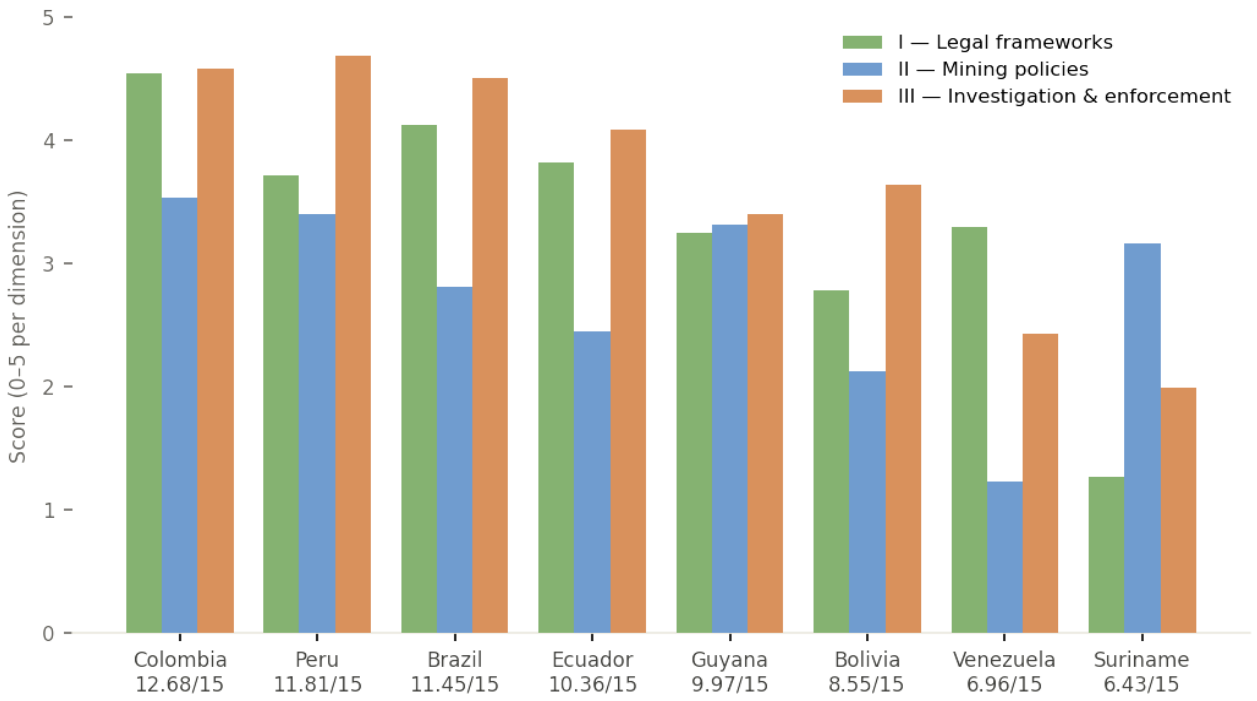
## METHODOLOGY AND LIMITATIONS

The Scoreboard covers 76 criteria across the three governance dimensions, scored primarily on a binary basis (0 or 1) – with 0.5 for partial frameworks. Scores are aggregated within each dimension and combined into an overall score out of 15 – each category worth one point and each dimension up to five points – with equal weighting, enabling cross-jurisdictional comparison. Only governance measures positively implemented in at least one Amazonian country are included, ensuring the maximum score is achievable and replicable.

The assessment evaluates the existence and formal robustness of governance frameworks on paper — whether the relevant law exists, is coherent, and contains the elements required for effective implementation. The Scoreboard is therefore best read as a map of formal governance architecture, not as a verdict on outcomes.

## RESULTS

Colombia leads overall (12.68/15), followed by Peru (11.81), Brazil (11.45), Ecuador (10.36), Guyana (9.97), Bolivia (8.55), Venezuela (6.96), and Suriname (6.43). The gap between the top group and the bottom two reflects a divide not merely of legal sophistication but of institutional will and state capacity. All results are published on an open-access website and will be periodically updated.



# Amazon Mining Policy Scoreboard

## Dimension I — Legal Frameworks

Each category scored 0–1 (worth one point) · Dimension total out of 5 · Sorted by published score

| Country | A<br>Legal definitions & rights recognition | B<br>Ownership & mineral rights | C<br>Licensing procedures | D<br>Machinery regulation | E<br>Mercury regulation | Total (/5) |
|---|---|---|---|---|---|---|
| Colombia | 1.00 | 1.00 | 0.80 | 0.75 | 1.00 | **4.55** |
| Brazil | 1.00 | 1.00 | 1.00 | 0.25 | 0.88 | **4.13** |
| Ecuador | 1.00 | 0.75 | 0.90 | 0.67 | 0.50 | **3.82** |
| Peru | 1.00 | 0.88 | 0.80 | 0.42 | 0.62 | **3.72** |
| Venezuela | 1.00 | 0.50 | 0.80 | 0.50 | 0.50 | **3.30** |
| Guyana | 0.50 | 0.62 | 1.00 | 0.25 | 0.88 | **3.25** |
| Bolivia | 0.83 | 0.38 | 0.70 | 0.25 | 0.62 | **2.78** |
| Suriname | 0.33 | 0.25 | 0.60 | 0.08 | 0.00 | **1.27** |

0.85–1.00 strong · 0.65–0.84 good · 0.45–0.64 moderate · 0.25–0.44 weak · 0.00–0.24 poor

## Dimension II — Mining Policies

Each category scored 0–1 (worth one point) · Dimension total out of 5 · Sorted by published score

| Country | F<br>Minamata convention compliance | G<br>Monitoring systems | H<br>Public participation | I<br>Sustainable mining support | J<br>Biodiversity & remediation | Total (/5) |
|---|---|---|---|---|---|---|
| Colombia | 1.00 | 0.50 | 0.75 | 0.62 | 0.67 | **3.54** |
| Peru | 0.71 | 0.62 | 1.00 | 0.56 | 0.50 | **3.40** |
| Guyana | 0.86 | 0.50 | 0.75 | 0.88 | 0.33 | **3.32** |
| Suriname | 0.71 | 0.38 | 0.33 | 0.75 | 1.00 | **3.17** |
| Brazil | 0.29 | 0.75 | 0.58 | 0.69 | 0.50 | **2.81** |
| Ecuador | 0.57 | 0.00 | 0.75 | 0.62 | 0.50 | **2.45** |
| Bolivia | 0.71 | 0.00 | 0.58 | 0.50 | 0.33 | **2.13** |
| Venezuela | 0.14 | 0.00 | 0.58 | 0.50 | 0.00 | **1.23** |

0.85–1.00 strong · 0.65–0.84 good · 0.45–0.64 moderate · 0.25–0.44 weak · 0.00–0.24 poor

## Dimension III — Investigation & Enforcement

Each category scored 0–1 (worth one point) · Dimension total out of 5 · Sorted by published score

| Country | K<br>Gold supply chain transparency | L<br>Public security & investigation | M<br>Judicial oversight & jurisprudence | N<br>Restrictions & enforcement | O<br>Economic & criminal sanctions | Total (/5) |
|---|---|---|---|---|---|---|
| Peru | 0.81 | 0.88 | 1.00 | 1.00 | 1.00 | **4.69** |
| Colombia | 0.69 | 1.00 | 1.00 | 0.90 | 1.00 | **4.59** |
| Brazil | 0.81 | 1.00 | 0.80 | 0.90 | 1.00 | **4.51** |
| Ecuador | 0.44 | 0.75 | 1.00 | 0.90 | 1.00 | **4.09** |
| Bolivia | 0.69 | 0.75 | 0.80 | 0.90 | 0.50 | **3.64** |
| Guyana | 0.75 | 0.50 | 0.60 | 0.80 | 0.75 | **3.40** |
| Venezuela | 0.12 | 0.25 | 0.80 | 0.50 | 0.75 | **2.43** |
| Suriname | 0.44 | 0.50 | 0.20 | 0.60 | 0.25 | **1.99** |

0.85–1.00 strong · 0.65–0.84 good · 0.45–0.64 moderate · 0.25–0.44 weak · 0.00–0.24 poor

## KEY TAKEAWAYS

**1. Legal frameworks and enforcement are the most developed pillars of regional ASM governance; the gap between law and implementation is the defining challenge.** Across the region, countries have invested in the development of legal and regulatory frameworks governing ASM, establishing clear definitions, prohibitions, institutional mandates, and enforcement authorities[2]. Where this architecture is matched by operational capacity, results follow: intensified enforcement in Brazil from 2023 contributed to a rapid drop in mining-related deforestation, with annual rates declining in 2023–2024 after peaking in 2022[3]. Yet in all eight countries, formal obligations exceed institutional delivery. Venezuela's situation is most extreme – its laws are comprehensive but enforcement has collapsed – while Suriname is inverted, with active implementation programs atop an underdeveloped legal architecture, and Bolivia and Ecuador face strong intent constrained by resources and coordination gaps. Moreover, seizures and arrests at extraction sites often displace criminal activity rather than dismantle it: criminal networks operate as decentralized, adaptive systems that reconfigure across territories, and durable impact requires sustained pressure across enabling infrastructures – financing, inputs, logistics, commercialization nodes, and financial flows – not just extraction sites.[4]

**2. Sustainable mining policies are the weakest pillar across all countries, revealing a clear regional gap in prevention-oriented governance.** Policies lag particularly in relation to mercury use reduction, long-term monitoring, support for formalization, and biodiversity strategies. While clear legal frameworks can enhance enforcement, a purely repressive approach may not be viable in the long term, especially in the face of historically high and still rising gold prices[5]. A focus on top-down enforcement also risks missing complex social and environmental

[2]INTERPOL. (2022). *Illegal mining and associated crimes: A law enforcement perspective on one of the most lucrative crimes*. INTERPOL Environmental Crime. https://www.interpol.int/en/Crimes/Environmental-crime/Illegal-mining-crimes

[3]Monitoring of the Amazon Project. (2025). *AI to detect Amazon gold mining deforestation – 2024 update* (MAAP #226). Amazon Conservation Association. https://www.maapprogram.org/amazon-mining-2024/; Secretaria de Comunicação Social. (2025). *Operações do Governo do Brasil intensificam combate ao garimpo ilegal e somam R$ 184 milhões em ouro apreendido desde 2024*. Governo do Brasil. https://www.gov.br/secom/pt-br/assuntos/noticias/2025/12/operacoes-do-governo-do-brasil-intensificam-combate-ao-garimpo-ilegal-e-somam-r-184-milhoes-em-ouro-apreendido-desde-2024

[4]UNICRI. (2026). *Minerals crime in the Andean–Amazon region: Regional cooperation as a governance response*. United Nations Interregional Crime and Justice Research Institute. https://unicri.org/sites/default/files/2026-05/Minerals-Crime-Andean-Amazon-Region-Cooperation-Governance-Response.pdf

[5]Prescott, G. W., Baird, M., Geenen, S., Nkuba, B., Phelps, J., & Webb, E. L. (2022). Formalizing artisanal and small-scale gold mining: A grand challenge of the Minamata Convention. *One Earth*, *5*(3), 251–264. https://doi.org/10.1016/j.oneear.2022.02.005

concerns[6] that call for complementary strategies to formalize and mitigate the impacts of the activity: registration of miners and cooperatives, environmental and social impact assessment, training and capacity building for reduced-impact practices, including alternatives to mercury use, and incentives for remediation and restoration of mining sites.

**3. Monitoring systems remain critically underdeveloped relative to the size of the sector and its impacts.** While Brazil[7], Colombia[8], and Peru[9] have developed some monitoring mechanisms, these systems lack consistency or broad coverage across their Amazonian territories. Moreover, existing platforms tend to focus on detecting the presence of mining activities rather than regularly assessing their impacts on ecosystems or affected communities.

**4. Mercury regulation remains uneven across Amazonian countries, and tracking ends at prohibition.** All Amazonian countries have signed the Minamata Convention, and all but Venezuela have ratified it – Venezuela remains the only country without binding mercury reduction obligations or a National Action Plan. Translation into national frameworks varies significantly: while formal bans are in place in most countries, the chain of custody for mercury – from import through retail, end use, waste disposal, and site contamination monitoring – is broken in every country assessed. There is a near-total absence of government-led initiatives to monitor mercury contamination consistently: across all countries, there is limited implementation of protocols to measure mercury levels in water bodies, the food chain, or exposed populations, despite well-documented health and environmental risks[10][11].

**5. Machinery is the blind spot of regional governance.** Near-universal low scores on machinery regulation reveal a structural gap: without GPS tracking, public registries, or robust import controls for excavators and dredges, governments cannot effectively monitor mechanized illegal mining. Only Ecuador and

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[6]Prescott, G. W., Baird, M., Geenen, S., Nkuba, B., Phelps, J., & Webb, E. L. (2022). Formalizing artisanal and small-scale gold mining: A grand challenge of the Minamata Convention. *One Earth*, *5*(3), 251–264. https://doi.org/10.1016/j.oneear.2022.02.005

[7]Instituto Nacional de Pesquisas Espaciais. (n.d.). *DETER: Detecção de desmatamento em tempo real* [monitoring platform]. Governo do Brasil. https://www.gov.br/inpe/pt-br/area-conhecimento/unidade-amazonia/projetos-e-pesquisas/deter

[8]Unidad de Planeación Minero Energética. (n.d.). *Sistema de Información Minero Colombiano (SIMCO)* [database]. UPME. https://www.upme.gov.co/simco/

[9]Instituto Geológico, Minero y Metalúrgico. (n.d.). *GeoCATMIN: Catástro Minero* [dataset]. INGEMMET. https://geocatmin.ingemmet.gob.pe/geocatmin/

[10]Secretariat of the Convention on Biological Diversity. (2024). *Mercury pollution and biodiversity: Contribution of the Minamata Convention on Mercury to the Kunming-Montreal Global Biodiversity Framework* (CBD/COP/16/INF/21). UNEP. https://www.cbd.int/doc/c/e0d0/24ab/5e4f3e43a2cdea7b8571fa47/cop-16-inf-21-en.pdf

[11]de Bakker, L. B., Gasparinetti, P., de Queiroz, J. M., & de Vasconcellos, A. C. S. (2021). Economic impacts on human health resulting from the use of mercury in the illegal gold mining in the Brazilian Amazon: A methodological assessment. *International Journal of Environmental Research and Public Health*, *18*(22), Article 11869. https://doi.org/10.3390/ijerph182211869

Colombia have mandatory GPS requirements; no country has a publicly accessible machinery license registry.

**6. Gold supply chain transparency remains the enforcement frontier.** While registration and export permitting are broadly in place, core traceability mechanisms – transaction disclosure, digital registries, end-to-end chain of custody, and financial institution due diligence – are still emerging or absent. Brazil's 2025 Supreme Court ruling rejecting the presumption of good faith in gold trading and Peru's pilot QORI application are the most concrete recent advances. No country yet has a fully functioning public digital traceability system.

**7. Civil society and community participation is formal but rarely substantive.** Legal channels for oversight exist, but are rarely integrated into authorization or enforcement decisions. Bolivia has no public consultation process in mining; Brazil dissolved its main intersectoral ASM commission in 2023; Ecuador's complaint channels do not affect project authorization. Dedicated policy instruments for women, indigenous peoples, and traditional communities exist in only Peru and, partially, Ecuador and Suriname.

**8. Rights of nature jurisprudence is an emerging regional differentiator.** Ecuador's Los Cedros ruling, Colombia's recognition of Amazonian rivers as subjects of rights, and Peru's emerging cases are building a legal infrastructure that could reshape mining governance. This approach is entirely absent from Bolivia, Brazil, Guyana, Suriname, and Venezuela.

**9. The lowest-ranked countries, Venezuela and Suriname, represent distinct governance failures – and confirm that governance quality depends on coherence across the full framework.** Venezuela's failure is primarily one of state capture: its strong legal framework score is undermined by near-zero performance on monitoring, supply chain transparency, and mining policies, as the state monopoly on gold, exclusion of civil society, and documented tolerance of illegal networks have rendered the formal framework nearly inoperative – illustrating that formal legislation without effective implementation offers limited protection. Suriname's failure is structural – a 1986 mining decree, no mercury-specific law, no machinery regulations, no formalization pathway – although the country maintains meaningful engagement with international programs. The reform pathways differ accordingly: Venezuela would require political change, while Suriname's challenges are more amenable to legislative and institutional reform with international support. In the middle of the ranking, Guyana illustrates that strong legal commitments do not self-execute: despite a solid framework and a ratified Minamata Convention, performance is constrained by an absent public cadastre, weak machinery regulation, and supply chain traceability gaps.

# GOOD PRACTICES AND TRANSFERABLE POLICY MEASURES

A core design principle of the Scoreboard is that every criterion reflects a measure already adopted by at least one Amazonian country: the maximum score is not an abstract ideal but a composite of existing regional practice. Every gap identified in this assessment therefore has a working solution somewhere in the region. This section highlights a selection of these measures – legal provisions, policy instruments, and enforcement mechanisms that performed well in one or more countries and could be adapted by neighbors facing similar challenges. The examples are illustrative rather than exhaustive, drawn directly from Scoreboard data, and organized by assessment dimension.

## I. Legal Frameworks

### Legal definitions and regulatory clarity

Countries with stronger performance clearly distinguish ASM from mechanized and large-scale mining, establish transparent licensing, and define conditions for mining in sensitive areas. Colombia, Brazil, and Peru provide reference points, establishing prior consultation of indigenous peoples and prohibition of mining in protected areas.

### Fixed-term licensing with mandatory reassessment

Guyana and Suriname grant mining titles for fixed periods with mandatory compliance review before renewal or extension – an accountability mechanism absent in several of the region's largest producers, where concessions can be maintained or extended without reassessment, and one directly transferable through licensing regulations.

### Public mining cadastres

Accessible mining cadastres contribute to transparency, monitoring, and accountability. Brazil's SIGMINE system allows public visibility of mining titles and overlap with protected or indigenous territories, and can offer a transferable model for jurisdictions where registries remain incomplete, such as Bolivia and Ecuador.

### Machinery control

Colombia legally differentiates between subsistence and ASM machinery, requires mining licenses with GPS tracking for ASM equipment, and mandates traceability of machinery use, helping identify unauthorized operations. The model rests on two pillars that make it readily transferable. First, the legal distinction between manual subsistence mining and mechanized ASM turns the mere presence of heavy equipment outside licensed operations into a clear marker of illegality, simplifying interdiction decisions in the field. Second, Resolution 1068/2015 of the Ministry of Transportation requires all heavy machinery to be registered in the

National Transit Registry (RUNT) and fitted with a GPS device – embedding machinery control in an existing vehicle registry rather than a new mining-specific institution.

Countries adopting the model can follow the same logic: register equipment through existing transit or customs systems, impose the GPS requirement at the point of import or first sale (as Ecuador does through its 2017 heavy machinery regulations, which require sellers to deliver mining equipment with tracking devices installed), and tie machinery records to mining licenses so that enforcement agencies can treat unregistered equipment in mining areas as evidence of illegal activity. Two gaps remain open even in the leading countries – no Amazonian country yet maintains a publicly accessible registry of machinery licenses, and controls on domestic sale and leasing of equipment are partial everywhere – making these the natural next steps for any country adopting or extending the model.

### Mercury traceability

Colombia's mercury user registry enables tracking of the supply chain; only registered companies may import and commercialize mercury. Guyana's Mercury Act 2020 provides an annual import cap plus Environmental Authorization requirements to create a licensed, capped channel for legitimate mercury flows, directly transferable to jurisdictions that have yet to enact specific domestic mercury controls.

## II. Sustainable Mining Policies

**Minamata Convention compliance**

Colombia's National Action Plan (NAP) integrates forest dimensions transversally and serves as a robust model. Guyana's NAP (2021) embeds intersectional approaches, framing mercury reduction as inseparable from social conditions including health, livelihoods, and gender inequality. Suriname's validated NAP (2023) demonstrates that even without a comprehensive legal framework, NAP processes can advance governance through measurable targets and international financing.

### Public participation and accessible financing

Brazil's complaint mechanisms can trigger Public Prosecutor investigations and IBAMA reviews of mining titles. Bolivia's FOFIM fund grants loans to mining cooperatives to improve extraction systems and machinery. Ecuador offers a bank credit line for authorized miners. Guyana, in partnership with international organizations, offers incentives for the adoption of mercury-free gold certification schemes – alongside Colombia, one of only two governments actively promoting certification as a market-based lever for responsible sourcing.

### Ecosystem restoration

Brazil's Environmental Regularization Program (PRA) and the National Plan for Recovery of Native Vegetation (Planaveg) aim to restore 12 million hectares by 2030, including mining-degraded areas. Suriname's EMSAGS project (co-funded by GEF/UNDP) combines mercury-free technology, biodiversity monitoring, and restoration across the full mine life cycle, a transferable model for channeling multilateral financing toward integrated ASM governance.

## III. Investigation and Enforcement

### Data with geospatial compatibility and transaction transparency

Peru's GEOCATMIN and REINFO platforms provide publicly accessible, geospatially compatible cadastre data. Brazil's 2023 Electronic Invoice for Gold (NF-e Ouro) mandates electronic invoices for first purchases and imports of raw gold, combined with the Supreme Court's rejection of the presumption of good faith in gold trading. Guyana's Gold Board regulations make transaction disclosure mandatory: licensed dealers must keep detailed records of all gold purchases and submit regular extracts to the Board – a legal basis for monitoring gold flows that does not depend on prior deployment of digital traceability infrastructure.

### Specialized environmental units and rights of nature

Ecuador's UN-IDCAN (National Unit for Investigation of Crimes against the Environment and Nature) strengthens prosecution of illegal mining. Colombia's Constitutional Court has recognized the Atrato River as a rights-holder (Judgment T-622/2016), creating binding obligations to protect, restore, and conserve the river — a framework that directly limits harmful mining practices.

### Remote sensing evidence in courts

In Peru, satellite, drone, acoustic monitoring, and eDNA data are accepted by courts when validated by experts. In Ministerio Público v. Cacao del Perú Norte SAC (2019), satellite imagery demonstrated illegal deforestation of nearly 2,000 hectares — enhancing evidentiary standards and supporting accountability for large-scale environmental damage.