

UNDERMINING RIGHTS

*Indigenous Lands and Mining
in the Amazon*

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FOREWORD

As this report is being released, the price of gold hit a record high of almost \$2,100 per ounce in August. Gold prices had been rising for years but the threat to economies from the novel coronavirus led to a surge in prices — up about 35 percent this year — as investors sought the perceived safety of gold. As prices rise, so does demand and mining. These circumstances make this report on the effects of mining on indigenous people and their lands in the Amazon particularly timely.

We know from previous WRI research that deforestation rates on indigenous lands in the Amazon are sharply lower than on similar land not managed by indigenous people. Now we have learned from this report that industrial mining concessions and illegal small-scale mining occur on more than 20 percent of indigenous lands in the Amazon and that deforestation rates on indigenous lands with mining are significantly higher than on indigenous lands not affected by mining.

The Amazon is home to about 1.5 million indigenous people. The forest is their home and source of livelihood. Mining is environmentally destructive and brings social and health risks. Environmental degradation leads to the loss of critical ecosystem services—such as water flow regulation, biodiversity and carbon sequestration—that benefit indigenous people and all humanity. Mining also leads to conflict, especially between miners and indigenous people. According to Global Witness, mining was the deadliest sector for land defenders in 2018 and 2019.

This report finds that while laws in Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru recognize some land rights for indigenous people, they do not provide the legal protections needed for them to secure their lands and take charge of their own development. For example, of these countries, only Guyana recognizes a limited form of consent, and only Colombia provides the right of first refusal when the government grants a mining concession on their lands. Yet mining companies often have sweeping rights to enter and use indigenous land for their operations.

The case studies for this report reveal that some indigenous people take extraordinary measures to protect their lands from mining. In Peru, for example, the Tres Islas indigenous communities persuaded domestic courts to declare 127 mining concessions on their land null and void. In Colombia, when a mining company sought a concession on their land, the Yaigojé Apaporis people successfully convinced the government to designate their land as a national natural park where mining is prohibited.

The findings have implications for indigenous people, governments, development agencies, mining companies and civil society organizations to correct the large power discrepancies between indigenous people and miners. It calls on governments to enact legislation that recognizes additional land and mineral rights for indigenous people, establish strong social and environmental safeguards, and better monitor mining to ensure compliance with national laws. It calls on mining companies to respect indigenous rights and provide indigenous people with fairer shares of mining benefits. And it calls for indigenous people to build the skills needed to protect themselves from harm.

Decisionmakers around the world have an opportunity to support indigenous people and protect forests. With mining rapidly expanding deeper into the Amazon, it's time to act. Not doing so would have a massive cost to indigenous people and the forest—a cost much greater than gold.



Andrew Steer
President
World Resources Institute



EXECUTIVE SUMMARY

Amazonian governments have promoted and supported the exploitation of high-value minerals for decades, but in recent years, have committed to mining as a key component of their national development strategies. This has driven mining into more remote parts of the Amazon with significant implications for indigenous peoples and the forest. As mining expands deeper into the Amazon, there is an urgent need to better understand the law, practice, and outcomes of mining on indigenous lands in the Amazon. This report analyzes the law regarding the rights of indigenous people over their lands and the minerals on and below them, the level of implementation of these rights and the links between mining and forest cover change.

HIGHLIGHTS

- Industrial mining concessions cover approximately 1.28 million square kilometers (more than 18 percent) of the Amazon. Mining concessions and illegal mining overlap with 450,000 sq. km (more than 20 percent) of indigenous lands and affect 1,131 (31 percent) indigenous lands.
- Indigenous lands on which mining is carried out showed a higher rate of forest loss (from 2000 to 2015) than indigenous lands without mining. In Bolivia, Ecuador, and Peru, the rate was at least three times higher; in Colombia and Venezuela, it was one to two times higher.
- National laws provide indigenous people with some land rights but few rights to the minerals on their lands. Only in Guyana do indigenous people have a limited form of consent, and only in Colombia do they have the right of first refusal over commercial mining on their lands.
- In practice, the law is not well implemented by miners or enforced by governments. Indigenous people have employed various strategies, such as litigation, to protect their lands from mining.
- There is a need to strengthen legal protections for indigenous lands, establish strong social and environmental safeguards, build the capacity of indigenous people to protect their lands, ensure all mining meets established safeguards, and provide for effective law enforcement.

Introduction

The Amazon contains world-class deposits of copper, tin, nickel, iron ore, bauxite, manganese, and gold. All Amazonian countries have promoted and supported the exploration, exploitation, and export of high-value minerals for decades. In recent years, however, governments have committed to mining as a key component of their national development strategies and have provided more incentives to promote investments. Mining as a percentage of gross domestic product (GDP) has increased in several Amazonian countries.

Artisanal and small-scale mining (ASM), especially for gold, has been part of the livelihood strategy of rural households for centuries; large-scale industrial mining has been underway for much of the 20th century. Mining in the Amazon is dominated by industrial mining in the east, although mining for copper and gold is expanding into the lowland forest. Large-scale mining blocks or concessions overlap with many indigenous lands. Many other indigenous lands are indirectly affected by mining, from infrastructure (e.g., roads, rail lines, and dams), new towns for workers, and other associated developments.

ASM, especially for gold, takes place throughout the Amazon. Today, more than 500,000 small-scale gold miners are estimated to be active in the Amazon and many more people provide ASM services or are dependent family members. The expansion of ASM has been driven largely by rising gold prices coupled with limited livelihood opportunities. Illegal mining in the Amazon, principally ASM, has been underway for decades but has grown exponentially in recent years. In 2016, it was estimated that about 28 percent of the gold mined in Peru, 30 percent in Bolivia, 77 percent in Ecuador, 80 percent in Colombia, and 80–90 percent in Venezuela was produced illegally. Today, many indigenous lands are affected by illegal mining by outsiders.

Brazil holds about 60 percent of the Amazon basin and forest, and almost half of the indigenous lands. Its 1988 Federal Constitution allows for mining on indigenous lands but only under rules approved by the National Congress.

Since the National Congress has not established such rules, mining on indigenous lands is effectively prohibited although, in practice, illegal mining is underway in many indigenous territories. The government, however, is moving to open up the Amazon to commercial development. In January 2019, the minister of mines and energy announced that the government was preparing to overhaul mining regulations that will include opening indigenous lands to extractive resource exploitation and infrastructure. On February 5, 2020, Brazil's president signed Bill 191/2020 that would open indigenous lands to mining, oil and gas extraction, electricity generation, and agriculture. The bill is now in the Chamber of Deputies for discussion.

The COVID-19 pandemic, caused by the novel coronavirus, has impacted mining in Amazonian countries. Governments have declared states of emergency and issued stay-at-home orders, resulting in many sectors of the economy essentially shutting down. In Peru and other Amazonian countries, however, governments have allowed large-scale mining to continue and encouraged expansion while sidelining and constraining livelihood possibilities for ASM. Mining in Peru accounts for significant percentages of the national and some regions' GDPs, and large-scale mining is the principal contributor to the country's Fiscal Stabilization Fund.

Gold prices have been steadily rising for several years, but the threat to economies from the novel coronavirus has led prices to surge to record highs—up about 27 percent so far in 2020—as investors flee stocks to the safety of gold. As the price of gold rises, so does demand. The surge has triggered a new, intensified gold rush in the Amazon with implications for local people and the environment (Nascimento and Faleiros 2020). Soaring prices, coupled with the withdrawal of the police and army from the mining areas to enforce lockdowns and attend to the health crisis, have allowed illegal mining to expand further (Saffon 2020).

These and other developments have driven mining into more remote parts of the Amazon with significant implications for

indigenous peoples and the forest. The Amazon is home to 44.9 million people, including about 1.5 million indigenous people from 385 different ethnic groups as well as many Afro-descendants and other traditional people. Mining, by its very nature, is environmentally destructive and brings significant health and social risks. Mining on or near indigenous lands can lead to conflict, especially between miners and indigenous people who depend on the land for their livelihood.

In 2018, at least 164 land and environmental defenders were killed around the world.

And for the first time, mining was the world's deadliest sector, with 43 defenders, including many indigenous people, killed while protesting against the destructive effects of mining on their lands and livelihoods. In 2019, a record 212 land and environmental defenders were killed around the world, an average of more than four people per week. Seven of the top 10 worst-affected nations are in Latin America, where more than two-thirds of the total killings took place. Colombia was the deadliest country with 64 killings—up from 25 in 2018—accounting for 30 percent of the global total. Brazil had 24 killings, almost 90 percent of which took place in the Amazon. Globally, 40 percent of defenders killed were indigenous people, despite representing just 5 percent of the world's population. Mining was again the deadliest sector, with 50 people killed. Ten percent of those killed were women. Women also faced smear campaigns using sexist or sexual content, and sexual violence (Global Witness 2020; Guy 2020).

Research and Methods

The research for this report was designed to better understand three issues:

- The law regarding the rights of indigenous people over their lands and the mineral resources on their lands, as well as the powers and obligations of miners operating on indigenous lands.
- The implementation and enforcement of these laws and the experiences of indigenous people when mining occurs on their lands.

- The environmental impacts of mining on indigenous lands, especially the impact on forests.

Data were collected through literature reviews, geospatial analysis, legal reviews, and case studies.

- **Literature reviews:** The research involved both a broad review of the literature on mining on indigenous and community lands globally, and more focused reviews of six countries—Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru.
- **Geospatial analysis:** Geospatial analysis was conducted to examine the extent and impact of mining on indigenous land and forest cover in the Amazon. This geospatial analysis focused on the biogeographic boundary of the Amazon. Data on large-scale mining concessions and illegal mining were available for Bolivia, Brazil, Colombia, Ecuador, Peru, Suriname, and Venezuela. Deforestation rates on indigenous land with active concessions and/or illegal mining were calculated for the period from 2000 to 2015 and compared with the rates on indigenous land without mining.
- **Legal reviews:** The legal reviews focused on Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru, and addressed four critical issues: ownership of mineral resources, allocation of mineral rights, consultation and consent, and protection of indigenous lands. National (or federal) laws enacted before April 2020, including constitutions, statutes, regulations, decrees, technical directives, and court rulings of relevant cases, were reviewed to the extent they were available.
- **Case studies:** To better understand the implementation and enforcement of laws, and the practice of mining on indigenous land, case studies were developed of indigenous peoples experiencing mining—or the threat of mining—on their land. One case study each was developed from Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru. Data and information on the case studies were collected from the literature and through interviews with local experts with knowledge of the affected indigenous people.

Data and Findings

GIS analysis:

Large-scale mining concessions cover approximately 1.28 million sq. km (excluding French Guiana and Suriname) or more than 18 percent of the Amazon biogeographic region. Nearly 45 percent of the mining area (567,000 sq. km) is considered “active” mining area (i.e., in exploration or extraction), while much of the remaining portion is “inactive” (i.e., the concessions are pending activity—open for bidding or under tender). Approximately 57,000 sq. km of the active mining concessions, or more than 10 percent, overlap directly with indigenous territories. Active mining concessions overlap indigenous lands in all Amazonian countries. Many indigenous lands are affected by multiple overlapping mining concessions held by different mining companies.

The analysis of illegal mining focused on Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela. Most of the illegal mining area is in Peru and Bolivia, while Brazil and Venezuela have the largest estimated number of illegal mining extraction sites. At least 30 rivers are affected by illegal mining or are acting as routes for the entry of machinery and inputs and the outlet of the minerals. Known areas or sites of illegal mining operations overlap with at least 370 indigenous lands, including 260 indigenous lands in Peru. Rivers affected by illegal mining are within or on the border of 88 indigenous lands, including 32 indigenous lands in Peru and 29 in Colombia.

In total, about 450,000 sq. km—more than 20 percent—of the 2.1 million sq. km of indigenous land in the Amazon directly overlaps with mining concessions and/or illegal mining and affects 1,131 of the 3,653 (31 percent) indigenous lands in the Amazon (excluding French Guiana and Suriname). Approximately 143,000 sq. km of indigenous land overlaps with active mining concessions and known illegal mining areas, while the remaining 302,000 sq. km of indigenous land overlaps with inactive concessions. Much of the 143,000 sq. km of indigenous land with active concessions and/or illegal mining areas occurs in Venezuela, followed by Brazil and Colombia. Most of indigenous land with inactive concessions is in Brazil because of the absence of an enabling law.

Indigenous lands that experienced mining (i.e., active concessions and/or illegal mining) had a higher rate of forest loss in the period 2000 to 2015 than indigenous lands not affected by mining. In Bolivia, Ecuador, and Peru, the rate was at least three times higher and in Colombia and Venezuela, the rate was one to two times higher on indigenous lands with mining than on indigenous lands absent mining.

In Brazil, there was not a large discrepancy between the rate of deforestation on indigenous lands with active mining activities and indigenous lands without mining. The deforestation rate from 2000 to 2015 on indigenous lands with mining was only 0.3 percent higher than the rate on indigenous land without mining. Overall, the deforestation rate on indigenous land with mining in Brazil was lower than in the other countries. With mining not legally possible on indigenous land, this may be due to the government labeling some mining concessions as active when, in practice, they are inactive.

In Guyana, the deforestation rates were 0.3 percent higher from 2000 to 2015 on indigenous lands that did not experience any mining than the rates on lands with mining. This may be due to legal ASM and/or illegal mining on indigenous lands which are widespread in the country. The Guyana analysis only included active mining concessions as Amazon Network of Georeferenced Socio-Environmental Information (RAISG) does not have data on ASM and illegal mining for the country.

Legal reviews:

Multiple international instruments address or have implications for mining on indigenous land. Two international instruments are of particular importance as they have helped shape domestic legislation that governs mining on indigenous land in the six research countries—the International Labor Organization’s Indigenous and Tribal Peoples Convention, 1989 (ILO Convention 169) and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Adopted in 1989, ILO Convention 169 established international standards on the rights of indigenous peoples (ILO 1989). Of the six research countries, only Guyana has not ratified ILO Convention 169. The

2007 UNDRIP provides a universal framework of minimum standards for the survival, dignity, and well-being of indigenous peoples (UN 2007). All six research countries have adopted UNDRIP.

Land rights:

The national laws in Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru recognize indigenous land rights and customary tenure systems, and domestic court decisions have stressed the importance of these rights.

By law, the formalization of customary land rights is not required for the rights to be legally recognized, although, in practice, a land title or certificate can help indigenous communities better protect their rights against third parties. Formalization is central to the integration of customary land rights into official systems and the establishment of legally recognized rights. In the research countries, the established formalization procedures are costly and time consuming, can bring exposure to unwanted investors, and can result in fees and taxes. Moreover, not all customary land and traditional rights can be formalized (see Colombia and Guyana Case Studies; Notess et al. 2018).

The rights recognized through formalization in the six research countries vary by country, tenure regime, and/or type of title. Indigenous peoples in the research countries enjoy some level of access, withdrawal/use, management, exclusion, and alienation rights to lands and natural resources found there. Rarely, however, do they have full, unfettered land rights. For example, the right to withdrawal or use is often restricted to *renewable* natural resources and only for domestic or subsistence purposes (although indigenous people may apply to acquire these rights under a separate procedure).

Indigenous peoples in the six research countries also have limited alienation rights. By law, indigenous lands are inalienable in Bolivia, Brazil, and Colombia (in the case of indigenous reserves)—the government or other entities cannot take indigenous lands, and indigenous peoples may not sell or otherwise transfer their titled land to another entity. Indigenous land in Peru and Ecuador was

at one time inalienable but is no longer so due to constitutional reforms. In Guyana, titled indigenous land is not exempt from expropriation.

In Peru, indigenous people may sell their land, although in Bolivia, Brazil, Colombia, Ecuador, and Guyana, they are prohibited from doing so. Indigenous people in Colombia, Guyana and Peru may, however, lease some of their land to third parties, including miners. The laws in Bolivia, Brazil, and Ecuador do not explicitly allow indigenous peoples to lease their collective lands.

Mineral rights:

In Brazil, Colombia, Ecuador, Guyana, and Peru, all mineral resources are the property of the state, including the minerals on and below indigenous land. In Bolivia, minerals are the property of the Bolivian people, but the government is responsible for their administration. In all six research countries the government has authority over minerals and mining operations in the country, including the authority to grant rights to third parties for the exploration and exploitation of minerals.

In all research countries, indigenous people can exploit minerals on their land for subsistence, domestic, or customary purposes. In Brazil, Colombia, and Guyana, indigenous people do not need government authorization to do so, but in Bolivia, Ecuador and Peru, government authorization is required.

By law, commercial mining can take place on indigenous land in Bolivia, Colombia, Ecuador, Guyana, and Peru. (In Brazil, an enabling law is currently being debated that would allow mining on indigenous land.) National laws in these five countries establish procedures for acquiring mineral rights for commercial exploration and exploitation from the government mining authority often in coordination with the environmental agency.

In Colombia and Guyana, national law explicitly provides for indigenous peoples to conduct commercial mining. In Bolivia, Ecuador, and Peru the law is silent on this matter but does not

explicitly prohibit or restrict indigenous people from applying for mineral rights. In Colombia, indigenous peoples are provided with simplified procedures to acquire the rights to commercially mine their land. In Bolivia, Ecuador, Guyana, and Peru, indigenous people must meet the same requirements as other parties.

In Colombia, the law provides indigenous people the right of first refusal to exploit minerals for commercial purposes on their land. As such, indigenous people must first refuse their right to exploit mineral resources on their lands before the government can grant the mineral rights to a third party. The law does not provide indigenous people this right in the other five research countries.

In Colombia, Article 326 of the National Development Plan (2018–2022) Law (Law 1955 of 2019) provides that the government will establish differentiated requirements for the granting of mining concession contracts to indigenous people and Afro-Colombian communities. It will also establish “differentiated terms of reference for the *preparation* of the environmental impact study required for the environmental licensing of these mining projects.” Moreover, the law provides that once a mining concession is granted to “ethnic peoples” the government will provide them comprehensive technical support and their mining activities will be subject to differentiated monitoring. These specific requirements have yet to be established. If the indigenous people exercise their rights of first refusal but cannot meet the requirements to be granted a mining concession, the government may grant the mineral rights to a third party.

Consultation and consent rights:

National laws in all six research countries establish social and environmental safeguards designed to protect the rights of indigenous people and conserve indigenous land and natural resources, although the specifics vary by country. National laws in Bolivia, Brazil, Colombia, Ecuador, and Peru require the government to consult indigenous peoples whenever there are legislative or administrative measures or decisions that may affect them directly. In these five countries,

indigenous people must be formally recognized by the government as indigenous to enjoy the right to consultation, although they are not required to have a title to their land.

At the international level, indigenous peoples have the right to provide (or withhold) their free, prior informed consent (FPIC) as recognized under Article 19 of the UNDRIP. While no research country recognizes FPIC as provided in UNDRIP, the law in Guyana provides for a limited right of consent. By law, indigenous people must be recognized by the government as indigenous and they must have a land title to exercise the right of consent. For large-scale mining, however, the minister of indigenous peoples' affairs and the minister of natural resources can override refusal of consent and allow mining on indigenous land if it is considered in the public interest. This authority to override a refusal of consent is not consistent with UNDRIP.

Easements:

When mining on indigenous land, miners often seek the use of some additional indigenous land to conduct their operations. In Colombia and Guyana, the government may establish an easement on indigenous land to enable miners to develop their exploration and exploitation activities. In Bolivia, Brazil, and Peru, the law prohibits the government from establishing an easement on indigenous lands. In Ecuador, national regulations provide that the government may establish easements for mining purposes without the authorization of the landowner. National courts, however, have stated that easements cannot be established on all types of land. A 2010 court decision made clear that easement rules apply only to lands that are not considered indigenous.



Benefits:

National laws in all six research countries mandate some form of benefit sharing with indigenous peoples when third parties mine their land. In Peru, national laws require the miner to make a prior commitment through a sworn declaration to, among other benefits, preferably hire local personnel to carry out mining activities and provide training that may be required.

In some countries, regulations explicitly provide that indigenous peoples must benefit economically from mining projects on their land. In Ecuador, the Mining Law of 2009 states that “60% of the royalty of the mining projects, to be allocated for productive projects and sustainable local development” and that “when necessary, 50% of this percentage [be allocated] to the entities of government of the indigenous peoples.” These resources are to be distributed prioritizing the needs of the indigenous peoples who are directly affected by the mining activity.

Protection:

Mining is inherently damaging to the environment and brings risks to health and local well-being. To mitigate these damages and risks, national laws in all research countries require miners to minimize the impacts of their operations on the environment. The laws in the research countries address a range of critical environmental issues. Certain environmental issues, however, are not addressed in law and some minimum standards do not rise to the level of international law or norms.

In all six research countries, Environmental Impact Assessments (EIA) are required for projects that may significantly affect the environment, including large-scale mining operations. In Peru, a detailed EIA report is required for mining activities with *significant* negative environmental impacts, while a less detailed EIA report is needed for *moderate* negative environmental impacts. Mining operations with minimal environmental impacts only need a Declaración de Impacto Ambiental (DIA, Environmental Impact Declaration). Detailed EIAs are approved by the environmental authority, while the semi-detailed EIAs and DIAs are approved by the mining authority.

In all research countries, mining is prohibited on certain lands. In Ecuador, for example, the extraction of nonrenewable resources (e.g., minerals, oil, and natural gas) is forbidden in protected areas and areas declared “intangible” (“untouchable”), which may include some indigenous land. In Colombia, mining exploration and exploitation activities may not be carried out in national natural parks, regional parks, protected forest reserve areas, and wetlands.

In the research countries, governments are by law responsible for monitoring and overseeing mining companies to ensure their operations are conducted in accordance with the law, that they are meeting their social and environmental commitments, and that they mitigate and compensate for any environmental damages or other losses caused by their activities. The government in these countries also has the authority to arrest, detain, and punish miners for operating illegally, to impose fines, and to mandate compensatory measures on affected people. In all six countries, miners are also responsible for monitoring their operations to avoid environmental damages.

Case Studies

Below are the principal findings of the six case studies (see the full report for details).

Bolivia (Isiboro Sécore Indigenous Territory and National Park)

This case study highlights the importance of strategic alliances among different indigenous peoples to affect change. In Bolivia, the Mojeño, Yuracaré, and Chimán indigenous peoples joined efforts to effectively press the government to suspend the construction of a road that would cause environmental damage and open their lands to unwelcome development, including mining. The construction of the road remains on hold. The main findings in this case study include:

- In May 2011, the Bolivian government approved financing by the Brazilian National Bank for Economic and Social Development (Banco Nacional de Desenvolvimento Econômico e Social, BNDES) for the construction of the Villa

Tunari–San Ignacio de Moxos highway through the Isiboro Sécure Indigenous Territory and National Park (Tipnis).

- The Mojeño, Yuracaré, and Chimán indigenous peoples of Tipnis participated in several marches and protests. Their efforts paid off when, in October 2011, Tipnis was, by law, declared an “untouchable” area halting the construction of the road and stopping all industrial development, including mining.
- In April 2013, Bolivia’s president announced that the road would continue to be on hold for a three-year period until extreme poverty in Tipnis was eliminated.
- In August 2017, a new law was passed that annulled the “intangibility” status of Tipnis and reopened the possibility of the road being built. Given the ongoing controversies over the road, however, the government again decided to put the project on hold.
- Nearly 3,800 hectares of forest cover in the indigenous lands, roughly 0.8 percent of its total area, were lost between 2000 and 2015. This contrasts sharply with the significant forest loss immediately outside Tipnis, especially on the southern border of the indigenous lands.

Brazil (Yanomami Park)

This case study highlights the extent of illegal mining in some indigenous lands in the Amazon. Despite considerable efforts by the Yanomami and Ye’kwana indigenous peoples which have put their lives at risk, illegal mining is widespread on their lands. To date, government efforts have also failed to halt illegal miners from entering and conducting operations in the Yanomami territory. In recent years, the number of illegal miners has increased, and the operations have become more sophisticated. The main findings in this case study include:

- Mining is not legally possible on indigenous lands in Brazil. However, there are today perhaps 20,000 illegal miners operating on Yanomami lands.

- The Yanomami and their supporters have led national campaigns, called for international media attention, and received support from NGOs, but these efforts have not halted illegal mining on their lands.
- The government is responsible for monitoring and overseeing mining but, to date, has not curtailed illegal mining on Yanomami lands.
- Inactive mining concessions and illegal mining areas overlap with about 55 percent of the indigenous lands.
- Over the 15-year period from 2000 to 2015 about 7,000 ha of forest cover were lost in the Yanomami lands, a significant amount although a relatively small percentage (0.07 percent) of the large Yanomami territory. While some of this loss may be linked to agricultural or forestry activities, much of the forest loss is likely associated with the illegal mining operations.
- Outside the Yanomami territory, there was significant forest loss between 2000 and 2015, especially to the east but also on the southern border.

Colombia (Yaigojé Apaporis National Natural Park)

This case shows the extreme measures that some indigenous people will take to protect their lands from mining. The Yaigojé Apaporis Reserve was a formally recognized indigenous territory, but when a mining company sought a concession on the indigenous lands, the Yaigojé Apaporis people asked the government to establish the reserve as a national natural park where mining is prohibited. In doing so, the indigenous people forfeited some of their land use and management rights. The main findings in this case study include:

- By law, mining is not allowed in national natural parks in Colombia.
- In 2007, Cosigo Resources Ltd. (hereafter Cosigo), a Canadian mining company, sought a gold mining concession within the Yaigojé Apaporis Reserve.



- In response, the Yaigojé Apaporis indigenous people asked the government to declare their lands a national natural park. In 2009, the Yaigojé Apaporis National Natural Park was established.
- Two days after the national natural park was established, the government's Department of Mining Services granted a mining concession to Cosigo inside the park. The concession was quickly terminated after the National Parks Unit demanded its cancellation in compliance with the law.
- Several lawsuits by Cosigo followed and, in 2015, the Constitutional Court of Colombia ordered the suspension of all mining exploration and exploitation activities in the park.
- There has been limited forest loss in the Yaigojé Apaporis National Natural Park before and after the park was established. In the 15-year period from 2000 to 2015, the nearly

1.06-million-ha park lost 4,200 ha of forest cover, less than 0.4 percent of its total area. Following the creation of the park in 2009, deforestation dropped in the period 2010 to 2015 from the previous 10 years.

- This contrasts sharply with deforestation outside the Yaigojé Apaporis National Natural Park. One active mining concession on the eastern boundary of the park shows some deforestation. There is also significant deforestation near the northern and southern borders of the park, with some deforestation on the southern border linked to illegal mining along a river. Other rivers north and south of the park are also affected by deforestation.

Ecuador (Shuar indigenous lands)

This case study highlights the importance of indigenous people being formally recognized by the government as indigenous and holding a title to their customary lands, even if formalization is not required for legal recognition. It also provides an

example of a government establishing an easement on indigenous lands for industrial mining purposes, and the adverse impacts easements can have on indigenous people and other local communities. The main findings in this case study include:

- In March 2012, the government of Ecuador granted several mining concessions to a Chinese mining company, Ecuacorriente S.A. (ECSA), that overlapped with peasant farmer and Shuar indigenous lands.
- At ECSA's request, the government established several mining easements on indigenous and farmer lands, and the landholders were forcibly evicted.
- In February 2018, the Amazon Community of Social Action Cordillera del Cóndor Mirador (Comunidad Amazónica de Acción Social Cordillera del Cóndor Mirador, CASCOMI), an organization established by those affected by the mining, sued ECSA, arguing that the mine was developed on ancestral lands and that the evictions were conducted violently and without prior and informed consultation.
- Lower courts ruled in favor of ECSA and the government on the grounds that CASCOMI did not represent indigenous peoples since it also included nonindigenous farmers. A final appeal is currently being prepared for the Constitutional Court of Ecuador, the country's highest court, and before the United Nations Committee on Economic, Social and Cultural Rights (CESCR).
- The indigenous lands that overlap with the Mirador concessions—the Tundayme and Area Del Proyecto De Desarrollo land—comprised many separate plots of land that collectively total more than 12,000 ha. Overall, the Tundayme and Area Del Proyecto De Desarrollo lands lost about 260 ha of forest cover over the 15-year period from 2000 to 2015, about 2 percent of the total area. Much of the forest loss occurred in the concessions.

- Forest loss increased nearly twofold from the period 2005 to 2010 to the period 2010 to 2015. This corresponds to the time the Mirador project was approved and operations began.

Guyana (Patamona indigenous lands)

This case study highlights the fact that some indigenous peoples in the Amazon mine their land for commercial purposes. Indigenous mining operations must meet the same social and environmental safeguards as all other miners. In this case in Guyana, indigenous mining operations are conducted with the approval of traditional leaders, meet the interests of the community, and allow for indigenous people to capture important mining benefits. The main findings in this case study include:

- Many residents of Campbelltown, who are primarily Patamona indigenous people, mine their land. The indigenous miners have been encouraged by their leaders to find innovative ways to reduce the impact of mining (e.g., El Dorado—Responsible Mining for Guyana Initiative), while also increasing production and profits.
- Like other Patamona villages in Guyana, Campbelltown has requested an extension of its 2006 land title arguing that the title does not include the full extent of its customary lands. The view among coastlander miners (miners from the coast of Guyana) and dredge owners, however, is that the Patamona indigenous people are applying for an extension to gain control of additional mining tracts.
- In the nearly 6,000-ha Patamona lands, 96 ha of forest cover was lost over the 15-year period from 2000 to 2015, about 1.6 percent of the area with the most recent time period (2010 to 2015) showing the greatest net loss.
- Some deforestation has occurred on the Patamona indigenous lands outside the three mining concessions. This forest loss is likely linked to the artisanal and small-scale miners operating on the land with the permission of the village council.

Peru (Shipibo and Ese'Eja indigenous lands)

This case study provides the experience of the Tres Islas community, mainly Shipibo and Ese'Eja indigenous peoples, which effectively used local and national courts as well as the Inter-American Commission on Human Rights (IACHR) to protect its lands from mining. In Peru, the courts are increasingly engaging in the complexities of indigenous affairs, including customary land tenure systems. A growing number of courts now recognize the unique forms of indigenous social organization with regard to their lands and traditional land uses. The main findings in this case study include:

- In the early 2000s, the government of Peru granted more than 100 mining concessions and several logging concessions on Tres Islas' lands without informing or consulting the Tres Islas indigenous community.
- In response, the Tres Islas community assembly decided in August 2010 to construct a booth and wooden gate to control access to its lands. The booth was manned by members of the community.
- Two transport companies sued the Tres Islas community demanding free transit into their lands. The court ruled in favor of the companies and ordered the removal of the booth and gate.
- The Tres Islas community appealed the decision and took the matter to the Peruvian Constitutional Tribunal. In September 2012, the tribunal ruled that the Tres Islas community had the right to control the entry of third parties into its lands. The community reestablished the booth and gate and resumed controlling access to its lands.
- Thereafter, the Tres Islas community sued the regional government of Madre de Dios in the regional Court of Justice over the mining concessions granted without a prior consultation process. In March 2019, the Superior Courts of Justice of Peru declared the 127 mining concessions on the Tres Islas lands, including 8 concessions that were in the process of being granted, to be null and void, and ordered all activities resulting from them to be halted.

- In total, 93 percent of the deforestation that occurred on the Tres Islas lands during the 15-year time period from 2000 to 2015 occurred in the portion of the lands that overlapped with legal and illegal mining areas. Deforestation drastically declined between 2010 and 2015, coinciding with the community regaining control of access to its lands.

Recommendations

The research findings provide compelling evidence of the following:

- The laws governing minerals and mining by third parties on indigenous lands provide indigenous peoples with some rights over their lands and the minerals on and below them. Overall, however, they put indigenous peoples at a legal disadvantage with miners. Legal miners have important authorities to enter onto and use indigenous lands to realize their mineral rights, while indigenous peoples lack critical rights that would help them better protect their lands.
- Many indigenous peoples in the Amazon do not want commercial mining by third parties on their lands and have deployed a range of measures, such as protests and litigation—some successful, others less so—to keep miners off their lands.
- All mining, whether ASM or industrial mining, on indigenous lands is linked to environmental damage, including the loss of forests and associated ecosystem services. Indigenous lands without mining have significantly lower deforestation rates than indigenous lands with mining.

The research findings have implications for indigenous peoples confronted with mining as well as for governments, development assistance agencies, miners, mining companies, NGOs, and other civil society organizations. Five recommendations are provided that recognize the challenges confronting indigenous peoples in the Amazon and that build on the law and experiences in the six research countries. The broader literature

on mining makes clear that the challenges and opportunities in the Amazon are not unique. As a result, these recommendations likely also apply to other countries around the world where mining is occurring on indigenous or community lands, threatening people and local environments. The five recommendations are:

Provide strong legal rights to indigenous peoples

While the national laws in the research countries include provisions designed to empower indigenous peoples and safeguard indigenous lands for indigenous peoples, they do not establish the strong legal protections needed for indigenous peoples to manage and use their lands and forests for their own development purposes. Stronger rights would further empower indigenous peoples and help them sustainably manage their lands and protect their forests and other natural resources. Tenure security creates critical incentives for indigenous peoples to make land-related investments in their lands and forests by providing them with high expectations of rights over the returns. The research identified the following four sets of rights critical for indigenous peoples to protect their lands:

- *Land rights:* Like all citizens, indigenous peoples need strong, secure land rights to effectively protect, use, and manage their lands. Governments should review and, if necessary, reform national laws to ensure indigenous peoples have the rights and authorities they need to take charge of their own development.
- *Mineral rights:* Indigenous peoples are empowered when they have more rights and greater control over the minerals (and other natural resources) on and below the surface of their lands.
- *Right of free, prior, and informed consent:* Governments should build on Guyana's example and recognize the right of free, prior, and informed consent (FPIC)—not just consultation—for indigenous peoples as well as Afro-descendants and other communities regarding mining and other developments that may affect them or their lands.

- *Right of first refusal:* Given the interest of some indigenous peoples to commercially mine their land, governments should build on Colombia's example and recognize the right of first refusal for indigenous peoples to exploit minerals for commercial purposes.

Establish strong environmental safeguards

National laws in all research countries provide for the protection of forests and the environment. They require miners and mining companies to minimize their environmental impacts, whether mining on indigenous or other lands. While some national environmental safeguards meet international standards, others fall short and should be strengthened to provide the level of protection needed to adequately safeguard forests and their critical ecosystem services, including carbon sequestration. Stronger environmental laws coupled with effective enforcement (see below for details.) will help ensure that the forest homes of indigenous peoples in the Amazon are protected.

To ensure mining operations do not irreparably damage the environment and the nation's valuable mineral resources provide the promised benefits of local and national development, governments must be more selective in the allocation of mineral rights and mining concessions. Companies with strong track records of mining operations that meet or exceed national and international social and environmental standards, that make use of the latest technologies, and that engage communities and protect forests should be prioritized. Proposal vetting processes should not just focus on the public revenue generated or how quickly the mine can begin production. Broader selection criteria can create incentives for companies to adopt mining practices and technologies that are less damaging to the environment and more supportive of indigenous peoples and other affected communities.

Build indigenous capacity

As the threats to their lands, livelihoods, and well-being escalate, many indigenous peoples realize they lack the expertise, contacts, and resources needed to effectively address these challenges and mitigate the risks. Governments and their development partners can provide training and critical technical and financial resources for indigenous peoples to develop new skills and capacities to better protect their lands and themselves. These include skills to effectively negotiate with mining companies, monitor their lands for illegal activities, and better protect themselves and their community from harm.

To support government operations, indigenous peoples can build skills in collecting data on illegal activities that meet the legal burden of proof. Indigenous organizations and NGOs can raise awareness on the law or rules of evidence and provide training on tools for collecting information that meets the standard of evidence. In recent years, new technologies have been developed and made available to quickly and precisely map indigenous lands and monitor large areas in real or near-real time, including using data from unmanned aerial vehicles/drones and satellites. At the same time, government agencies and courts of law must accept such information from indigenous peoples in their investigative and sanctioning processes.

As the risks to themselves and their communities increase, indigenous peoples are taking more precautions while carrying out their activism and campaigning safely and effectively. They are also taking steps to defend themselves against harassment and physical attacks. Many land defenders would likely benefit from gaining a better understanding of their legal rights, training on risk assessment information systems, learning how to better recognize threats and minimize risks, building capacity in new approaches to deescalating confrontational situations, and building skills in self-defense techniques.

Ensure responsible mining

All mining in the Amazon, whether by large companies or indigenous peoples, should be responsible mining—mining that is safe, fair, and mitigates social and environmental risks.

Governments must provide stronger oversight of mining operations and better enforce applicable laws, but miners and mining companies must also become better corporate citizens and take more responsibility in meeting social and environmental safeguards. New, stronger national laws and regulations are needed to ensure miners operate safely and cause the least social and environmental harm.

Some mining companies and mining associations have established social and environmental standards, made voluntary commitments to responsible mining, and established corporate policies or guidelines that align with the commitments. These efforts are to be applauded and encouraged. There is, however, growing evidence that voluntary approaches do not always lead to responsible mining as many companies fail to meet their standards. At the same time, the effectiveness of company corporate social responsibility (CSR) initiatives in mining (and in oil and natural gas) is being questioned. Over time, aspects of these voluntary approaches that meet international standards should be incorporated into national laws and regulations.

Companies must also increase their support to indigenous peoples and other communities and negotiate fairer agreements that provide benefit-sharing packages that address community interests and strengthen local capacity for self-determined development. Indigenous people should insist on formal agreements and governments should mandate them. Such community-company benefit-sharing agreements should include both financial and nonfinancial benefits.

Ensure effective implementation and law enforcement

To protect indigenous peoples, their lands, and their livelihoods, Amazonian governments must strengthen the public institutions with critical roles in advancing indigenous matters. These include government agencies and departments responsible for establishing and implementing indigenous policies; for mapping, demarcating, and documenting indigenous lands; and for preventing invasions of indigenous territories by unauthorized



outsiders. The National Indian Foundation (Fundação Nacional do Índio, FUNAI) in Brazil, the Ministry of Culture (Ministerio de Cultura) in Peru, and similar agencies in other countries must be empowered—politically, legally, and practically—with sufficient human and financial resources to effectively discharge their roles.

Amazonian governments must also strengthen their oversight of mining on indigenous lands. Mining operations must conform with the law and meet the provisions of license and concession agreements. Government efforts should not be limited to capturing and prosecuting illegal miners on indigenous lands. These efforts should also target the individuals who hire, finance, or otherwise facilitate the illegal miners. Those who sell and profit from the illicit trade in gold, diamonds, and other minerals must also be identified and prosecuted.

Amazonian governments—and consumer country governments—can address the demand for gold and other minerals that are illegally mined by establishing certification systems. Such schemes

can promote actions by miners that protect forests and respect indigenous peoples. Governments should identify an appropriate set of standards for responsible mining in the Amazon and build a chain-of-custody certification process. This system would track certified minerals through the extraction, processing, transformation, manufacturing, and distribution processes. Independent auditors would then be in a position to assess production and issue certificates to mining operations that comply with the agreed-upon standards.

Consumer country governments can support the implementation of responsible sourcing certification schemes. For example, they can implement an outreach and information campaign designed to educate consumers about the value of purchasing certified minerals or products that use them. They can also encourage responsible mineral sourcing through public procurement rules by requiring bids to contain certified minerals or through preferential bid evaluation.



INTRODUCTION

As the price of gold and other minerals increases, so do the impacts on the Amazon forest and its people, including the 1.5 million indigenous people whose livelihoods and wellbeing depend on the forest. While national laws provide indigenous people with some land rights, they grant few rights to the minerals on their lands. In practice, the law is not well implemented by miners or enforced by governments. As a response, indigenous people have employed various strategies to protect their lands from mining. Some of them have been successful, others, not.

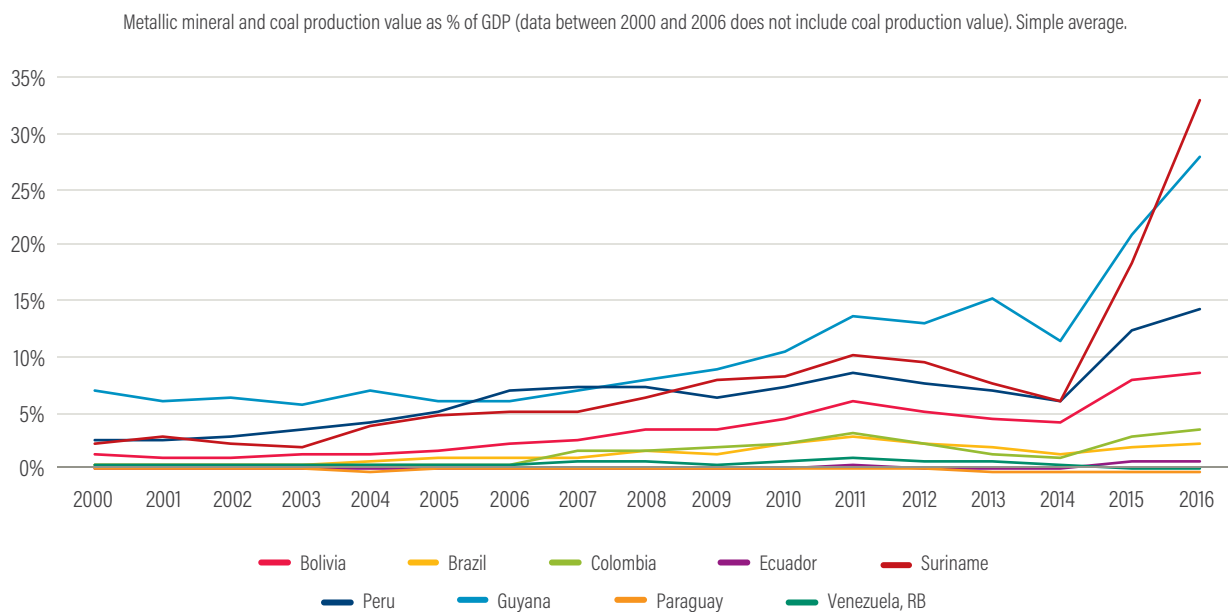
Minerals and metals underpin national economies around the world and provide crucial raw materials to almost every sector of the global economy (World Bank 2017a; IRP 2019). Mining is an important source of public and private investment, employment, and government revenue.¹ Globally, commercial-scale mining provides employment to more than two million people, and for every commercial mining job, another two to five jobs are created.² Artisanal and small-scale mining (ASM) provides employment and income to an additional 13 million workers and their families worldwide (Walser 2002; EITI 2020).³

With strong global demand and soaring prices, mining has risen markedly in the last few decades. Despite moves to increase recycling and decouple economies from mineral use, mining is expected to continue growing to serve the needs of a larger, more affluent, and increasingly urban and technology-driven population (IRP 2019). If carefully managed, the mining sector presents enormous opportunities for local and national development, particularly in low-income countries (IRP 2019). For many resource-rich developing countries, however, ensuring that mining delivers

broad-based social and economic benefits while not irreparably damaging the environment has proved difficult (IRP 2019).

The Amazon contains world-class deposits of copper, tin, nickel, iron ore, bauxite, manganese, and gold. ASM, especially for gold, has been part of the livelihood strategy of rural households for centuries, while large-scale industrial mining has been underway for much of the 20th century. All Amazonian countries have promoted and supported the exploration, exploitation, and export of high-value minerals for decades (D.H. Bebbington et al. 2018a, 2018b). In Peru and Bolivia, industrial mining is concentrated in the Andes, but in the other Amazonian countries, large-scale mining operations are underway in the lowland forest. In recent years, governments have committed to mining as a key component of their national development strategies and have provided more incentives to promote investment. At the same time, mining as a percentage of gross domestic product (GDP) has increased in several Amazonian countries (Figure 1.1).

Figure 1.1 | Mining as a Percentage of GDP in Amazonian Countries



Source: Data from ICMM 2020a, modified by WRI authors.

In Brazil, the 1988 Federal Constitution allows for mining on indigenous lands but only under rules approved by the National Congress. Since the National Congress has not established such rules, mining on indigenous lands is effectively prohibited, although, in practice, illegal mining is underway in many indigenous territories. The government, however, is moving to open up the Amazon to commercial development. In January 2019, the minister of mines and energy announced that the government was preparing to overhaul mining regulations that will include opening indigenous lands to extractive resource exploitation and infrastructure (Branford and Torres 2019). On February 5, 2020, Brazil's president signed Bill 191/2020 that would open indigenous lands to mining, oil and gas extraction, electricity generation, and agriculture. The bill is now in the Chamber of Deputies for discussion (André Lima, personal communication, 2020; Brito 2020; DW 2020; Vilela 2020).

The COVID-19 pandemic has also impacted mining in Amazonian countries. Governments have declared states of emergency and issued stay-at-home orders, resulting in many sectors of the economy essentially shutting down. In Peru and other Amazonian countries, however, governments have allowed large-scale mining to continue and encouraged expansion while sidelining and constraining livelihood possibilities for ASM (Vila Benites and Bebbington 2020). Mining in Peru accounts for significant percentages of the national and some regions' GDPs. Large-scale mining is the principal contributor to the country's Fiscal Stabilization Fund (Salas et al. 2018).⁴

On August 6, 2020, the price of gold hit a record high of \$2,070.80 per ounce. Gold prices had been rising for years but the threat to economies from the novel coronavirus led to a surge in prices—up as much as 35 percent this year—as investors sought the perceived safety of gold. As the price of gold rises, so does demand. The surge has triggered a new, intensified gold rush in the Amazon with implications for local people and the environment (Nascimento and Faleiros 2020). Soaring prices, coupled with the withdrawal of the police and



army from the mining areas to enforce lockdowns and attend to the health crisis, has allowed illegal mining to expand further (Saffon 2020).

These and other developments have driven mining into more remote parts of the Amazon with sometimes significant implications for indigenous peoples and the forest (D.H. Bebbington et al. 2018a; 2018b). The Amazon is home to a growing population, including about 1.5 million indigenous peoples. Indigenous peoples hold perhaps 2.5 million sq. km of land, almost half of that in Brazil. Much of this land is formally recognized and documented, although more than 20 percent of



the indigenous lands is still held only under customary tenure arrangements (RAISG 2019a). Land, together with its natural resources and ecosystem services, is the source of livelihood and well-being for most indigenous peoples. This land delivers food, water, fuelwood, medicinal plants, and other critical resources, while providing indigenous peoples with security, status, social identity, and a safety net. For many indigenous peoples, land is also historically, culturally, and spiritually significant.

Indigenous peoples in the Amazon have a long history of sustainably managing their lands and natural resources. Research shows that the average annual deforestation rates in tenure-secure indigenous forestlands in Bolivia, Brazil, and Colombia from 2000 to 2012 were two to three times lower than in similar lands not managed by indigenous peoples (Ding et al. 2016; Blackman and Veit 2018). In the Peruvian Amazon, titling of indigenous lands in 2002 reduced forest clearing by more than three-quarters and forest disturbance

by roughly two-thirds in just the two subsequent years (Blackman et al. 2017). Other research has produced similar results for Brazil and across Latin America. Mining (and other developments, such as agriculture and cattle production) threaten to undermine the effectiveness of indigenous peoples' protection of the forest. The critical role of indigenous lands in climate mitigation is recognized by the United Nations' Intergovernmental Panel on Climate Change (IPCC 2019).

By its very nature, the extraction of minerals is environmentally destructive (IRP 2019). Dredging by ASM disrupts rivers and aquatic life,⁵ mercury—used to separate gold from rock—contaminates waterways, and the toxic pollutants enter into plants, animals, and people. Large-scale surface mining cuts back forest and other vegetation, which is particularly damaging to fragile environments. The degradation negatively affects the provisioning of ecosystem services, such as local climate and water flow regulation, and results in the loss of biodiversity.

Further, toxic mine and ore-processing waste poses a risk through failures of waste storage facilities or leaching of contained residual metals through acid mine drainage and other factors. Major disasters such as the Mariana (or Bento Rodrigues) tailings dam collapse in November 2015 (Phillips and Brasileiro 2018) and the Brumadinho dam collapse in January 2019 (Senra 2019), both near Belo Horizonte, the capital of Minas Gerais state in southeastern Brazil, make clear the consequences of such disasters. The dam collapses highlight not only the risks of harmful substances entering the waterways and the environment, but of infrastructure and institutional failures that endanger workers, injure and kill people, and destroy towns.

There are also important synergies between mining (and other extractive industries), enabling infrastructure development (e.g., roads, rail lines, waterways, and dams), and trends in financial flows and financing mechanisms with significant land use implications (D.H. Bebbington et al. 2018a, 2018b). For example, the proposed Belo Sun Mine, a large-scale gold mine on the Xingu River in Pará State, Brazil, by Canadian firm, Forbes & Manhattan, is economically viable because of available hydropower (D. Bebbington et al. 2018a, 2018b).

Large-scale mines take up less than 1 percent of the Amazon basin (Sonter et al. 2017), and, as a result, mining has not received the same level of attention as other drivers of land use change and forest loss, such as cattle and soybeans. But mining is often linked to other sources of forest loss, including infrastructure, urban expansion to support the workforce, and development of mineral commodity supply chains. These and other developments beyond the mine accounted for about 9 percent of Amazon forest loss between 2005 and 2015 (Sonter et al. 2017).

Mining can also profoundly impact local populations. ASM can be dangerous work and bring significant health risks (Box 1.1). The influx of workers can lead to the displacement of local people, a rise in prostitution and crime, and the decline of culture and traditional livelihoods. Child labor exploitation, intimidation, money laundering, illegal drug trade, and gold smuggling are also

often linked to mining. Further, miners can bring with them new diseases. The novel coronavirus, for example, likely entered the Yanomami indigenous territory in northern Brazil through illegal miners (Branford 2020; ISA 2020); the first death of a Yanomami from COVID-19, the disease caused by the novel coronavirus, occurred in April 2020 (Kaur and Alberti 2020). Though July, there were five Yanomami deaths due to the disease (Branford 2020). The most marginalized sectors of society—indigenous people, women, children, and elders and other disadvantaged people—are often the first affected and suffer the most (Lahiri-Dutt and Ahmad 2006; Bond and Quinlan 2018; Mancini and Sala 2018). Evidence shows that women disproportionately bear many of the costs of both large-scale and artisanal mining, such as social and family disruption, health and safety risks (e.g., increased violence against women and girls), and environmental degradation (loss of land, pollution, and increasing resource scarcity) (Hinton et al. 2003; Oxfam 2017).

There are also equity concerns regarding the allocation of mineral benefits, including public revenue from mining (e.g., taxes, fees, and royalties) and mining jobs. Multinational companies often capture disproportionately large shares of mining profits because of their position in commodity markets and generous tax breaks from host governments. (Much of the profit from mines in Africa, Asia, and Latin America are taken out of the country and not reinvested in the host country.) Many companies also bring in skilled managers from the outside and offer local people—or migrants—only low-skill jobs with little opportunity for learning or advancement (Coderre-Proulx et al. 2016). Families and communities around extraction sites, however, are often poorly compensated for the damage to property caused by mining, and local jurisdictions where mining takes place do not receive adequate shares of the mining revenue (although in several countries, the national government has begun transferring more revenue back to the producing regions) (Bauer et al 2016).

Mining companies or illegal miners operating on or near indigenous lands can lead to conflict, especially with indigenous peoples who depend on the land for their livelihood (REPAM 2019a).



In 2018, at least 164 land and environmental defenders, including many indigenous people, were killed around the world, while many more were threatened, harassed, stigmatized, attacked, or jailed (Global Witness 2019).⁶ More than half of the murders took place in Latin America, which has ranked as the worst-affected continent since 2012, with Brazil, Colombia, Mexico, and Guatemala at or near the top of the list (Global Witness 2019). In 2018, mining was for the first time the world's deadliest sector, with 43 defenders, including indigenous people, killed protesting against the destructive effects of mining on their lands and livelihoods (Global Witness 2019).⁷

In 2019, a record 212 land and environmental defenders were killed around the world, an average of more than four people per week. Seven of the top 10 worst-affected nations were in Latin America, where more than two-thirds of the total killings took place. Colombia was the deadliest country, with 64 killings—up from 25 in 2018—accounting for 30 percent of the global total. Brazil had 24 killings, almost 90 percent of which took place in the Amazon. Globally, 40 percent of defenders killed were indigenous people, despite representing just 5 percent of the world's population. Mining was again the deadliest sector, with 50 people killed. Ten percent of those killed were women. Women also faced smear campaigns using sexist or sexual content, and sexual violence (Global Witness 2020; Guy 2020).

Given these developments, there is an urgent need for indigenous peoples to have a say in mining and other development matters that affect their lands, and for mining that does take place on indigenous lands to mitigate the social and environmental risks. The research for this report was designed to better understand three issues:

- The law regarding the rights of indigenous peoples over their lands and the mineral resources on their lands, as well as the powers and obligations of miners operating on indigenous lands.

- The implementation and enforcement of these laws and the experiences of indigenous peoples when mining occurs on their lands.
- The environmental impacts of mining on indigenous lands, especially the impacts on forests.

The research examined mining on indigenous lands in the Amazon with a focus on six countries—Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru. Data and information on the three issues were collected by conducting literature reviews; reviewing the relevant national laws (legal reviews); preparing six case studies of indigenous experiences, one in each research country; and conducting a geospatial analysis to examine forest cover change on indigenous lands affected by mining across the Amazon and the six case study sites. This report presents the data, analysis, and principal findings of this research.

Based on the findings, several practical recommendations were developed. These recommendations are designed to empower indigenous peoples to take charge of their own development and to ensure mining on indigenous lands delivers positive social and economic outcomes while not causing irreparable damage to the environment. The recommendations target four audiences:

- Government agencies and legislative committees responsible for supporting indigenous peoples and for minerals and mining, as well as their development partners.
- Domestic and international ASM actors and industrial mining operators, as well as industry associations, investors, and risk assessors.
- Indigenous peoples and other local communities, as well as their representative bodies and supporters, including local civil society organizations (CSOs) and international nongovernmental organizations (NGOs).

BOX 1.1 | Mercury Poisoning in Madre de Dios, Peru

In the gold mining region of Madre de Dios in southern Peru, mercury is a serious and increasing environmental and public health problem. High mercury concentrations are found in most local people and in most of the wild caught fish sold in markets and consumed in the regional capital city, Puerto Maldonado. In a recent assessment, indigenous people had levels of mercury roughly five times that considered safe by the World Health Organization (WHO), whereas people in urban areas had double the safe limit. Indigenous children had unsafe mercury concentrations over three times the level of their nonindigenous counterparts (indigenous children had mercury levels more than five times the limit with some having levels as high as 34 times the safe limit). Women of childbearing age were also disproportionately affected as mercury, a neurotoxin, can cause severe, permanent brain damage to an unborn child.

Sources: Swenson et al. 2011; Ashe 2012; CAMEP 2013

- The broader human rights, land rights, forest conservation, and climate change communities.

This report is organized in six sections.

Following this Introduction (Section I), Section II provides some background information on the forests, indigenous peoples, and mining in the Amazon. Section III presents the research methods used to collect and analyze the data. Section IV presents the data and findings of the geospatial analysis, legal reviews, and case studies. Finally, Section V provides five recommendations for empowering indigenous peoples and improving the practice of mining on indigenous lands. Several appendices are provided, including the data sets used for the geospatial analysis, the indicators/questions for the legal reviews, and the international treaties, national laws, regulations, and court cases reviewed.



BACKGROUND

The Amazon is covered with large-scale mining concessions with many overlapping with indigenous lands. Many other indigenous lands are indirectly affected by mining, from infrastructure, new towns for workers, and other associated developments. Artisanal and small-scale gold mining also takes place throughout the Amazon. Today, more than 500,000 small-scale gold miners are estimated to be active in the Amazon. Due partly to rising gold prices, illegal mining has grown exponentially in recent years.

The Amazon *river basin* covers roughly 40 percent of South America⁸ and includes parts of eight countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela, as well as French Guiana, a department of France (Table 2.1). The Amazon *biogeographic region*—the area where the animals and plants have similar or shared characteristics—is larger than the river basin.⁹ The biogeographic region is a mosaic of ecosystems, including rainforests, seasonal forests, deciduous forests, flooded forests, and savannas. The forests, covering just over 80 percent of the biogeographic region, constitute the world’s largest tropical forest and over half of the planet’s remaining rainforests. About 60 percent of the Amazon basin and forest lies in Brazil (NASA 2018; Butler 2019a; RAISG 2019a).

The Amazon forest provides a range of ecosystem services that are crucial to local populations and society at large, including climate and water flow regulation, water cycle mediation, pollination and food provision, nutrient retention, pest

control, protection from storms and floods, and soil erosion prevention. The forest accounts for about 10 percent of the world’s terrestrial primary productivity and harbors about 10 percent of the world’s biodiversity.¹⁰ It absorbs 2.2 billion tonnes of carbon dioxide (CO₂) a year and stores about 10 percent of the world’s carbon (about $1.1 \times 1,011$ metric tonnes of carbon), critical for climate change mitigation (Tian et al. 2000; Saatchi et al. 2007; Field Museum 2013; McDonald 2019).¹¹ The river system produces about 20 percent of the world’s freshwater discharge (Davidson et al. 2012).¹² More than 600 protected areas safeguard 1,984,569 sq. km or 23.4 percent of the Amazon (RAISG 2019a).

The Amazon has been settled by humans for at least 11,200 years, although some estimates put the first human settlements in the Amazon at 32,000 to 39,000 years ago (Roosevelt et al. 1996; WWF 2020). Today, the region is home to 44.9 million people (Table 2.1), including about 1.5 million indigenous peoples from 385 different ethnic groups (RAISG 2019a) as well as many Afro-descendants¹³ and other traditional people. In 2010, when Brazil conducted its last census, about 517,000 of the country’s 897,000 indigenous peoples lived in the country’s formally recognized indigenous territories (IBGE 2010). More than 100 tribes live with little or no contact with the outside world.

Excluding Suriname, indigenous peoples hold about 2,369,000 sq. km of land, about 28 percent of the Amazon basin (RAISG 2019a) (Table 2.1). Almost 80 percent of the indigenous lands (1,871,000 sq. km) in the Amazon is legally recognized as such under national laws. The indigenous lands in Suriname have not been mapped with any great precision (and no indigenous lands are titled) but is estimated to cover 106,160 sq. km, about 65 percent of the country (ACT 2020). Including this land, indigenous lands total about 2,475,000 sq. km, more than 29 percent of the Amazon basin. Almost half (47 percent) of the indigenous lands in the Amazon (1,157,000 sq. km) is in Brazil. About 70 percent of the Amazon in Suriname and Venezuela is indigenous lands and more than 50 percent of the Amazon in Colombia and Ecuador are indigenous lands.



Table 2.1 | Amazon Countries by the Numbers

COUNTRY	AMAZON AREA OF COUNTRY (SQ. KM)	% OF TOTAL AREA OF COUNTRY	% OF TOTAL AREA OF THE AMAZON BASIN	AMAZON POPULATION OF COUNTRY	% OF TOTAL POPULATION OF COUNTRY	% OF TOTAL POPULATION OF THE AMAZON BASIN	INDIGENOUS LAND IN THE AMAZON –FORMALLY RECOGNIZED & NOT RECOGNIZED (SQ. KM)*	% OF THE COUNTRY'S AMAZON	% OF THE TOTAL AREA OF THE AMAZON BASIN
Bolivia	714,834	65.1	8.4	6,572,024	65.5	14.6%	187,431	26.2%	2.2
Brazil	5,239,647	61.5	61.9	28,266,715	13.6	63.0%	1,156,900	22.1%	13.7
Colombia	506,145	44.3	6.0	1,411,079	2.9	3.1%	269,763	53.3%	3.2
Ecuador	132,292	53.2	1.6	870,000	5.1	1.9%	67,326	50.9%	0.8
French Guiana	84,226	100.0	1.0	208,171	100.0	0.5%	7,068	8.4%	0.1
Guyana	214,969	100.0	2.5	751,000	100.0	1.7%	31,671	14.7%	0.4
Peru	966,190	75.2	11.4	4,076,404	13.0	9.1%	322,255	33.4%	3.8
Suriname	146,523	100.0	1.7	492,829	100.0	1.1%	106,160	72.5%	1.3
Venezuela	470,220	51.3	5.5	2,231,932	7.0	5.0%	326,521	69.4%	3.9
TOTAL	8,475,046		100.0	44,880,154		100.00%	2,475,095		29.2

Sources: Data from RAISG 2019a and ACT 2020, modified by WRI authors

Forest Cover

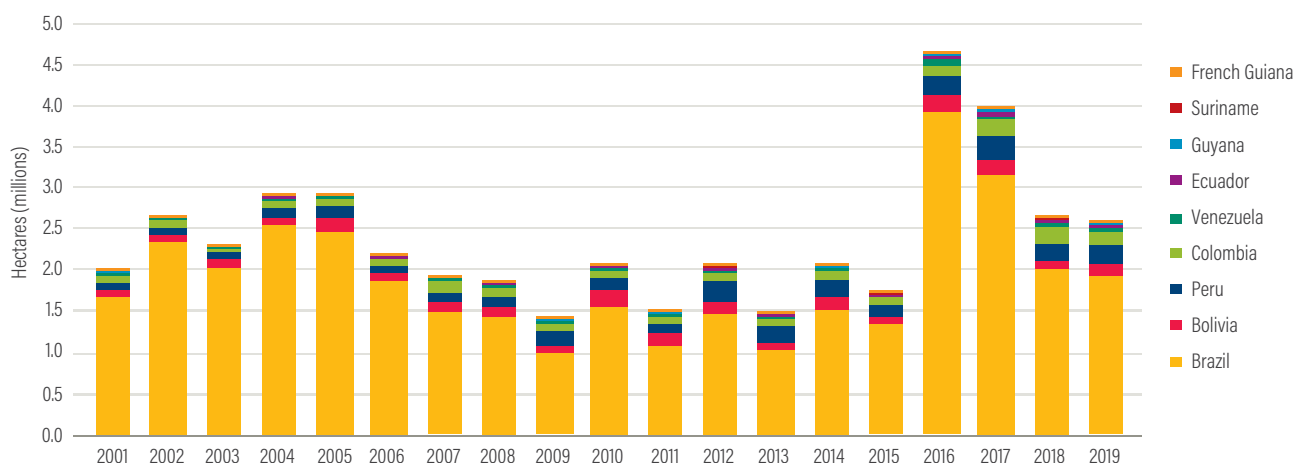
In the early 2000s, after many years of high forest loss, annual deforestation rates in the Amazon declined.¹⁴ The drop was largely due to a nearly 80 percent reduction in the annual deforestation rate in Brazil from 2004 to 2012¹⁵ (Fearnside 2017; Mongabay 2018; Turubanova et al. 2018; INPE 2020; GFW 2020a). The government increased law enforcement, expanded protected areas, recognized indigenous territories, and applied a suite of carrots and sticks to rein in uncontrolled conversion to agriculture, even while increasing cattle and soybean production (Nepstad et al. 2014; Seymour 2018). Still, from 2010 to 2017, Brazil accounted for 76 percent of deforestation in the Amazon (Butler 2019b; GFW 2020a).

In recent years, however, deforestation rates have again risen, especially in Brazil (GFW 2020a; INPE 2020) (Figure 2.1). This is partly due to the economic downturn in Latin America, which has led many governments to focus on economic growth sometimes at the expense of environmental protection. In 2016, 2017, and 2019, forest fires in the Amazon resulted in a significant uptick in tree cover loss. In 2019, for example, Bolivia experienced record-breaking tree cover loss, 80 percent greater than the next highest year on record, due to fires in both primary forests and in surrounding woodlands (nearly 12 percent of the Chiquitano dry forest in eastern Bolivia was burned) (GFW 2020b; Weisse and Goldman 2020).

In Brazil, the government is rolling back policies that reduced deforestation rates earlier this century (Box 2.1).¹⁶ According to Brazil’s National Institute for Space Research (Instituto Nacional de Pesquisas Espaciais, INPE), 4,232 sq. km of forest cover was lost from August 2018 to July 2019. That represents a 74 percent increase from the same period a year before (INPE 2020; Londoño and Casado 2020). In 2019, Brazil accounted for over a third of global primary forest loss (GFW 2020b; Weisse and Goldman 2020).

In Colombia, nearly 4,250 sq. km of forest was lost in 2017, a 46 percent jump from 2016, and more than double the average rate of loss between 2001 and 2015 (Jong 2018; GFW 2020a). The loss of forests in Colombia may be linked to the peace agreement with the Revolutionary Armed Forces of Colombia (Fuerzas Armadas Revolucionarias de Colombia, FARC), the country’s largest rebel group (Box 2.2).¹⁷ A recent study focusing on the Andes–Amazon Transition Belt (AATB) found that during the post–peace agreement period (2017 to 2018), the area of forest disturbance increased by 50 percent (about 238,000 ha) across the AATB in comparison with the four-year peace negotiation stage (2013 to 2016). Forest disturbance also spread deeper into the Amazon watershed and increased in area by 187 percent within the AATB’s protected areas (Murillo-Sandoval et al. 2020).

Figure 2.1 | Annual Forest Cover Loss in the Amazon



Source: Based on data from GFW 2020a, modified by WRI authors.

BOX 2.1 | New Policies in Brazil

Since January 2019, the new government in Brazil has made a number of changes to key environmental and indigenous people agencies. It has cut the budgets and staff of Brazil's principal environmental agencies, including the Ministry of the Environment—the Brazilian Institute of Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, IBAMA, responsible for environmental protection) and the Chico Mendes Institute for Biodiversity Conservation (Instituto Chico Mendes de Conservação da Biodiversidade, ICMBio, responsible for managing federal conservation areas). Enforcement measures such as fines, warnings, and the seizure or destruction of illegal equipment have been pulled back, which has hampered efforts to fight illegal mining, logging, and ranching.

These changes have corresponded to a significant uptick in land grabbing, illegal activities, fires, and deforestation in the Brazilian Amazon.^a The destruction of the forest on indigenous land has also increased dramatically. In 2019, deforestation reached 115 indigenous lands with 42,679 ha destroyed between August 2018 and July 2019, an increase of 80 percent compared to the previous year (ISA 2019). In response, the governments of Germany

(US\$39 million) and Norway (\$33.27 million) have suspended their donations. The Amazon Fund is a REDD+ mechanism to prevent, monitor, and combat deforestation, as well as to promote preservation and sustainable use in the Brazilian Amazon. Norway, the Amazon Fund's largest donor, has given about \$1.2 billion over the past decade.^b

The new administration has also cut the budget and staff of the National Indian Foundation (Fundação Nacional do Índio, FUNAI), the government agency responsible for establishing and implementing policies related to indigenous peoples.^c In addition, there have been several (unsuccessful) attempts to transfer FUNAI from the Ministry of Justice to the much weaker Ministry of the Family, and to hand the responsibility of demarcating indigenous land to the Ministry of Agriculture. The changes by the government have emboldened land grabbers and triggered a sharp rise in incursions into indigenous land, which has catalyzed and intensified rural confrontations.^d Indigenous people defending their land have been targeted, threatened, intimidated, and murdered.^e In 2019, of the 27 people who died from rural land conflicts, 7 were indigenous leaders, compared to two indigenous leaders in 2018. This is the highest toll in at least 11 years.^f

Notes:

^a Boffey 2019; Branford and Borges 2019; Ferrante and Fearnside 2019; Piotrowski 2019

^b Boffey 2019

^c Periodista 2019; Branford 2019a

^d Branford 2019a; Londoño and Casado 2020

^e BBC 2019; Branford 2019a; HRW 2019

^f Figueiredo 2019

With new protection measures, however, Colombia experienced a significant decrease in primary forest loss in 2019 (a 35 percent drop from 2018), the first decline since the rapid increase in loss after the 2016 peace agreement (GFW 2020b; Weisse and Goldman 2020).

Since the 1970s, more than 1.4 million ha of the Amazon forest have been cleared. Overall, an estimated 15–17 percent of the original Amazon forest has now been cut down and the land converted to other uses, with some experts putting the figure at 20 percent (Sonter et al. 2017; Piotrowski 2019; Viscidi and Ortiz 2019). The Amazon forest generates about half of its own rainfall by recycling moisture. Experts believe that

if 20–25 percent of the forest is lost (from the 1970s total), the moisture cycle will be reduced to a point where the basin will no longer support rainforest (Piotrowski 2019; Viscidi and Ortiz 2019).¹⁸

In the last few decades, the pace of change in the Amazon has accelerated. With surging global demand for commodities such as beef, soybeans, sugar, and palm oil, Amazonian governments have scaled up private sector finance and increased infrastructure spending, including on roads, railways, and dams (Branford and Torres 2018b; Butler 2019b). Today, large quantities of Amazonian commodities are exported to China, Europe, the United States, and other countries.



Land uses that replace forests in the Amazon vary by country, and there is often a chain of events rather than a single cause, such as when mining roads give farmers and ranchers access to previously inaccessible forest areas. Cattle ranching is the leading land use replacing forests in the Amazon, accounting for 65–70 percent of the forest loss (UCS 2016; Curtis et al. 2018; Piotrowski 2019; Viscidi and Ortiz 2019).¹⁹ Agriculture, including subsistence, small-scale, and commercial farming, principally for soybeans but also rice, corn, and sugarcane, accounts for 25–30 percent of the land use change. Selective logging commonly results in degradation, not forest loss, although logging accounts for 2–3 percent of forest loss.²⁰ Deforestation is exacerbated by climate change, which accelerates the spread of fires and pests (Piotrowski 2019; Viscidi and Ortiz 2019).

BOX 2.2 | Peace and Deforestation in Colombia

In Colombia, the 2016 peace agreement has opened up land, including indigenous land in the Amazon, to multinational interests such as mining and oil and mega-dam construction. This area was previously controlled by the Revolutionary Armed Forces of Colombia (Fuerzas Armadas Revolucionarias de Colombia, FARC), the country's largest rebel group, which had imposed limits on mining, logging, and other development. The demobilization of the FARC left behind a power vacuum. Other armed groups, including criminal gangs, have moved in, leading to a spike in land grabbing and deforestation from unregulated agriculture, mining, and logging, and to an uptick in land conflicts and assassinations. Absent the threat of the FARC, land values have skyrocketed by as much as 300 percent in San Vicente del Caguán since the peace deal was signed. The capital infusion has helped improve the economy, which is based primarily on cattle ranching for milk and cheese production, but has also created a booming speculative market that rewards land grabbing. Colonizers are also displacing indigenous groups from their ancestral land.

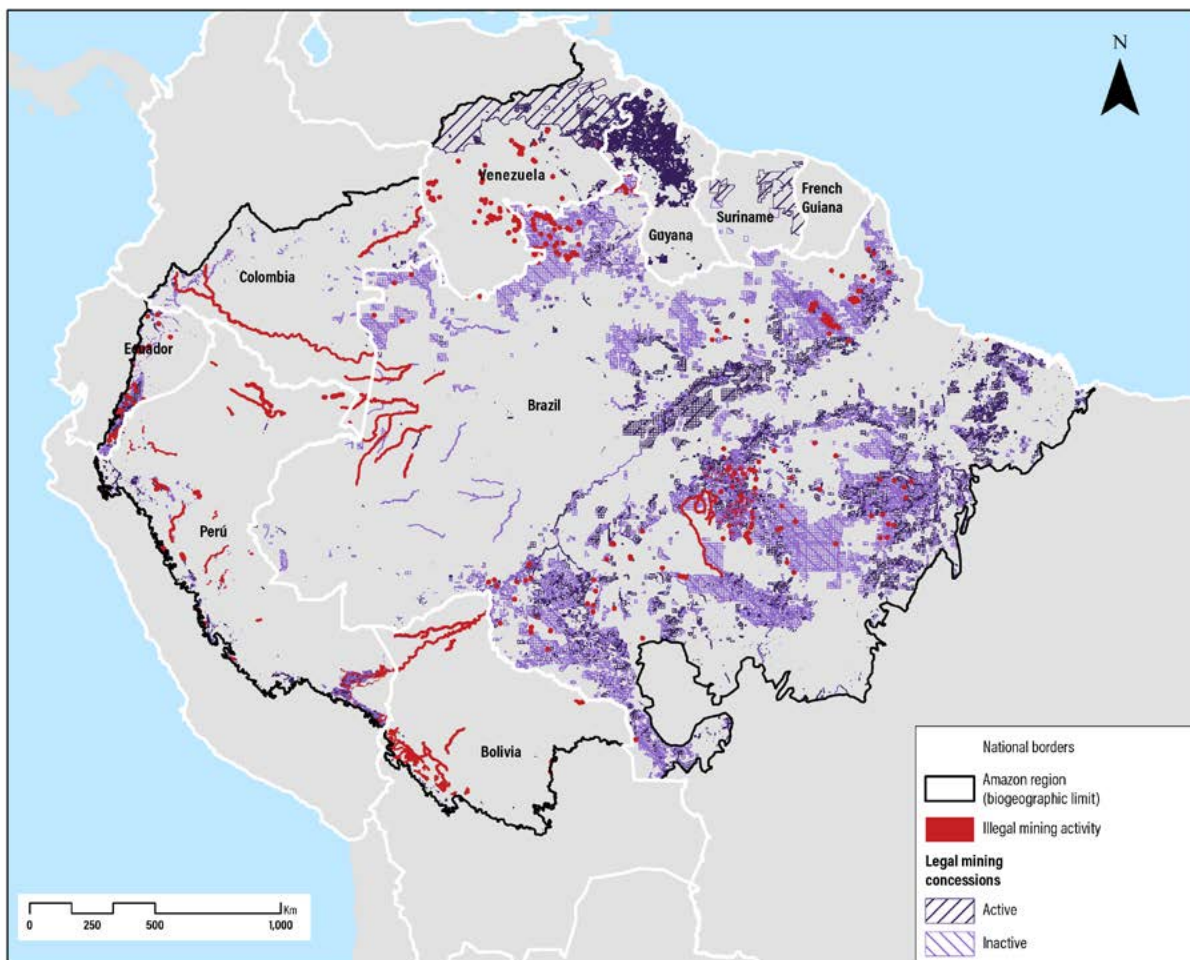
Source: Volckhausen 2019.

Mining in the Amazon

Mining in the Amazon is dominated by industrial mining in the east, although mining for copper and gold is expanding into the forest (D.H. Bebbington et al. 2018a, 2018b) (Figure 2.2).²¹ Brazil is the fifth largest mineral producer in the world with about 8,400 mines in operation. Iron ore is Brazil's leading mineral export and China its biggest market. China also finances much of the expansion of mining²² and related investments in hydropower and transportation. Vale S.A., Brazil's mining giant, operates mines across the Amazon (D.H. Bebbington et al. 2018a, 2018b).

Large-scale mining blocks or concessions overlap with many indigenous lands and many other indigenous lands, are indirectly affected by mining, from infrastructure (e.g., roads, rail lines, and dams), new towns for workers, and other associated developments. While all concessions that overlap with indigenous lands in Brazil are, in the absence of an enabling law, legally suspended or canceled (but see below), many of the overlapping concessions in the other Amazonian countries are either under exploration or exploitation.

Figure 2.2 | Large-Scale Mining Concessions and Illegal Mining in the Amazon Region



Sources: Data from RAISG 2018c, 2018d and Guyana Geology and Mines Commission 2016, modified by WRI and RAISG authors.

In addition to industrial mining, ASM, especially for gold, takes place throughout the Amazon. ASM is defined as: “formal or informal mining operations with predominantly simplified forms of exploration, extraction, processing and transportation” (OECD 2016). Not all minerals are easily extracted by ASM. As such, ASM is often focused on a smaller set of minerals (e.g., gold and diamonds) than industrial mining. Hot spots of ASM for gold in the Amazon include the Guiana Shield, southern Peruvian Amazon,²³ northern Brazil, and the Colombian Amazon (Alvarez-Berrios and Aide 2015). In these hot spots, ASM is the principal driver of forest loss.

Today, more than 500,000 small-scale gold miners are estimated to be active in the Amazon (Table 2.2), and many more people provide ASM services or are dependent family members of the miners (D.H. Bebbington et al. 2018a, 2018b). The expansion of ASM has been driven largely by rising gold prices coupled with limited livelihood opportunities (D.H. Bebbington et al. 2018a, 2018b).

Most ASM for gold in the Amazon is alluvial mining—the mining of stream or riverbed deposits for minerals—with some degree of mechanization and collective organization. ASM is commonly

low capital intensive, labor intensive, largely informal, and often operates outside the law and beyond government control (D.H. Bebbington et al. 2018a, 2018b). But the operations can be large and sophisticated, such as the illegal gold miners (*garimpeiros*) in the Yanomami indigenous lands in northern Brazil who are supplied by entrepreneurs with dredges, earthmoving equipment, and airplanes (see Case Studies; Branford 2019b).

Illegal mining in the Amazon, principally ASM, has been underway for decades but has grown exponentially in recent years (RAISG 2018a). Illegal mining includes miners operating without legal mineral rights as well as miners or mining companies with legal mineral rights but with operations that are not in compliance with all relevant laws or contracts. For the purpose of this research, illegal mining is limited to miners operating without legal mineral rights. Illegal mining areas often overlap with large-scale mining areas, including on indigenous territories (Brown 2018a; RAISG 2018a), but it is also prevalent in protected areas (Wagner 2016). Despite government operations aimed at cracking down (Box 2.3), efforts to stop illegal mining have largely been unsuccessful.

Table 2.2 | Estimated Number of Small-Scale Gold Miners by Country and Areas Impacted

COUNTRY	# OF SMALL-SCALE GOLD MINERS	AMAZON AREAS IMPACTED
Brazil	200,000	States of Acre, Pará (Tapajós River) Rondônia (Madeira River) & Roraima
Bolivia	100,000	Departments of Beni, Pando, (Norte) La Paz, (Norte) Santa Cruz
Colombia	182,000	Border area with Venezuela and Brazil
Ecuador	90,000	Province of Zamora-Chinchiipe
Peru	60,000	Departments of Madre de Dios, Amazonas, Huánuco
Venezuela	n/a	States of Amazonas and Bolívar

Source: D.H. Bebbington et al. 2018a.

There is a link between illegal gold mining and organized crime. The ongoing war on drugs coupled with the rising price of gold has encouraged organized criminal groups to engage in gold mining. Gold is also an easy way to launder drug money. Illegal gold mining in the Amazon is commonly undertaken by poor individuals (many from Andean regions) as a poverty reduction strategy. These miners are vulnerable to labor exploitation and human trafficking by organized crime mafias and cartels. That such mining is fragmented and hidden from the law has facilitated the entry of criminal organizations. It has proved so successful in Peru and Colombia that the value of illegal gold exports now exceeds the value of cocaine exports (Wagner 2016). Perhaps 90 percent of the gold mining in the Madre de Dios region of southeastern Peru, bordering Brazil, is illegal and run by organized crime and “the logging mafia” (Wagner 2016; Glenn 2019; Cimon 2019; Lombrana et al. 2019; Pacatte 2019).

In 2016, it was estimated that about 28 percent of gold mined in Peru, 30 percent in Bolivia, 77 percent in Ecuador, 80 percent in Colombia, and 80–90 percent in Venezuela was produced illegally (Wagner 2016). In 2018, RAISG identified 2,312 specific sites and 245 larger areas of illegal prospecting or extraction of minerals such as gold, diamonds, and coltan in six Amazonian countries—Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela (RAISG 2018a). Most of the illegal mining activities were in Venezuela. Illegal mining was underway in 37 indigenous territories (including 18 in Brazil) and was operating on the border of and threatened another 78 indigenous territories (including 64 in Peru). Illegal dredging of rivers was underway within or on the border of 65 indigenous territories, including 30 in Colombia. In another 90 indigenous territories, illegal mining operations had occurred but were no longer active (RAISG 2018a).

BOX 2.3 | Illegal Gold Mining in Peru

Despite years of police and military operations, strict mining laws, and attempts to formalize the industry, illegal gold mining in the Peruvian Amazon is at record levels. The Department of Madre de Dios in the southeast is home to the large and rapidly expanding “La Pampa” illegal gold mine. From 1999 to 2012, the extent of gold mining in the region increased 400 percent.^a

Today, this region has the highest forest loss and degradation caused by gold mining in the Amazon.^b Between 2009 and 2017, deforestation caused by illegal gold mining increased by 240 percent.^c Between 1985 and 2017, 95,750 ha were deforested by gold mining, mostly illegal, in Madre de Dios. Much of the

recent gold mining deforestation is concentrated in reforestation areas and the buffer zones of the Tambopata National Reserve and Bahuaja Sonene National Park. It is also occurring near or in several indigenous territories, including the Amaraeri Communal Reserve and the Kotsimba Native Community.^d

In 2018, deforestation from illegal gold mining reached a record 9,280 ha, leading the government to declare a state of emergency in the Madre de Dios region in February 2019.^e The government sent 1,500 police and military officers to the region in an effort to stop illegal mining. Illegal gold mining, however, continues to disrupt indigenous people and their lands.

Notes:

^a Asner et al. 2013

^b RAISG 2018a

^c CINCIA 2018

^d Finer and Mamani 2018

^e Neal and Roberts 2018; RAISG 2018a; Viscidi and Ortiz 2019



DATA COLLECTION AND ANALYSIS METHODS

The research examined mining on indigenous lands in the Amazon with a focus on Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru. Data and information were collected by conducting literature reviews; reviewing the relevant national laws; preparing six case studies of indigenous experiences; and conducting a geospatial analysis to examine forest cover change on indigenous lands affected by mining across the Amazon and the six case study sites. This report presents the data, analysis, and principal findings of the research.

Research Countries

The research for this report focused on collecting data and information on six Amazonian countries—Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru. The geospatial analysis focused on the biogeographic boundary of the Amazon, or Amazonian biome. Data on both legal and illegal mining were available for Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela (see below).

Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru were selected for multiple reasons. Collectively, they hold 90 percent of the Amazon basin and 93.4 percent of the Amazonian population, including most of the indigenous peoples in the region (Table 1.1 and Box 3.1). Brazil has the second-largest forest in the world (behind Russia), while Colombia, Peru, and Bolivia are among the world's top 10 countries with the most forests. More than 90 percent of Guyana is forested, among the highest percentages in the world.

BOX 3.1 | Definitions

Indigenous Peoples: People with distinct social, cultural, or economic characteristics, practicing in part or in full their own customs or traditions. The term includes those who are descended from people inhabiting a country or region at the time of conquest, colonization, or the establishment of modern boundaries. Whether a group of persons is considered to be indigenous is based on self-identification (ILO Convention 169). The rights of indigenous peoples receive heightened protection under international law. Governments have a responsibility to recognize the unique relation that indigenous peoples have to their traditional or ancestral lands.

Indigenous Land or Territories: Collectively held and governed lands (and natural resources) of indigenous peoples. As with other community land, some indigenous land may, with group consent, be allocated for use by individuals and families. Other indigenous land is managed as common property.

Source: Notess et al. 2018.

Mining occurs on indigenous lands in all six countries, and government reforms with implications for mining on indigenous lands are underway in all research countries. Further, information on the law and practice of mining on indigenous lands, including spatial data on indigenous lands, legal and illegal mining, and forest cover, is available for the research countries.²⁴

At the same time, important differences in the research countries allow for comparative analysis. The legal framework of mining on indigenous lands, rights of indigenous peoples over their lands and the minerals contained within them, as well as the authorities and obligations of miners operating on indigenous lands differ in significant ways in the research countries. Implementation and law enforcement also vary across the six countries.

The research focused on minerals and mining. Geologists define a mineral as a substance that is naturally occurring, inorganic, and solid with a definite chemical composition and an ordered internal structure (UA 2005). For the purpose of this research, minerals include rocks, gravel, and sand, but not oil or natural gas. Hydrocarbons were excluded from this research because they are regulated by a set of distinct laws, not the mineral or mining laws, and current geospatial data on oil and natural gas concessions are not readily available. Moreover, while many indigenous peoples engage in mining, the extraction of hydrocarbons is more complex and difficult for them to engage in directly.²⁵

Research Methods

Data were collected and analyzed from literature reviews, geospatial analysis, legal reviews, and case studies.

Literature reviews: The research involved both a broad review of the literature on mining on indigenous and community lands globally and more focused reviews on the six research countries. The reviews examined the academic and gray literature in Spanish, English, and Portuguese (e.g., government reports, NGO literature, and



international organization documents) and were designed to better understand the state of knowledge on the issue of mining on indigenous lands. News articles in popular media outlets were also reviewed to understand the current state of affairs in the six research countries, including any ongoing reforms and other developments with implications for mining on indigenous lands through April 2020.

There is a large and growing body of literature on mining on indigenous and community lands globally and in the Amazon specifically. The literature review for this research was not exhaustive. Rather, the review focused on the most salient and the most recent (from the last 10 years) literature on mining on indigenous lands, as well as on the interpretation of relevant laws and regulations by local experts and international scholars. Online and library searches were conducted through Google and Google Scholar using search words, including mining, indigenous peoples/lands, Amazon, and other key words. Sources were also identified from the reference sections of relevant articles and other documents. In addition to online and library searches, local

and country experts helped identify and access additional literature for the reviews (see Acknowledgments).

Geospatial analysis: The analysis of the extent and impact of mining on indigenous lands and forest cover in the Amazon was conducted using spatial data and geographic information system (GIS) analytical tools. The Amazon Geo-Referenced Socio-Environmental Information Network (Rede Amazônica de Informação Socioambiental Georreferenciada, RAISG)²⁶ supplied most of the data and conducted much of the analysis. The geographic extent of the analysis was the biogeographic boundary of the Amazon (as defined by RAISG), excluding French Guiana because of the absence of critical data.²⁷ The Amazon-wide data were analyzed by country for the purpose of comparing results across different national contexts. The GIS analysis also included assessing mining and forest cover change on the indigenous lands in the six case studies.

To examine the relationship between indigenous lands, mining, and forest cover, a spatial analysis was performed where data sets were overlaid, and

the area of overlap quantified and summarized by country and by the indigenous lands of the six case studies. The data on indigenous lands were sourced from RAISG (RAISG does not collect spatial data on Afro-descendant or other types of communities that hold land in a collective manner). Because each country uses different terminology to describe their indigenous lands, RAISG organizes the data on indigenous lands into categories based on their legal status (Appendix A). Additional information on each data set used in the analysis, including source and relevant notes, is provided in Appendix B. (Note: All data sets were not available for every Amazonian country.)

The data on legal, large-scale mining concessions varied by source and were not consistent in their level of detail in terms of identifying the status of mining activities (RAISG holds concession data for all Amazonian countries except French Guiana). For example, the mining data for Brazil differentiated between concessions that were “in exploration” versus those that were “in exploitation,” while Peru and other countries grouped these classifications together as “in exploration or exploitation.” There is no data on whether mining operations in concessions that are in exploration or exploitation cover the whole of the concession area or are focused on certain sections of the concession.

To compensate for the variable information across countries and data sets, the classes were consolidated into categories of “active” or “inactive” (Table 3.1). Three countries—Bolivia, Ecuador, and Guyana—identified concessions as having “no information” on their status.²⁸

The concession data for Brazil—dated January 2018—were sourced from the National Department of Mineral Production (Departamento Nacional de Produção Mineral, DNPM), the Brazilian federal agency which oversaw mining regulation and inspection under the Ministry of Mines and Energy. RAISG compiled and standardized the DNPM mining concession data for Brazil (and the other Amazonian countries). The official government mining data for Brazil show that 270 active mining concessions overlap with indigenous lands in the Amazon (out of a total of 35,653 mining

concessions, including 11,088 active concessions and 24,565 inactive concessions). Of these, 237 concessions are designated as being in exploration and 33 are designated as in exploitation. It was not possible to assess whether the 270 active mining concessions that overlap with indigenous lands in Brazil are operating. For the purpose of the GIS analysis, these concessions are considered active, as was designated in the data sourced from DNPM.

RAISG does not collect or hold data on legal ASM in the Amazon so the GIS analysis for this report does not examine the overlap of ASM on indigenous lands or its link with deforestation.

RAISG collects and holds data on illegal mining in six Amazonian countries—Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela—and these data were included in the GIS analysis (RAISG does not collect data on illegal mining in Guyana, French Guiana, or Suriname). For this research, a larger data set was used than in RAISG’s 2018 survey (RAISG 2018a), including data for Venezuela that were updated in 2019. The methods for collecting data on illegal mining activities varied by country, including from reports by indigenous peoples, news media, and satellite image analysis. Three types of illegal mining areas were defined for the analysis: extraction areas (polygons) were defined by assessing satellite imagery and using knowledge of regions where illegal mining is known to occur (based on news reports and experts in the field); extraction sites (points) of illegal mining activities were identified using news reports or other local information; and rivers affected by mining (lines and polygons) were identified based on local reports (RAISG 2018a).

The analysis of illegal mining for this report used the biogeographic region of the Amazon, excluding French Guiana and Suriname. The RAISG survey in 2018 considered a larger Amazon region. Further, the 2018 survey consolidated the various indigenous lands that were not contiguous into one territory (many indigenous territories consist of several separate indigenous lands), while this analysis counted every indigenous land (polygon) separately.

To examine the links between mining (legal concessions and illegal mining) on indigenous lands and forest cover in the Amazon, a spatial analysis was conducted that compares areas of known mining activities with indigenous land and forest cover change. Deforestation rates on indigenous lands with active concessions were calculated for the time period from 2000 to 2015 and compared with the deforestation rates on indigenous lands without mining (i.e., the analysis did not calculate deforestation rates on indigenous lands with concessions that are labeled as inactive or concessions that had no information on whether they were active or inactive—see above).

In order to estimate forest cover change within illegal mining areas, the point data were buffered to a distance of 10 km and line (river) data were buffered to a distance of 5 km. These distances represent the average extent of impacts and are based on the GIS analyst’s experience and judgment. The forest cover data are sourced from RAISG and cover three time periods: 2000–05, 2005–10, and 2010–15 (RAISG 2015). To estimate the percentage of deforestation that occurred over these time periods, a baseline forest cover data representing the year 2000 was used as the point of departure (also sourced from RAISG).

Table 3.1 | Comparison of the Mining Status, as Defined in the Data Sets, with How the Data Were Consolidated and Merged

MINING STATUS, AS DEFINED IN THE DATA SETS	CONSOLIDATED STATUS
In exploration	Active
In exploration or in exploitation	Active
In exploitation	Active
Potential/Open for bidding	Inactive
Under tender/under request	Inactive
No information	Unknown

Source: D.H. Bebbington et al. 2018a.

The GIS analysis evaluates the association of mining activities and forest cover change; it is not possible to infer causation from this analysis. In other words, one cannot assume that forest cover loss, which has occurred within an area identified as a site of legal or illegal mining, was caused by mining or another action. This analysis seeks to evaluate whether indigenous lands that have mining concessions or illegal mining activities within their boundaries tend to be more vulnerable to forest loss in general, which may or may not be related to mining operations. These findings are thus a good starting point for further research that can allow more causal inference.

Legal reviews: The legal reviews focused on Bolivia, Brazil, Colombia, Ecuador, Guyana, and Peru. Based on the literature reviews, four critical issues were identified as central to understanding the dynamics of mining on indigenous lands:

- *Ownership of mineral resources:* Who owns minerals in the research countries? What rights do indigenous peoples have over the minerals on and below their lands? What authorities do miners have to enter and use indigenous lands to exercise and realize their mineral rights?
- *Allocation of mineral rights:* Can indigenous peoples mine their lands for customary and commercial purposes? Do indigenous peoples have the right of first refusal to commercially mine their lands? What rights do indigenous peoples have when the government allocates rights to minerals on and below the surface of indigenous lands?
- *Consultation and consent:* Do indigenous peoples have the right of free, prior, and informed consultation or consent? Must the government consult or have the consent of indigenous peoples before granting rights to minerals on indigenous lands to third parties? Must miners consult or have the consent of indigenous peoples before conducting mining operations on indigenous lands?
- *Protection of indigenous lands:* Is mining prohibited on indigenous or other lands? Does the government have the responsibility to monitor and oversee mining operations on

indigenous lands? Are miners responsible for damage to indigenous lands caused by their operations? Must miners restore the land after their operations?

To help ensure consistency in data collection across the six research countries, a set of indicators or questions was developed for each issue and consistently applied in the legal reviews for each research country (Appendix C).

The legal reviews focused on the laws that govern indigenous lands and regulate mining on indigenous lands in the research countries. In some cases, the laws governing indigenous lands also govern other types of collectively held land tenure systems. Where there are separate laws for different types of collectively held lands such as indigenous lands, Afro-descendant lands,

and other nonindigenous community lands, these laws were also reviewed but principally to compare them with the laws governing indigenous lands (i.e., the legal reviews did not include a complete analysis of the laws and regulations of mining on nonindigenous lands).

The most relevant laws for review for each research country were identified from government websites and country profiles at FAOLEX database (Food and Agriculture Organization, FAO), and from interviews with country experts (see Acknowledgments). Relevant national (or federal) laws enacted before April 2020, including constitutions, statutes, regulations, decrees, technical directives, and court rulings of relevant cases, were reviewed to the extent they were available (Appendix D). Two international instruments and three pending bills in Brazil were



also reviewed. The legal reviews did not examine subnational laws and regulations, government policies, or political statements that are not legally binding.

In most cases, the laws were read and reviewed in their original, official language, although for Brazil's laws in Portuguese, good-quality (often official) translations were used. Secondary sources (e.g., development and academic literature) and legal commentaries were consulted if the law or court ruling was ambiguous or not available. Government and independent legal experts from the research countries were also consulted to ensure the interpretation of the law is consistent with local understanding and how it is applied in the country by governments, advocates, scholars, and other stakeholders (see Acknowledgments). It was not possible to get the viewpoints of the full set of

stakeholders (e.g., mining company officials, ASM miners, and nonindigenous communities). Future research could reach out to the full range of stakeholders.

Case studies: To better understand the implementation and enforcement of laws, and the practice of mining on indigenous lands, case studies were developed of six community experiences of mining—or the threat of mining—on indigenous lands. One case study was developed from each research country. A list of potential case studies was developed for each research country from the literature reviews, Internet searches (especially of national newspapers and other local media), and from interviews with country experts (see Acknowledgments). The case studies were carefully selected to document a variety of strategies and approaches used by indigenous peoples—some effective, some not—to protect their lands from mining or to mitigate the negative social and environmental impacts of mining on their lands.

Information for the case studies was gathered from two sources. Desk research was conducted to collect and review the academic and gray literature as well as news articles in the local and international media on the specific community experience. As with the literature reviews, online and library searches were conducted using Google and Google Scholar using search words, including *mining*, *indigenous people/lands*, the community name, and other key words. Sources were also identified from the reference sections of relevant articles and other documents. In addition, one or more government and/or independent experts with knowledge of the affected indigenous peoples was interviewed in the research countries to complement the information gathered from the literature (see Acknowledgments).

To ensure consistency in the case studies across countries and to assess law enforcement, each case study addressed the same four issues—ownership of mineral resources, allocation of mineral rights, consultation and consent, and protection of indigenous lands—and associated indicators/questions for the legal reviews (although gaps in the literature and understanding by the interviewed experts prevented addressing every indicator/question for each case study).





DATA AND FINDINGS

This section presents the research findings in three parts. The first part provides the Amazon basin-wide and national-level findings of the geospatial analysis. The second part presents the findings of the review of national laws, regulations, and court decisions. The third part provides summaries of the six case studies from the research countries. Each summary includes the findings of the community-level geospatial analysis.

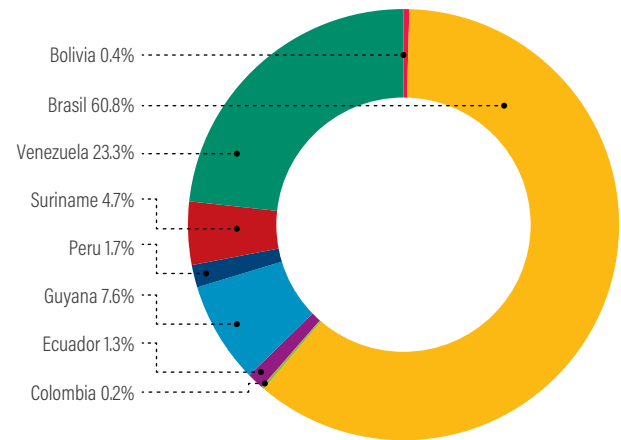
GIS Analysis

Based on the geospatial analysis, in the Amazon biogeographic region, legal, large-scale mining concessions cover approximately 1.3 million sq. km (excluding French Guiana) or nearly 19 percent of the region (Figure 4.1).²⁹ Nearly 45 percent of the mining area (567,000 sq. km) is considered “active” mining area (i.e., in exploration or extraction), while much of the remaining portion is “inactive” (i.e., the concessions are pending activity; see Data Collection and Analysis Methods). Brazil holds the largest proportion of active mining concessions—more than 60 percent—in the Amazon (Figure 4.1). When controlling for the size of each country’s portion of the Amazon, however, mining concessions in Venezuela cover the largest proportion of the country’s Amazon at 28 percent, followed by Guyana at 21 percent, Suriname at 18 percent, and Brazil at 8 percent (Figure 4.2).

Of the active mining concessions, approximately 57,000 sq. km, or more than 10 percent, overlap directly with indigenous lands (Figure 4.3). Active mining concessions overlap with indigenous lands in all Amazonian countries. Many indigenous lands are affected by multiple overlapping mining concessions held by different mining companies.

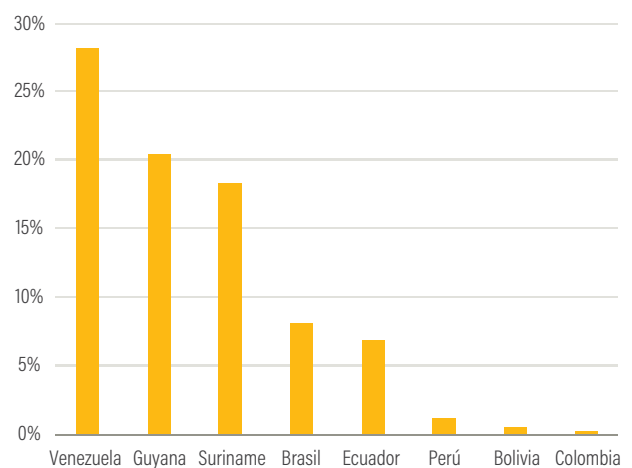
For the illegal mining analysis, all six countries in the analysis—Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela—are affected by illegal mining (Figures 4.3 and 4.4). (Note: The illegal mining analysis included Venezuela instead of Guyana.) Most of the illegal mining area is in Peru and Bolivia, while Brazil and Venezuela have the largest estimated number of illegal mining extraction sites (Table 4.1). At least 30 rivers are affected by illegal mining or act as routes for the entry of machinery and inputs and the outlet of minerals. Known areas or sites of illegal mining operations overlap with at least 370 indigenous lands, including 260 indigenous lands in Peru (Table 4.2). Several distinct pieces of land can make up one indigenous community’s territory (see Data Collection and Analysis Methods). Rivers affected by illegal mining are within or on the border of 88 indigenous lands, including 32 indigenous lands in Peru and 29 in Colombia.

Figure 4.1 | Proportion of Active Mining Concessions per Country in the Amazon Region Based on Total Area of Mining Concessions (French Guiana Excluded Due to Lack of Data)



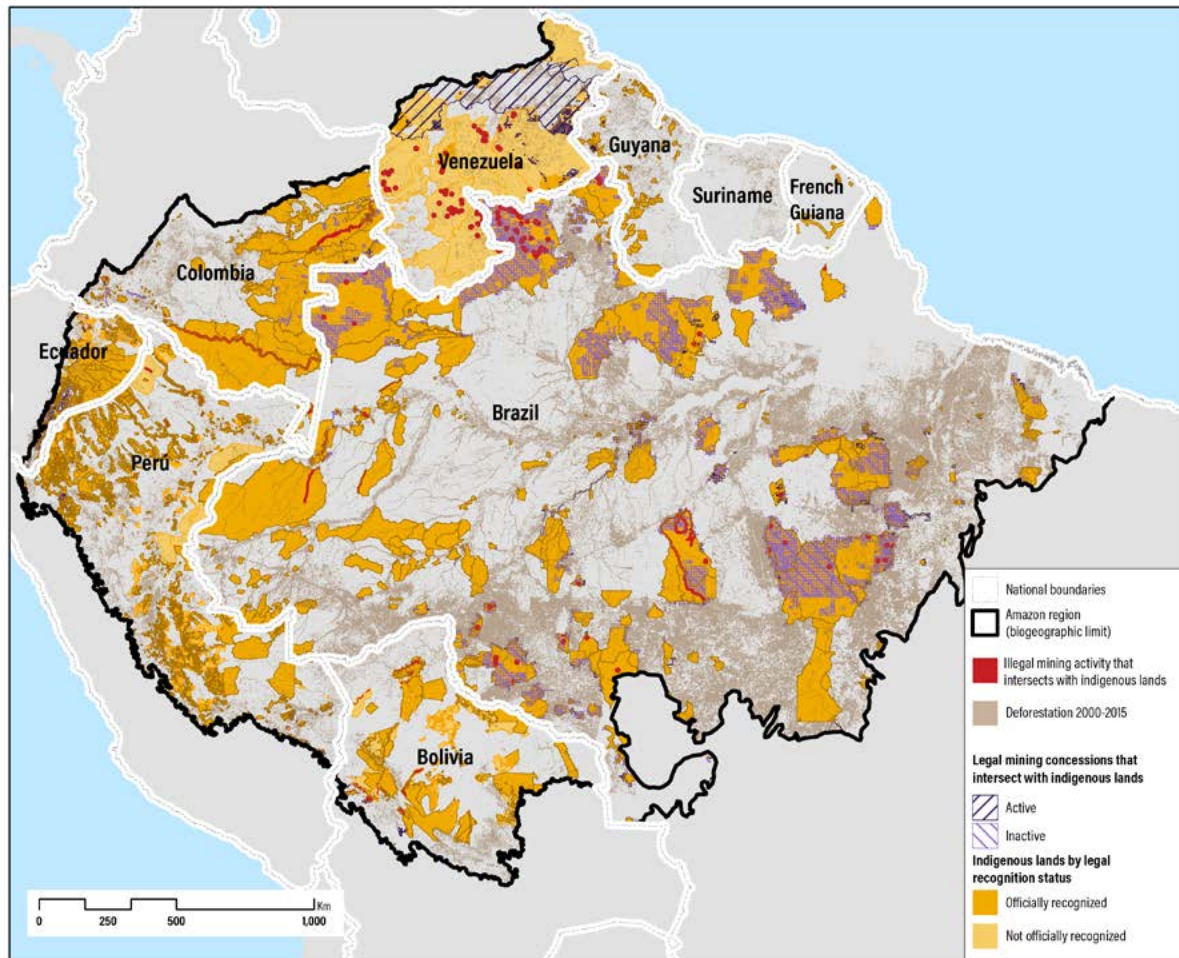
Sources: Based on data from RAISG 2018d and Guyana Geology and Mines Commission 2016, modified by WRI authors.

Figure 4.2 | Area of Active Mining Concessions per Country as a Proportion of the Country’s Amazon Biogeographic Area. (French Guiana Excluded Due to Lack of Data)



Sources: Based on data from RAISG 2018d and Guyana Geology and Mines Commission 2016, modified by WRI authors.

Figure 4.3 | Indigenous Lands, Large-Scale/Illegal Mining Overlapping with Indigenous Lands, and Deforestation (2000–15) in the Amazon Region

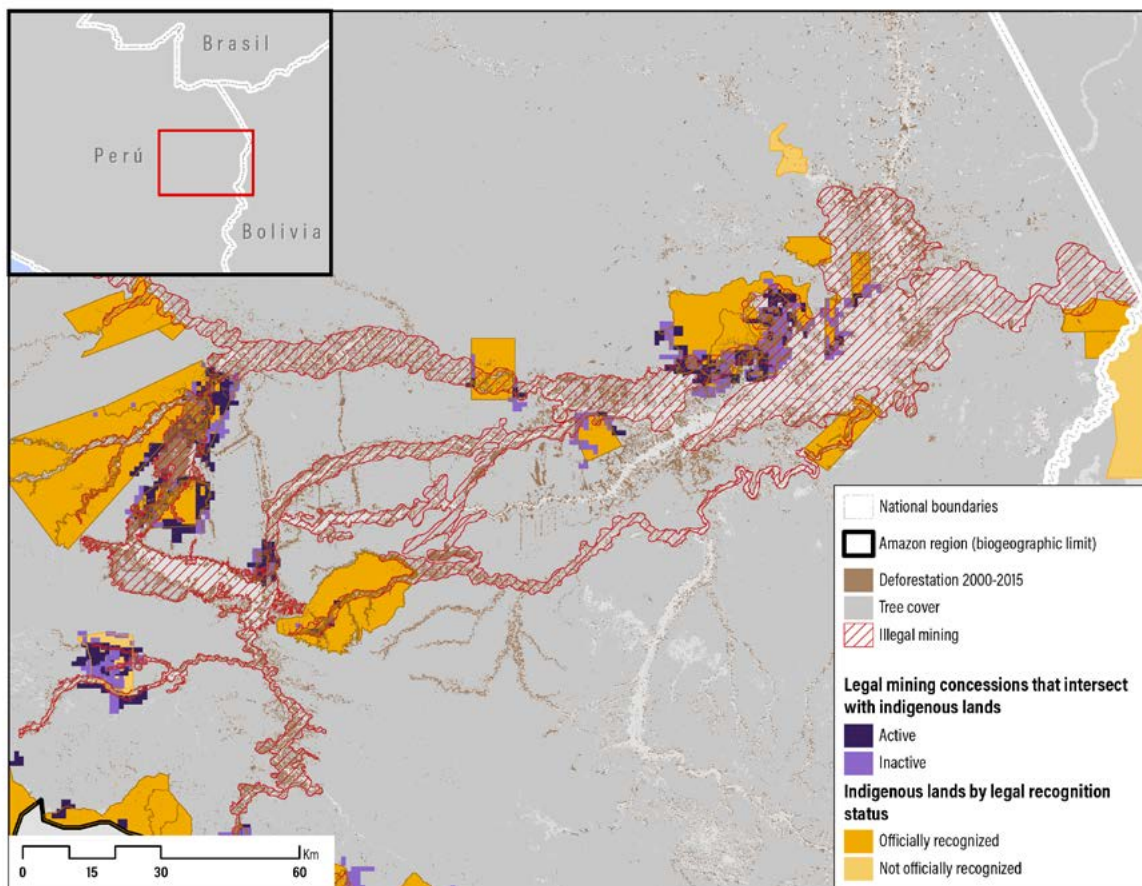


Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, Guyana Lands and Surveys Commission 2018, and Guyana Geology and Mines Commission 2016, modified by WRI and RAISG authors.

Industrial mining concessions and/or illegal mining overlap with approximately 450,000 sq. km of the 2.1 million sq. km of indigenous lands in the Amazon—more than 20 percent—affecting 1,131 of the 3,653 (31 percent) indigenous lands in the Amazon (excluding French Guiana and Suriname) (Figure 4.3). Approximately 143,000 sq. km of indigenous lands overlaps with active mining concessions and known illegal mining areas, while the majority—302,000 sq. km—of indigenous lands overlap with concessions that are currently inactive

(Figure 4.5). The majority of the inactive mining concessions that overlap with indigenous lands in the Amazon region are in Brazil because of the absence of an enabling law (although data from the government of Brazil include 27 active mining concessions that overlap with indigenous lands; see Data Collection and Analysis Methods). Of the 143,000 sq. km of active concessions and illegal mining areas that overlap with indigenous lands in the Amazon, the vast majority occur in Venezuela, followed by Brazil and Colombia (Figure 4.6).

Figure 4.4 | Indigenous Lands, Large-Scale/Illegal Mining Overlapping with Indigenous Lands, and Deforestation (2000–15) in Peru



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

Table 4.1 | Illegal Mining Extraction Areas, Extraction Sites, and Affected Rivers per Country

COUNTRY	EXTRACTION AREAS			EXTRACTION SITES	AFFECTED RIVERS
	AREA (HA)	NUMBER			
Bolivia	1,129,103	3		ND	7
Brazil	620,411	132		317	9
Colombia	ND	ND		ND	7
Ecuador	ND	ND		57	ND
Peru	2,535,742	64		23	7
Venezuela	34,696	1,637		103	ND
Total	4,319,952	1,836		500	30

Note: ND = No Data.

Sources: Data from RAISG 2018a, 2018c, modified by WRI authors.

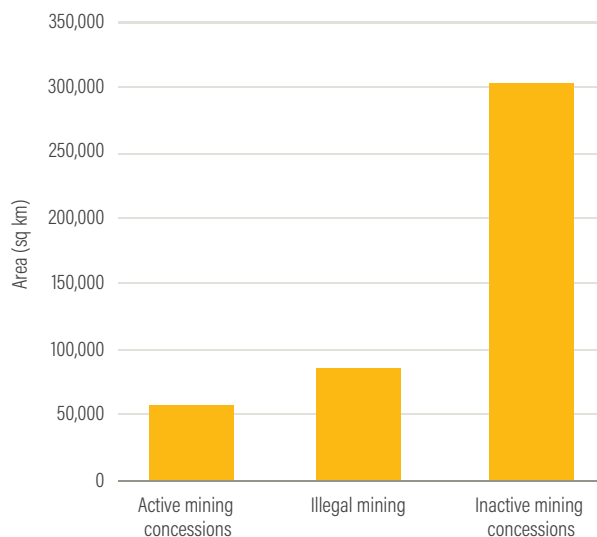
Table 4.2 | Indigenous Lands That Overlap with Illegal Mining Areas, Sites, or Affected Rivers

COUNTRY	NUMBER OF AFFECTED INDIGENOUS TERRITORIES
Bolivia	16
Brazil	37
Colombia	29
Ecuador	9
Peru	260
Venezuela	19
TOTAL	370

Note: Some communities hold multiple plots of land; as such, these numbers represent the total number of affected lands.

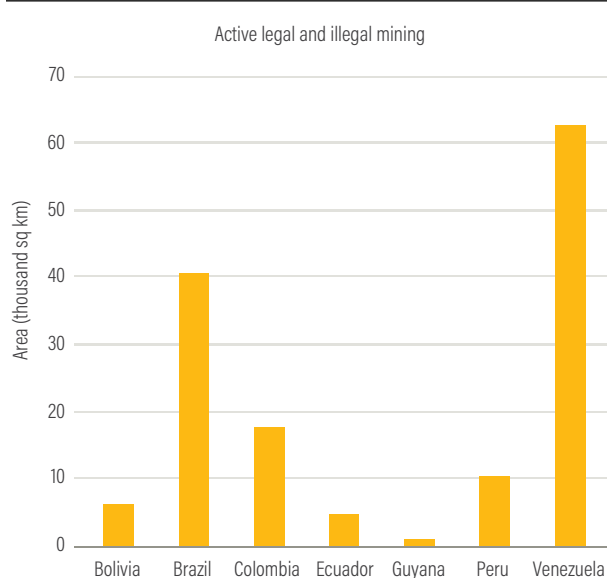
Sources: Data from RAISG 2018a, 2018c, modified by WRI authors.

Figure 4.5 | Area of Indigenous Lands in the Amazon That Overlaps with Mining Activity, by Mining Type



Sources: Based on data from RAISG 2018c, 2018d, 2019c, Guyana Lands and Surveys Commission 2018, and Guyana Geology and Mines Commission 2016, modified by WRI authors.

Figure 4.6 | Area of Active Mining Concessions and Illegal Mining Areas That Overlap with Indigenous Lands by Country



Note: Illegal mining data are not available for Guyana, and ASM data are not available for all countries.

Sources: Based on data from RAISG 2018c, 2018d, 2019c, Guyana Lands and Surveys Commission 2018, and Guyana Geology and Mines Commission 2016, modified by WRI and RAISG authors.

Industrial mining concessions and/or illegal mining overlap with approximately 450,000 sq. km of the 2.1 million sq. km of indigenous lands in the Amazon—more than 20 percent—affecting 1,131 of the 3,653 (31 percent) indigenous lands in the Amazon (excluding French Guiana and Suriname)

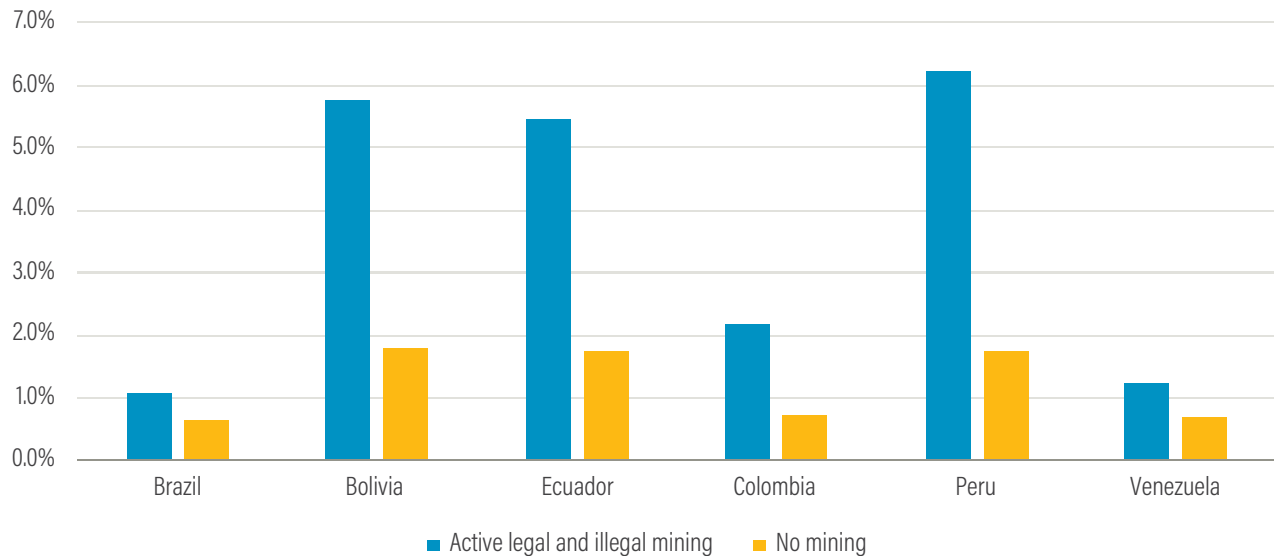
To examine the relationship between mining on indigenous lands and forest cover, forest cover change within indigenous lands where mining (active concessions and illegal mining) is taking place is compared with forest cover change within indigenous lands with no known mining activities.³⁰ Overall, indigenous lands across the Amazon that experienced mining activities had a higher rate of forest loss in the period 2000 to 2015 than indigenous lands that did not experience mining. In Bolivia, Ecuador, and Peru, the rate was at least three times higher on indigenous lands that experienced mining activities than on those without mining (Figure 4.7). In Colombia and Venezuela, the rate of forest cover loss was one to two times higher on indigenous lands with mining than on indigenous lands absent mining.

In Brazil, there was not a large discrepancy between the rate of deforestation on indigenous lands with active mining activities and indigenous lands

without mining. The deforestation rate from 2000 to 2015 on indigenous lands with mining was only 0.3 percent higher than the rate on indigenous lands without mining. Overall, the deforestation rate on indigenous lands with mining in Brazil was lower than in the other countries. With mining not legally possible on indigenous lands, this may be due to the government labeling some mining concessions as active when, in practice, they are inactive.

In Guyana, the deforestation rate was 0.3 percent higher from the time period 2000 to 2015 on indigenous lands that did not experience any mining than the rate on lands with mining. This may be due to legal ASM and/or illegal mining on indigenous lands which is widespread in the country. The Guyana analysis only included active mining concessions as RAISG does not have data on ASM and illegal mining for the country (see Data Collection and Analysis Methods).

Figure 4.7 | Indigenous Lands, Large-Scale/Illegal Mining Overlapping with Indigenous Lands, and Deforestation (2000–15)



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

Legal Reviews

Multiple international instruments address or have implications for mining on indigenous lands. When ratified, these instruments are recognized as part of the national legal system. Among them are the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security (VGGTs); the International Finance Corporation's (IFC) Performance Standards; the Sustainable Development Goals (SDGs), especially Goal 16;³¹ Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement);³² the International Convention on the Elimination of All Forms of Racial Discrimination; and the Convention on the Elimination of All Forms of Discrimination against Women (UN Women 2014).

Two international instruments are of particular importance as they have helped shape domestic legislation that governs mining on indigenous lands in the six research countries—the International Labor Organization's Indigenous and Tribal Peoples Convention, 1989 (ILO Convention 169) and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). Adopted in 1989, ILO Convention 169 established international standards on the rights of indigenous peoples (ILO 1989). Of the research countries, only Guyana has not ratified ILO Convention 169, whereas the others have adopted the standards in their own legal system.³³ The 2007 UNDRIP provides a universal framework of minimum standards for the survival, dignity, and well-being of indigenous peoples (UN 2007). All six research countries have adopted UNDRIP.

Under international law, the rights of indigenous peoples receive heightened protection. Governments have a responsibility to recognize the unique relation that indigenous peoples have to their traditional or ancestral lands. In some countries, especially countries in Latin America, national laws have been enacted specifically on the rights of indigenous peoples which grant them special rights not provided to nonindigenous people.³⁴

Overall, indigenous lands across the Amazon that experienced mining activities had a higher rate of forest loss in the period 2000 to 2015 than indigenous lands that did not experience mining. In Bolivia, Ecuador, and Peru, the rate was at least three times higher on indigenous lands that experienced mining activities than those without mining. In Colombia and Venezuela, the rate of forest cover loss was one to two times higher on indigenous lands with mining than on indigenous lands absent mining.

Land rights. Under ILO Convention 169, self-identification determines whether a group of people is considered to be indigenous. The convention establishes indigenous peoples' rights of ownership and possession of the lands they traditionally occupy. Article 13(2) explains that the term "land" includes the concept of "territory," which covers the total area that indigenous peoples occupy or use. Moreover, it provides that, "[t]he rights of the people concerned to the natural resources pertaining to their lands shall be especially safeguarded. These rights include the right of these peoples to participate in the use, management and conservation of these resources."

Under UNDRIP, Article 26 states that indigenous peoples have the right to own, use, develop, and control the lands, territories, and natural resources that they have traditionally owned, occupied, used, or otherwise acquired. UNDRIP also calls on governments to provide legal recognition and

protection to these lands, territories, and resources, and to respect the customs, traditions, and land tenure systems of indigenous peoples.

The national laws in all six research countries recognize indigenous land rights and customary tenure systems. Domestic court decisions have also stressed the importance of the right to territory. For example, in 2016 (Decision N^o T-005/16, 2016), the Constitutional Court of Colombia stated, “The protection of collective property and ancestral territory derives from the spiritual and ancestral relationship that exists with the land . . . so that the concept goes beyond a property title.”³⁵ Moreover, it noted that the Colombian National Constituent Assembly had stated that without the right to territory, the guarantees to cultural identity and autonomy are simply a formality.³⁶ Similarly, the Peruvian Constitutional Tribunal recognized that unlike the concept of land, territory has a political vocation of self-government and autonomy that conforms to the reality of indigenous peoples (Dossier N^o 01126-2011-HC/TC, 2012).³⁷

By law, the formalization of customary land rights is not required for the rights to be legally recognized, although, in practice, a land title or certificate can help indigenous communities better protect their rights against third parties. National laws in the research countries establish procedures for formalizing indigenous land rights. Formalization is central to the integration of customary land rights into official systems and the establishment of legally recognized rights. Formalization often involves the registration of land rights into a government registry or cadastre and the issuance of an official document by the government to the indigenous community (e.g., land title or certificate).³⁸ Indigenous land rights are also formalized when the government designates land for occupation and use by indigenous peoples, such as an indigenous reserve. In this case, the rights are documented not in a title issued to the indigenous peoples, but in a public legal instrument, such as a decree. Indigenous reserves have been established in several research countries, including Brazil and Colombia.³⁹

In the research countries, these procedures are costly and time-consuming, can bring exposure to unwanted investors, and can result in fees and taxes. Moreover, not all customary land and traditional rights can be formalized (see Colombia and Guyana Case Studies; Notess et al. 2018). For example, there are significant land use restrictions in many indigenous reserves. Still, many indigenous peoples seek to formalize their customary land rights in the hopes of tenure security (Notess et al. 2018). Official land documents can help them defend their land from threats. They can convince others of their legal rights, ensuring that their rights will be recognized and respected. Land documents can also be used as evidence of legal possession in a court of law, where they commonly carry more weight than oral testimony on customary rights. Official land documents can also provide indigenous peoples critical leverage in negotiations with outside investors, improving the chance that they receive a fair deal in sharing the benefits and reducing the likelihood of conflicts that can arise from bad deals (Knight 2012).

Formalization also brings specific advantages regarding mining. In Colombia, for example, indigenous reserves⁴⁰ are a legal and socio-political institution of a special nature, made up of one or more indigenous peoples. For them to be legally recognized as an autonomous entity protected by indigenous jurisdiction with its own regulatory system and able to govern and manage their land and internal life, they need a collective property title, which provides private property guarantees (Article 21, Regulation on Titling of Indigenous Peoples’ Lands, 1995). In Peru, Article 23 (c) of the Mining Procedures Regulation provides that mining companies must “obtain permission for the use of land by prior agreement with the owner of the land surface.” The companies are not legally obliged to consider indigenous peoples who hold land only under custom as “owners.” The assumption is that without a title, mining companies cannot be certain who owns the land. Moreover, if the title is not registered in public records, it is not enforceable against third parties. And, if the indigenous land has not been mapped precisely, using GPS, it will not appear on official government maps (Gustavo A. Zambrano Chávez, personal communication, 2020).

Peruvian national courts have also recognized the right of indigenous peoples with a land title to regulate entry into their land. In 2012, the constitutional tribunal recognized that the Tres Islas indigenous people have the right to control the entry of third parties into their lands. While the possession of a title was not the single determining factor in the ruling, the court recognized it as one of the conclusive elements supporting its decision (see Peru Case Study).

The rights (Box 4.1) recognized through formalization in the research country vary by country, tenure regime, and/or type of title. Indigenous peoples in the six research countries enjoy some level of access, withdrawal/use, management, exclusion, and alienation rights to land and natural resources found there (Table 4.3).

Rarely, however, do indigenous peoples have full, unfettered land rights. For example, the right to withdrawal or use is often restricted to *renewable* natural resources and only for domestic or subsistence purposes (although it may apply to acquire nonrenewable rights and commercial use rights under procedures separate from land formalization). In Ecuador, the constitution recognizes the collective rights of indigenous peoples to “participate in the use, usufruct, administration, and conservation of *renewable natural resources* found in their lands” (emphasis added). Bolivia has a similar tenure regime; Bolivia grants indigenous peoples the right to territorial management and the exclusive use and exploitation of *renewable natural resources* existing in their lands regardless of the rights legitimately acquired by third parties (Article 30.II 17, Constitution of Bolivia, 2007). Also, as stated by Brazil’s National Mining Agency (Agencia Nacional de Minería, ANM), while indigenous peoples can enjoy “the riches of the soil,” it does not give them the right to carry out mineral exploration on their lands without the consent of the corresponding authority, nor to hinder its use by third parties duly authorized by the National Congress (Legal Opinion N° 469/2015, 2015).

In all six research countries, indigenous peoples enjoy some exclusion rights that allow them to expel intruders, such as illegal miners or loggers, from their territories (see the Tres Islas Case

BOX 4.1 | The Bundle of Land Rights

- Ostrom (1992)^a identified five property rights that are most relevant for the use of common-pool resources:
- Access: The right to enter a defined physical area and enjoy non-subtractive benefits (obtained without being extracted or removed from the environment).
- Withdrawal or Use: The right to obtain resource units or products of a resource system.
- Management: The right to regulate internal use patterns and transform the resource by making improvements.
- Exclusion: The right to determine who has access rights and withdrawal rights and how those rights are transferred.
- Alienation: The right to sell or lease management and exclusion rights.

The Rights and Resources Initiative^b recognizes two additional rights:

- Duration: The right to hold tenure rights for an unlimited span of time (measures the permanence of allocated rights).
- Due Process and Compensation: The right to due process and compensation for government expropriation.

Notes:

^a Ostrom 1992

^b RRI 2012, 2014, 2015

Study in Peru). Indigenous peoples, however, do not have the right to exclude third parties with explicit government authorization to access their lands, such as mining companies with legal rights to exploit minerals on their lands. Such access, however, may require community consultation, community consent, or the establishment of an easement (see below).

Indigenous peoples in the six research countries also have limited alienation rights. By law, indigenous lands are inalienable in Bolivia, Brazil, and Colombia (in the case of indigenous reserves). In these countries, the government or other entities cannot take indigenous lands, and indigenous peoples may not sell or otherwise transfer their

titled land to another entity. Indigenous lands in Peru and Ecuador was at one time inalienable but is no longer so due to constitutional reforms. In Guyana, titled indigenous lands are not exempt from expropriation (Article 142, Constitution of Guyana, 1980).

In Peru, indigenous peoples may sell their land, although in Bolivia, Brazil, Colombia, Ecuador, and Guyana they are prohibited from doing so. Indigenous peoples in Colombia, Guyana, and Peru may, however, lease some of their land to third parties, including miners (Box 4.2). In Colombia, individual members of indigenous reserves are not allowed “to lease their lands by themselves” (Article 21, Regulation on Titling of Indigenous Peoples’ Lands, 1995), but they may do so jointly through their traditional authorities (Jorge D. Sierra Sanabria, personal communication, 2020). The laws in Bolivia, Brazil, and Ecuador do not explicitly allow indigenous peoples to lease their collective lands.

BOX 4.2 | Leasing and Selling Indigenous Land in Peru

In Peru, the law empowers peasant and native communities to lease and sell their lands, and, by law, indigenous people can be identified and recognized as peasant or native communities. An agreement of at least two-thirds of all the community members is required to lease or sell community land (Article 7, Law on the Right to Prior Consultation of Indigenous Peoples, 2011, Article 11, Law of the Development of Economic Activities in the Lands of the National Territory and Peasant and Native Communities, 1995—repealed in 2008 by Legislative Decree N° 1064, but declared effective again in 2009 by Law N° 29376). In practice, it is not uncommon for indigenous communities to lease their land for the development of economic activities. Less common is the sale of indigenous land.

Sources: WRI authors.

Table 4.3 | Formalized Land Rights in the Research Countries

INDICATORS		WHAT IS THE BUNDLE OF RIGHTS OF INDIGENOUS PEOPLE?					
		BOLIVIA	BRAZIL	COLOMBIA	ECUADOR	GUYANA	PERU
Do indigenous people have the right to access?		Yes	Yes	Yes	Yes	Yes	Yes
Do indigenous people have the right to withdrawal or use?		Yes	Yes	Yes	Yes	Yes	Yes
Do indigenous people have the right to management?		Yes	Yes	Yes	Yes	Yes	Yes
Do indigenous people have the right to exclusion?		Yes	Yes	Yes	Yes	Yes	Yes
Do indigenous people have the right to alienation?	Can they lease their land?	No	No	Yes	No	Yes	Yes
	Can they sell their land?	No	No	No	No	No	No

Note: A score of “yes” means that indigenous people have at least some level of the right.

Sources: RRI 2012; Chloe Ginsburg, personal communication, 2020.

In Peru, Article 23 (c) of Mining Procedures Regulation and Article 1 of Regulation on Easements for Mining Activities state that for mining companies to perform exploration and exploitation activities, they must obtain permission for the use of land by prior agreement with the landowner or the completion of the administrative easement procedure. The law allows indigenous peoples—organized as native or peasant communities—to lease all or part of their land if two-thirds of the members of the community are in agreement (Article 7, Law of the Development of Economic Activities on the Lands of the National Territory and Peasant and Native Communities, 1995).

In recent years, the Peruvian government has ushered in reforms designed to promote investments in mining projects. In 2015, for example, the government issued Regulations for Mining Procedures That Promote Investment Projects, which reformed the consultation process. The decree allowed miners to submit the minutes of meetings of the community board of directors through which the authorization of the use of community land can be granted (Article 3.1.1.C.III). It effectively shifted the authority to reach agreement with miners from the community (two-thirds of the members) to its leaders, weakening the protection granted to the overall community. The rule was challenged by indigenous and peasant organizations in courts and, in 2019, Peru's Supreme Court of Justice declared the Regulations for Mining Procedures That Promote Investment Projects illegal (CooperAcción 2015; Red Muqui 2019; Wayka 2019).

Mineral rights: In Brazil, Colombia, Ecuador, Guyana, and Peru, all mineral resources are the property of the state, including the minerals on and under indigenous lands (Table 4.4). In Bolivia, minerals are the property of the Bolivian people, but the government is responsible for their administration—mineral resources are “the property and direct, indivisible and imprescriptible domain of the Bolivian people” (Article 2.I, Constitution of Bolivia, 2007).⁴¹ In all six research countries, the government has authority over minerals and mining operations in the country,

including the authority to grant rights to third parties for the exploration, exploitation, and development of mineral resources.

In all research countries, indigenous peoples can exploit minerals on their land for subsistence, domestic, or customary purposes. In Brazil, Colombia, and Guyana, indigenous peoples do not need government authorization to do so. In a 2013 ruling, the Supreme Federal Court of Brazil established that indigenous peoples can only mine their land without seeking government permission as a way of cultural practice for subsistence purposes, but not for commercial purposes (Petition N° 3388 ED/RR, 2013).⁴² In the other three research countries—Bolivia, Ecuador, and Peru—however, government authorization is required for indigenous peoples to mine their land for domestic purposes.

In Colombia, the law defines subsistence mining as “the extraction and collection of river sands and gravels destined for the construction of clays, precious metals, and precious and semiprecious stones by manual means and tools, without the use of any type of mechanized equipment or machinery for its start-up.” (Article 2.2.5.1.5.3, Decree of the Administrative Sector of Mines, 2015). A mining contract is not required for such uses, but the indigenous people must register this activity with the local government. Indigenous peoples in Colombia, however, need a mining concession to mine for commercial purposes. In Guyana, indigenous peoples enjoy a “traditional mining privilege,” which allows them to conduct noncommercial (subsistence) mining (of any mineral) without a permit from the government (Article 2, Amerindian Act, 2006). Artisanal mining on indigenous lands only requires the consent of the village council. All mining not covered by the traditional mining privilege (e.g., commercial mining), however, requires a permit issued by the government (Section 52, Amerindian Act, 2006).

By law, commercial mining can take place on indigenous lands in Bolivia, Colombia, Ecuador, Guyana, and Peru, but requires government authorization. In Brazil, the 1988 Federal Constitution allows for mining on indigenous

lands but calls for enabling legislation, which has not been passed by the legislature, to first be enacted (Boxes 4.3 and 4.4). National laws in these five countries establish procedures for the acquisition of mineral rights for commercial exploration and exploitation granted by the government mining authority often in coordination with the environmental agency. For example, in Peru, the Geological, Mining, and Metallurgical Institute (Instituto Geológico, Minero, y Metalúrgico, INGEMMET), attached to the Ministry of Energy and Mines, is responsible for granting mining concessions to explore and exploit minerals over a determined area. A mining concession alone, however, does not authorize the miner to carry out mining activities as additional requirements must be met. Among these are an environmental certification issued by the environmental authority⁴³ and permission of the landowner for the use of land or authorization from the government (i.e., easement) (Mining Procedures Regulation, 1992).

Similarly, in Colombia, mining concession contracts grant the holder the right to explore and exploit mineral resources, but the start of exploitation operations also requires an environmental license issued by the environmental authority (Mining Code, 2001). In Ecuador, mining concessions grant the holder only the right to explore minerals. A separate contract and corresponding environmental licenses are required for mining exploitation.

In Colombia and Guyana, national law explicitly provides for indigenous peoples to conduct mining activities. In Bolivia, Ecuador, and Peru the law is silent on this matter but does not explicitly prohibit or restrict indigenous peoples from applying for mineral rights. In Bolivia, Ecuador, Guyana, and Peru, indigenous peoples must meet the same requirements as other parties applying for commercial mineral rights to mine their land.

Table 4.4 | Rights of Indigenous People to Mineral Resources in the Research Countries

INDICATORS	RIGHTS OF INDIGENOUS PEOPLE TO MINERAL RESOURCES					
	BOLIVIA	BRAZIL	COLOMBIA	ECUADOR	GUYANA	PERU
Are mineral resources the property of the state?	No	Yes	Yes	Yes	Yes	Yes
Do indigenous people need government authorization to mine their land for subsistence purposes?	Yes	No	No	Yes	No	Yes
Do indigenous people need government authorization to mine their land for commercial purposes?	Yes	N/A	Yes	Yes	Yes	Yes
Do indigenous people have the right of first refusal to exploit minerals on their land?	No	No*	Yes	No	No	No
Do indigenous people have simplified conditions to acquire mineral rights for commercial exploitation on their land?	No	No**	Yes	No	No	No

Notes: * However, Bill 191/2020 (and also Bill 1610/1996) proposes rules for the right of first refusal.

** However, Bill 191/2020 (also, Bill 1610/1996) proposes conditions to mining exploitation by indigenous people. They are not exactly simplified conditions given that simplifications are only applied for noncommercial purposes. Conditions for commercial mining exploitation are the same for indigenous and nonindigenous people.

Sources: RRI 2012; Chloe Ginsburg, personal communication, 2020.

In Colombia, however, indigenous peoples have simplified procedures to acquire the rights to commercially mine their land.

In Colombia, the law provides indigenous peoples the right of first refusal to exploit minerals on their lands for commercial purposes. As such, indigenous peoples must first refuse their right to exploit mineral resources on their lands before the government can grant the mineral rights to a third party (Box 4.5). The law does not provide indigenous peoples this right in the other five research countries. The Colombian Mining Code

states that “indigenous peoples and groups will have priority to obtain concessions by the mining authority on mining deposits located in an indigenous mining zone” (Article 124, Mining Code, 2001). The legislation also grants this right to Afro-Colombian peoples (Article 133, Mining Code, 2001). Under the right, indigenous peoples can only extract minerals from areas on their lands that the government has delineated. Such *indigenous mining zones* are areas that “comply with the special provisions on protection and participation of indigenous peoples and groups settled in these territories” (Article 122, Mining

BOX 4.3 | Mining Concessions on Indigenous Land in Brazil

While commercial mining on indigenous land is not allowed by Brazil's 1988 Federal Constitution before an enabling federal law is enacted, the National Mining Agency (Agência Nacional de Mineração, ANM), the Brazilian federal agency, which oversaw mining regulation and inspection under the Ministry of Mines and Energy, has registered mining applications and granted mining permits, even on demarcated indigenous land. (In December 2018, the ANM replaced the National Department of Mineral Production [Departamento Nacional de Produção Mineral, DNPM]). In the past 10 years, the ANM has registered 656 mining proposals that include segments of indigenous territories (André Lima, personal communication, 2020).^a

Recent legal opinions by the general attorneys of the federal government and the ANM state that all mining concessions granted by the DNPM after October 5, 1988 (the date of the constitution), on and within 10 km of indigenous land—whether formalized or held only under custom—are null and all new mining applications should be rejected (Legal Opinion N° 469/2015, 2015; Legal Opinion N° 01/2017, 2017). Government data, however, show 270 active mining concessions that overlap with indigenous land, including 237 concessions in exploration and 33 in exploitation. Of these 270 mining concessions, 198 are dated 1988 or later. The opinions are silent on the mining concessions that were granted on indigenous land prior to the new constitution. Seventy-two of the 270 mining concessions have a date before 1988; 75 concessions when including the three concessions dated 1988. The DNPM data only provide a year, not a specific month or day, associated with the concessions.*

Notes:

^a Agência Pública et al. 2020.

Source: WRI authors.

In the past, mining activities that encroached on indigenous land were suspended, but now many mining applications and permits are neither rejected nor authorized by the ANM (André Lima, personal communication, 2020). The ANM sometimes upholds permits granted before the demarcation of indigenous territories or before the 1988 Federal Constitution. Some of these permits are being challenged in court. In a recent challenge from the Federal Prosecutor's Office in Pará, the ANM said it does not consider the absence of relevant legal regulations to exclude the possibility of leaving such mining applications pending. In August 2019, however, the Federal Supreme Court in Amazonas ruled that the rights of indigenous people should prevail whether the land they have permanently occupied has been officially demarcated or not, and ordered that the ANM cancel or revoke any permit for extraction or development activities on indigenous land, including mining. It is unclear if the ANM will revoke all mining applications that overlap with indigenous land in other states.

** Of the 270 mining concessions, 164 predate the registration date of the indigenous territory. The remaining 106 concessions date after the registration date of the indigenous land and overlap with 48 registered indigenous territories with some lands having more than one overlapping concession.*

Code, 2001).⁴⁴ As such, the right is contingent on the indigenous peoples being formally recognized by the government as indigenous and their lands formally identified but not necessarily titled.

In Colombia, before the National Development Plan (2018–2022) Law (Law 1955 of 2019) was passed in May 2019, any party interested in mining, including indigenous peoples, had to meet the

same qualifications and requirements. The lack of technical expertise and financial resources of indigenous peoples hindered, delayed, or prevented them from being granted mineral rights (Jorge D. Sierra Sanabria, personal communication, 2020). Colombia's new law changes this. Article 326 of the National Development Plan (2018–2022) Law (Law 1955 of 2019) provides that the government will establish differentiated

BOX 4.4 | A Bill to Open Indigenous Land to Mining in Brazil

Based on the 1988 Federal Constitution of Brazil, mining is allowed on indigenous land only under conditions that must be established by law, which has not happened (Constitution, Article 176.1 and 231.3, 1988). Since 1995, however, the Brazilian government has tried to approve a law allowing mining (and other economic activities) on these lands. The attempts have so far been unsuccessful.

In 1995, Bill 1610/1996 to open indigenous land to mining and other commercial development was proposed by a senator from the state of Roraima and approved by the Senate in 1996. Several public hearings took place and a special commission to evaluate the bill was installed and dissolved several times. The bill was not passed into law and no progress has been made since 1996 (André Lima, personal communication, 2020).

In early 2020, a new bill—Bill 191/2020—was introduced to open indigenous land to mining, other extractive industries, and infrastructure. Bill 191/2020 defines the specific conditions for allowing mining on this land. Prior technical studies, hearings of affected indigenous peoples, and authorization from the National Congress are required for mining to be carried out on indigenous land. The bill also provides for the participation of affected indigenous peoples in the economic benefits of mining, granting them 50 percent of the revenue that is given to states and local governments for the exploitation of minerals. Compensation for indigenous communities affected by restrictions on the use of their lands is proposed in the bill (André Lima, personal communication, 2020).

Further, the bill provides indigenous people the right of first refusal as is the case in Colombia. It establishes a period of 180 days for affected indigenous communities to express interest

in carrying out low-scale mining directly or in partnership with nonindigenous people. If the indigenous people are not interested in doing so, they can express their opinion on the consent (or not) of mining activities by nonindigenous people. The bill is unclear whether this right involves a veto power for indigenous people to mining. In addition, FUNAI can restrict or prohibit mining activities in areas where it can affect isolated indigenous people (André Lima, personal communication, 2020).

Bill 191/20 also foresees the possibility of indigenous people conducting other commercial activities on their land, such as agriculture, livestock, timber extraction, and tourism. Approval from the National Congress would be needed to allow for hydroelectric plant constructions, as well as oil and gas exploration on indigenous land.

Since the new administration came into office in 2019, the number of mining applications on indigenous land in the Amazon has increased by 91 percent. This is the first year since 2013 that such requests have increased. The Kayapó Indigenous Territory has been targeted with the most requests, followed by the Sawré Muybu Indigenous Territory of the Munduruku people. Both territories are in the state of Pará.^a

Bill 191/20 has been challenged by indigenous groups and environmental organizations and is unpopular with the public (Agência Pública et al. 2020). Further, leaders in the National Congress have signaled that they are not in a hurry to move forward on his bill.^b

Notes:

^a Agência Pública et al. 2020.

^b Clavery and Matoso 2020; Londoño and Casado 2020.

requirements for the granting of mining concession contracts to indigenous peoples and Afro-Colombian communities. Similarly, the Ministry of Environment and Sustainable Development will establish the “differentiated terms of reference for the *preparation* of the environmental impact study required for the environmental licensing of these mining projects” (emphasis added as this will likely not reduce the safeguards). The differentiated procedures have yet to be established.

When a mining concession is approved for indigenous peoples, the Colombian government grants collective mineral rights to the indigenous community; mineral rights are not granted to individual members of the indigenous community (Articles 124, 125, and 133, Mining Code, 2001). Moreover, the National Development Plan (2018–2022) Law (Law 1955 of 2019) states that once a mining concession is granted to “ethnic peoples” the government will provide them comprehensive

BOX 4.5 | The Exercise of the Right of First Refusal by Indigenous People in Colombia

By the right of first refusal, the mining authority can preferentially grant indigenous people mining concessions in indigenous mining zones. The indigenous people do not need a land title to exercise this right, although the Ministry of Interior must certify that they are the holders or possessors of the indigenous mining zone established by the National Mining Agency (Agencia Nacional de Minería, ANM). If these requirements are not met, indigenous people can still request a mining concession opting for the regular procedure used by others to acquire commercial mineral rights.

Upon receiving a concession application from a third party to mine an indigenous mining zone, the ANM, through the Ministry of Interior, must inform the concerned indigenous people of the application within five days. The indigenous people have 30 days to decide whether they want to exercise their right of first refusal. If they do not respond in this period of time, the ANM will issue them a letter asking for a response and the indigenous people will have another 30 days to inform the ANM of their decision. If the indigenous people do not respond after the second month, it is determined that the indigenous people will not exercise their right of first refusal.

Source: WRI authors.

If indigenous people are interested in exercising their right of first refusal, they will need to comply with the requirements for mining concessions established by law. These requirements include submitting a notice of intent to the corresponding local government, department, and the environmental authority where the requested area is located; a description of the requested mining area; an indication of the mineral or minerals to be mined; an indication of the terms of reference and mining guides that will be applied in the exploration works and an estimate of the economic investment that will be made; submission of a map of the requested mining area; a commitment to carry out the technical exploration work, strictly subject to the environmental guidelines issued by the competent authority (Articles 217, 272, Mining Code, 2001). Indigenous people can also request assistance from the ANM if need be (Articles 271, 275, Mining Code, 2001, Procedure for Exercising the Right of First Refusal, 2013).



technical support and their mining activities will be subject to differentiated monitoring. These specific requirements have yet to be established. If the indigenous peoples exercise their rights of first refusal but cannot meet the requirements to be granted a mining concession on their lands, the government may grant the mineral rights to a third party.

Of note, the law allows indigenous peoples in Colombia to transfer part of their mining concession to third parties, with certain limits to avoid indiscriminate transfers. Currently, indigenous peoples can transfer up to 30 percent of their mining concession area to third parties for exploration and exploitation purposes (Jorge D. Sierra Sanabria, personal communication, 2020). New rules and limitations may be established in enabling regulations under the National Development Plan (2018–2022) Law (Law 1955 of 2019) that would modify the amount of concession area that may be transferred.

Consultation and consent rights: National laws in all six research countries establish social and environmental safeguards designed to protect the rights of indigenous peoples and conserve indigenous lands and natural resources, although the specifics vary by country.

Consultation. National laws in Bolivia, Brazil, Colombia, Ecuador, and Peru require the government to consult indigenous peoples whenever there are legislative or administrative measures or decisions that may affect them directly (Table 4.5). This right of consultation is consistent with ILO Convention 169, which calls for governments to “consult the peoples concerned, through appropriate procedures and in particular through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly” (Article 6, ILO Convention 169). In Guyana, the law does not specifically require community consultation for all legislative and administrative measures that may affect indigenous peoples directly, although community consultation is mandated to establish a protected area over non-titled indigenous lands [Section 58(2), Amerindian Act, 2006, Section 28(1)(f), Protected Areas Act, 2011].

A good-faith intercultural dialogue that ensures indigenous peoples participate in decision-making processes and the adoption of measures respectful of their collective rights is pivotal for a positive outcome (OPAN 2019). ILO Convention 169 states that “consultations carried out in application of this convention shall be undertaken, in good faith and in a form appropriate to the circumstances, with the objective of achieving agreement or consent to the proposed measures.” In Bolivia, Brazil, Colombia, Ecuador, and Peru the law provides that the objective of a consultation process is to reach an agreement or consent between the community and third party on mining or another consulted measure. To be clear, however, the Constitutional Court of Peru ruled in 2010 that the exercise of the right of prior consultation does not imply that indigenous peoples have a “veto power” over natural resource management decisions made by the government that might affect them (Dossier N° 0022-2009-PI/TC, 2010).

Table 4.5 | The Awarding and Exercise of Mineral Rights on Indigenous Land in the Research Countries

INDICATORS	AWARDING AND EXERCISING MINERAL RIGHTS					
	BOLIVIA	BRAZIL	COLOMBIA	ECUADOR	GUYANA	PERU
Do national laws recognize the right to consultation in favor of indigenous people?	Yes	Yes	Yes	Yes	Yes*	Yes
Do national laws recognize the right to consent in favor of indigenous people?	No	No	No	No	Yes**	No
Has the state incorporated ILO Convention 169 into its national legal system?	No	Yes	Yes	No	No	Yes
Does the law require indigenous people to be formally recognized as indigenous people to be consulted?	Yes	Yes	Yes	Yes	Yes	Yes
Does the law explicitly require indigenous people to have a land title to be consulted?	No	No	No	No	No***	No
Does the law allow the government to establish an easement on indigenous land for mining purposes?	No	N/A	Yes	No	Yes	No
Does the law allow the government to expropriate indigenous land?	No	No	No	No	Yes	No

Notes: * The right to consultation does not adhere to ILO Convention 169’s standards. Consultation is required to establish a protected area over non-titled indigenous land.
 ** The right to consent does not adhere to ILO Convention 169’s standards. While the law requires the consent of two-thirds of indigenous people for ASM, medium, and large operations, the government can override the refusal of consent and allow mining on indigenous land if it is considered in the public interest.
 *** A land title is required for the right to consent.
 Source: WRI authors.

Of the six research countries, Bolivia,⁴⁵ Brazil, Colombia, and Peru have ratified and incorporated ILO Convention 169 in their legal system through specific national legislation. Among other rights in the convention, these laws make clear that a free, prior, and informed consultation process provides access to information, participation, and dialogue between the government, miners, and indigenous peoples regarding any measures that may directly affect the people or their lands.

Ecuador has also ratified ILO Convention 169 but has not passed specific legislation on the range of rights in the convention. The Constitution of Ecuador does, however, establish the right of indigenous peoples to “free prior informed consultation, within a reasonable time, on plans and programs of prospection, exploitation and commercialization of non-renewable resources that are in their lands and that may affect them environmentally or culturally” (Article 57.7, Constitution of Ecuador, 2008). In addition, “any

decision or State authorization that may affect the environment must be consulted with the community, which will be informed widely and in a timely manner.” To underscore that consultation is not consent, “[t]he State will value the opinion of the community.” However, in case of community opposition, “the execution or not of the project will be adopted by duly motivated resolution of the corresponding authority” (Article 398, Constitution of Ecuador, 2008).

National and provincial courts in Ecuador have recognized the right to free, prior, and informed consultation. In 2018, the Provincial Court of Sucumbíos, a province in northeast Ecuador, ruled that several mining projects violated the right of prior consultation of the Cofán indigenous people of Sinangoe. The court also reaffirmed their rights to water, a healthy environment, and the right of nature.⁴⁶ It ordered that the mining concessions already in operation and those currently in the process of being granted be canceled, affecting

some 324 square kilometers. The court also ordered the reparation and/or remediation of the areas affected by mining (Cardona 2019). In April 2019, in Puyo, the capital of Pastaza province, the court found that the Ecuadorian government did not afford the Waorani indigenous people free, prior, and informed consultation before opening their lands to potential oil exploration. The three-judge panel ordered that the Waorani's lands could not be included in an oil auction (Riederer 2019).

Moreover, in 2012, the Inter-American Commission on Human Rights (IACHR) determined that the government of Ecuador had failed to implement the right to prior consultation according to international standards in the case of the Kichwa indigenous people of Sarayaku in the Amazon (Case of the Kichwa Indigenous People of Sarayaku v. Ecuador). For more than 20 years, the Kichwa had been fighting to defend their lands from oil activities. The IACHR ruled that the government violated, among other rights, the Kichwa's right to consultation.⁴⁷ Specifically, it found that in the 1990s, the state granted a permit to a private oil company to carry out exploration and exploitation activities in Kichwa territory without consulting them. With the permit, the oil company began its exploration phase, even introducing explosives in several places in indigenous lands.⁴⁸ The IACHR ordered the government to pass a regulation on the right to prior consultation of indigenous peoples (which has not been developed) and ordered the oil company to halt all oil activities on the Kichwa's lands.

In Bolivia, Brazil, Colombia, Ecuador, and Peru, indigenous peoples must be formally recognized by the government as indigenous to enjoy the right of consultation, although they are not required to have a title to their lands (see below for Guyana). In Colombia, the law explicitly provides that free, prior, and informed consultation must be carried out with indigenous peoples whether their lands are titled or not. Prior consultation must be carried out when a project, work, or activity will be developed on titled indigenous lands and "in areas not titled and inhabited on a regular and permanent basis" by indigenous peoples or Afro-Colombians (Article 2, Law that Approves the ILO

Convention 169). In 2011, the Constitutional Court of Colombia confirmed that prior consultation must be conducted before mining exploration activities are carried out (Decision N° T-129/11, 2011).

The national laws in Bolivia, Brazil, Ecuador, and Peru are silent on whether indigenous peoples must have a title to enjoy their consultation rights, but based on ILO Convention 169 (which the states have ratified), indigenous lands or territories "cover the total environment of the areas which the peoples concerned occupy or otherwise use." In Ecuador, in October 2018, the Provincial Court of Sucumbíos established that the right to consultation of the Cofan de Sinangoe indigenous people was violated when the government granted 32,000 hectares in mining concessions in the area of the headwaters of the Aguarico River, where the Cofanes and Chingual Rivers meet, without consultation. The court ruled in favor of Cofan de Sinangoe community even though they did not have a title to their lands (REPAM 2018; Mongabay 2019). In Ecuador, decisions of provisional courts are nationally binding.

In Bolivia, Law 1257 that approved ILO Convention 169 and Articles 30 (Item 15) and 403 of the constitution in conjunction with Article 207 of the Mining Law guarantee the right to free, prior, and informed consultation for indigenous peoples, intercultural people, and Afro-Bolivian people. Prior consultation must be conducted when a mining contract for exploitation is likely to directly affect their lands. Prospecting and exploration do not require prior consultation. Indigenous peoples (as well as intercultural people and Afro-Bolivian people), however, must have a government-issued certificate that confirms them as members of a recognized indigenous group to in order exercise their right to prior consultation (Article 30, Regulation of Granting and Extinction of Mining Rights, 2015).

Consent. For indigenous peoples, the claims of sovereignty over their traditional lands and self-determination includes the right to provide (or withhold) their free, prior, and informed consent (FPIC) to activities that may impact them (Hunter et al. 2015). At the international level, the right of



FPIC is recognized under UNDRIP Article 19, which affirms that “States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them,” and Article 32, which adds that “prior to the approval of any project affecting indigenous lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.” ILO Convention 169 provides for FPIC, but only when relocation of indigenous peoples is considered necessary as an exceptional measure. Relocation shall take place even if consent cannot be obtained, but only if appropriate legal procedures that provide for indigenous peoples’ effective representation are followed (Article 16, ILO Convention 169, 1989).

While no research country recognizes FPIC as provided in UNDRIP, the law in Guyana provides for a limited right of consent. By law, indigenous peoples must be recognized by the government as indigenous, and they must have a land title to

exercise the right of consent. In Guyana, miners, including ASM and large-scale operators, interested in mining indigenous titled lands must “obtain the consent of at least two-thirds of those present and entitled to vote at a Village general meeting” before beginning operations (Article 48[g], Amerindian Act, 2006). This right applies to all mining (non-petroleum) and forestry on indigenous titled lands from 2006 onwards, when the Amerindian Act was passed. For large-scale mining, however, the minister of indigenous peoples’ affairs and the minister of natural resources can override refusal of consent and allow mining on indigenous lands if it is considered in the public interest. This authority to override a refusal of consent is not consistent with UNDRIP.

Easements. When mining on indigenous lands, miners often seek the use of some additional indigenous land to conduct their operations. Land may be needed for the mine site, as well as for offices, housing, and storage facilities for mining equipment and material. In Colombia and Guyana, the government may establish an easement on indigenous lands to enable miners to develop their exploration and exploitation activities. Colombia’s

national laws provide that infrastructure of national interest can only be developed with prior agreement of affected community authorities, issuance of an environmental license, and establishment of compensation measures, if needed (Article 23, Regulation on Titling of Indigenous Peoples' Lands, 1995). By law, mining is an activity of public utility and social interest, allowing government to expropriate certain lands, although not indigenous lands. The government may, however, establish an easement, including on indigenous lands, for the period of mineral exploitation.

In Bolivia, Brazil, and Peru, the law prohibits the government from establishing an easement on indigenous lands (Table 4.5). In Peru, the law provides that mining easements cannot be established on lands in possession or property of the peasant and native peoples; lands and territories of indigenous or native peoples; reserves for indigenous or native peoples in a situation of isolation or initial contact; and protected natural areas (Article 4.2, Regulation of the Investment Promotion Law for Economic Growth and Sustainable Development, 2016).

In Ecuador, national regulations provide that the government may establish easements for mining purposes after the mining concessions have been

granted and land is needed for facilities and other mining operation. Authorization of the landowner is not required for the government to establish an easement for mining (Articles 100 and 103 of Mining Law, 2009, Rules for the Establishment of Mining Easements, 2015; Borja Calisto 2019). National courts, however, have stated that easements cannot be established on all types of lands. A court decision from 2010 made clear that easement rules apply only to lands that are not considered indigenous (Decision N° 001-10-SIN-CC, 2010).

Benefits. While there are costs for indigenous peoples when mining activities take place on their lands, there are also potential benefits. When indigenous peoples mine their land, the benefits could include a new occupation and form of livelihood as well as a new source of income for the indigenous miners and the community. The revenue can be used, for example, to pay school fees, purchase household goods, build a health dispensary, purchase solar panels for electricity, or establish a potable water system. When external actors mine indigenous lands, benefits to indigenous peoples may include employment for community members, a share of the mining revenue, and improvement of community services, such as a primary school or new road.



National laws in all six research countries mandate some form of benefit sharing with indigenous peoples when third parties mine their land. In Colombia, the law provides—among other benefits—that miners operating on indigenous lands should involve the community in its works and train its members (Article 128, Mining Code, 2001). In Peru, national laws require the miner to make a prior commitment through a sworn declaration to, among other matters, give preference to hiring local personnel to carry out mining activities and provide training that may be required (Article 17.1.i.e, Mining Procedures Regulation, 1992).

In Guyana, the law provides that after indigenous peoples give their consent to mining on their land, the miner and community should prepare and sign a written agreement on negotiated mining company commitments, such as offer of employment to residents at market rates and purchase of all competitively priced food and materials from the village. Additional requirements may include a protocol that regulates the behavior of the miners and other employees, including restrictions on the consumption of alcohol, a waste disposal plan, a mechanism to assess and pay compensation, a health program, and an employee education program (Article 49, Amerindian Act, 2006). If no agreement is reached, the minister of indigenous peoples' affairs will enter into an agreement with the mining company on behalf of the affected indigenous people (Article 50, Amerindian Act, 2006).

In some countries, regulations explicitly provide that indigenous peoples must benefit economically from mining projects on their land. In Ecuador, the Mining Law states that “60% of the royalty of the mining projects [is] to be allocated for productive projects and sustainable local development” and that “when necessary, 50% of this percentage to [be allocated for] the entities of government of the indigenous peoples.” These resources are to be distributed prioritizing the needs of the indigenous peoples who are directly affected by the mining activity (Article 93, Mining Law, 2009).

Protection. Mining is inherently damaging to the environment. It brings risks to health and local well-being. To mitigate the damage and risks, national laws in all six research countries require ASM miners, including indigenous peoples, and mining companies to minimize the impacts of their operations on the environment and natural resources, whether mining on indigenous lands or other lands. Such safeguards are often codified in laws governing minerals and mining, the environment and natural resources, and indigenous peoples' rights and lands. The laws in the research countries address a range of critical environmental issues and establish minimum environmental standards. Some environmental issues, however, are not addressed in law, and some minimum standards do not rise to the level of international law or norms.

While many indigenous peoples do not mine their land for commercial purposes and do not want external actors to mine their land, some indigenous peoples are engaged in mining as an economic activity (see Guyana Case Study). Such mining could be ASM conducted by the indigenous peoples or in partnership with external actors through, for example, a partnership with a mining company.

In Guyana, the Amerindian Act provides that when mining activities take place on indigenous lands, miners must take all reasonable steps to avoid damaging the environment, polluting surface and groundwater, damaging or disrupting the flora and fauna, and interfering with local agriculture (Article 49, Amerindian Act, 2006). In Bolivia, the law states that miners must conduct their mining activities in ways that prevent environmental pollution and control for the generation of waste, dust, and noise (Article 95, Environmental Regulation for Mining Activities, 1997). In Peru, miners must “comply with the environmental legislation applicable to its operations, the obligations derived from environmental studies, licenses, authorizations and permits approved by the competent authorities, as well as any other commitment” (Article 18.a, Regulation of Protection and Environmental Management for Exploitation Activities, 2014).

In all six research countries, Environmental Impact Assessments (EIA) are required of projects that may significantly affect the environment, including large-scale mining operations. EIAs are the process of examining the anticipated environmental effects of a proposed project (Ireland EPA 2020). They are designed to identify, prevent, correct, minimize, and mitigate the mining project's potential risks and impacts and, if that is not possible, to compensate for the damage caused. EIAs help the mining entity, government, and public understand the potential impacts of mining operations. The associated environmental management plan helps ensure that the mining projects will be conducted in accordance with environmental safeguards and without causing avoidable negative environmental impacts.

The magnitude of the environmental impacts from mining operations determines whether an EIA must be prepared. In Peru, a detailed EIA report is required for mining activities with *significant* negative environmental impacts, while a less detailed EIA report is needed for *moderate* negative environmental impacts (Article 4, Regulation of Protection and Environmental Management for Exploitation Activities, 2014). Mining operations with minimal environmental impacts only need an Environmental Impact Declaration (Declaración de Impacto Ambiental, DIA) (Articles 45, 46, Environmental Protection Regulations for Mining Exploration Activities, 2017). Detailed EIAs are approved by the environmental authority, while the semi-detailed EIAs and DIAs are approved by the mining authority.

In all six research countries, mining is prohibited on certain lands. In Ecuador, for example, the extraction of nonrenewable resources (e.g., minerals, oil, and natural gas) is forbidden in protected areas and areas declared “intangible” (“untouchable”), which may include some indigenous lands. Exceptions can be made at the request of the president with prior declaration of national interest by the National Assembly. If deemed appropriate, the National Assembly can call a public consultation on this matter (Article 407, Constitution of Ecuador, 2008). In Bolivia, mining is prohibited “in the vicinity of basin headwaters,

lakes, rivers, slopes and reservoirs.” The restrictions will be subject to Environmental Studies with a multisectoral approach (Article 93 III, Mining Law).

In Colombia, mining exploration and exploitation activities may not be carried out in areas delimited for the protection of the environment or renewable natural resources, such as national natural parks, regional parks, protected forest reserve areas, and wetlands (Article 34, Mining Code, 2001). In Bolivia, national laws do not identify any specific areas where mining is prohibited, but decrees have established protected areas with such prohibitions. To protect their lands from mining, some indigenous peoples have had the government declare their land a protected area (see Colombia Case Study).

In all six research countries, governments are by law responsible for monitoring and overseeing mining companies to ensure their operations are conducted in accordance with the law, that they are meeting their social and environmental commitments, and that they mitigate and compensate for any environmental damage or other losses caused by their activities. In Bolivia, for example, municipal governments are responsible for controlling and monitoring the environmental impact of mining activities (Article 3, Environmental Regulation for Mining Activities, 1997).

In all research countries, miners are—by national law or concession agreement—also responsible for monitoring their operations to avoid environmental damage. In Peru, miners are required to monitor and control their operations to verify compliance with their commitments and with the corresponding minimum environmental standards established in law (Article 18.b, Regulation of Protection and Environmental Management for Exploitation Activities, 2014).

In all six research countries, the government has the authority to arrest, detain, and punish miners for operating illegally. In Brazil, the National Mining Agency (Agencia Nacional de Mineração, ANM) has the authority for “seizure and auctioning of mineral substances and equipment

found or coming from illegal mining.” (Article 13.V creates the ANM, 2017). The Brazilian Institute of Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis, IBAMA), the Federal Police, and FUNAI have the power to act in cases of illegal mining within indigenous lands, with the power to seize material and suspend activities in addition to imposing fines on the companies or people involved. Given that mining is not currently allowed on indigenous lands, conducting exploration and exploitation of mineral resources in that land can be punished with a six-month to one-year detention and a fine (Article 55, Environmental Crimes Law, 1998).

In Ecuador, the Mining Law provides that “illegal exploitation or clandestine trade of mineral substances, qualified by the administrative authority, will be sanctioned with the confiscation of the machinery, equipment and products subject to illegality and the collection of a value equivalent to the total of minerals extracted illegally, without prejudice to criminal actions arising from these infractions. Sanctions will be applied to all mining subjects” (Article 57, Mining Law, 2009). Environmental impacts and damages to ecosystems and biodiversity as a result of illegal exploitation or invasions are considered aggravating factors when sanctions are determined (Article 57.7, Constitution of Ecuador, 2008).

When mining activities damage the environment, including on indigenous lands, the government in all six research countries has the authority to impose fines on the miner and mandate compensating measures for the affected indigenous peoples. In Ecuador, the law establishes that indigenous peoples will “receive compensation for the social, cultural and environmental damages caused to them” (Article 57.7, Constitution of Ecuador, 2008). In Guyana, the law provides that mining operations shall pay “fair and reasonable compensation” for damages “to the holder of any right, title or interest in or over that parcel of land in accordance with his right, title or interest” (Section 84, Mining Law).

Finally, Bolivia, Colombia, Ecuador, and Peru are members of the Andean Community (Comunidad Andina, CAN), an intergovernmental organization created to promote the expansion of markets and guarantee effective economic development in the region. (Venezuela is a former full member and Brazil is an associate member). In 2012, CAN adopted the Policy to Combat Illegal Mining (Andean Decision N° 774, 2012). The policy calls for the forfeiture or seizure of goods, machinery and their parts, and equipment and supplies used for the development of illegal mining, as well as the destruction, immobilization, uselessness or demolition of goods, machinery, equipment and supplies, when their confiscation or transfer is not viable.





CASE STUDIES

This section provides brief summaries of the six case studies of mining on indigenous lands in the research countries. Each case study summary includes the findings of literature reviews, and a geospatial analysis of mining and forest cover change on the indigenous lands.

Bolivia: Isiboro Sécure Indigenous Territory and National Park

This case study highlights the importance of strategic alliances among different indigenous peoples to effect change. In Bolivia, the Mojeño, Yuracaré, and Chimán indigenous peoples joined efforts to effectively press the government to suspend the construction of a road that would cause environmental damage and open their lands to unwelcome development, including mining. The construction of the road remains on hold.

BOX 5.1 | Overview and Principal Findings: Isiboro Sécure Indigenous Territory and National Park

- In May 2011, the Bolivian government approved financing by the Brazilian National Bank for Economic and Social Development (Banco Nacional de Desenvolvimento Econômico e Social, BNDES) for the construction of the Villa Tunari–San Ignacio de Moxos Highway through the Isiboro Sécure Indigenous Territory and National Park (Tipnis).
- The Mojeño, Yuracaré, and Chimán indigenous peoples of Tipnis participated in several marches and protests. Their efforts paid off when, in October 2011, Tipnis was, by law, declared an “untouchable” area halting the construction of the road and stopping all industrial development, including mining.
- In April 2013, Bolivia’s president announced that the road would continue to be on hold for a three-year period until extreme poverty in Tipnis was eliminated.
- In August 2017, a new law was passed that annulled the “intangibility” status of Tipnis and reopened the possibility of the road being built. Given the ongoing controversies over the road, however, the government again decided to put the project on hold.
- Nearly 3,800 hectares of forest cover in the indigenous lands, roughly 0.8 percent of its total area, were lost between 2000 and 2015. This contrasts sharply with the significant forest loss immediately outside Tipnis, especially on the southern border of the indigenous lands.

Sources: WRI authors.

The Isiboro Sécure Indigenous Territory and National Park, also referred to as Tipnis, is located between Chapare Province (Cochabamba Department) and Moxos Province (Beni Department) in central Bolivia’s Amazon region. Tipnis was established as a national park in 1965 (Law Decree N° 07401) and covered 1,091,656 ha.⁴⁹ The national park is one of the most biologically diverse areas in the world and is home to the Mojeño, Yuracaré, and Chimán indigenous peoples. In 1990, Tipnis was also formally recognized by decree as an indigenous territory (SERNAP 2020). As a national park, the land and natural resources must be used and managed in ways that are consistent with the conservation objectives of the protected area.

In August and September 1990, indigenous peoples from Beni Department in the northeast (Bolivia’s second-largest department) marched from Trinidad, the capital of Beni, to La Paz, Bolivia’s capital. The “March for the Territory and Dignity” aimed to make the government aware of the needs of the indigenous peoples in lowland Bolivia. Indigenous peoples from Tipnis and those from other parts of the country joined the march. The march was a seminal moment for elevating indigenous issues in the country and led to several changes.⁵⁰ Following the march, Tipnis was expanded to incorporate the entire lands of the Mojeño, Yuracaré, and Chimán indigenous peoples (Supreme Decree N° 22610). Then in 1997, Tipnis was legally established as an indigenous reserve that recognizes the land as the collective property of the indigenous peoples (Community Land of Origin) (SERNAP 2020). Through the Regulation of Supreme Decree N° 22610, Tipnis was declared an inalienable, imprescriptible, unattachable, and indivisible area.

On May 7, 2011, however, the Bolivian government approved a project with funds from the Brazilian National Bank for Economic and Social Development (Banco Nacional de Desenvolvimento Econômico e Social, BNDES) for the construction of the Villa Tunari–San Ignacio de Moxos Highway (Law N° 112).⁵¹ The 360-km road would connect

the Departments of Cochabamba and Beni and be constructed in three sections. The second section of the road would cross Tipnis and divide the national park and indigenous territory in two (Achtenburg 2017).⁵²

According to the government, the road would integrate the country's two regional centers and improve the lives of the people living there by bringing development to this remote part of the Bolivian Amazon. The main indigenous bodies and trade union organizations in western Bolivia supported the road, saying it would benefit the integration of the country and help fight poverty.

The road, however, was opposed by many lowland Amazonian indigenous peoples, including those living in Tipnis. They denounced the road, arguing it would destroy the Tipnis ecosystem and open it up to mining, logging, and other natural resource exploitation. Their position recognized the established synergies between infrastructure and extractive resources. In their effort to stop the construction of the road through their lands, the Tipnis indigenous people were taking a preemptive measure to protect their lands from mining, logging, and other unwelcome developments. In 2011, the Bolivian Institute for Strategic Research (Fundación para la Investigación Estratégica en Bolivia, PIEB) found that the road would increase access to the territory for illegal loggers, farmers, and others, accelerating deforestation. Specifically, PIEB found that the construction of the road would cause deforestation of 64 percent of Tipnis within 15 years (PIEB 2011; Tipnis Bolivia 2012, 2019; Collins 2017).

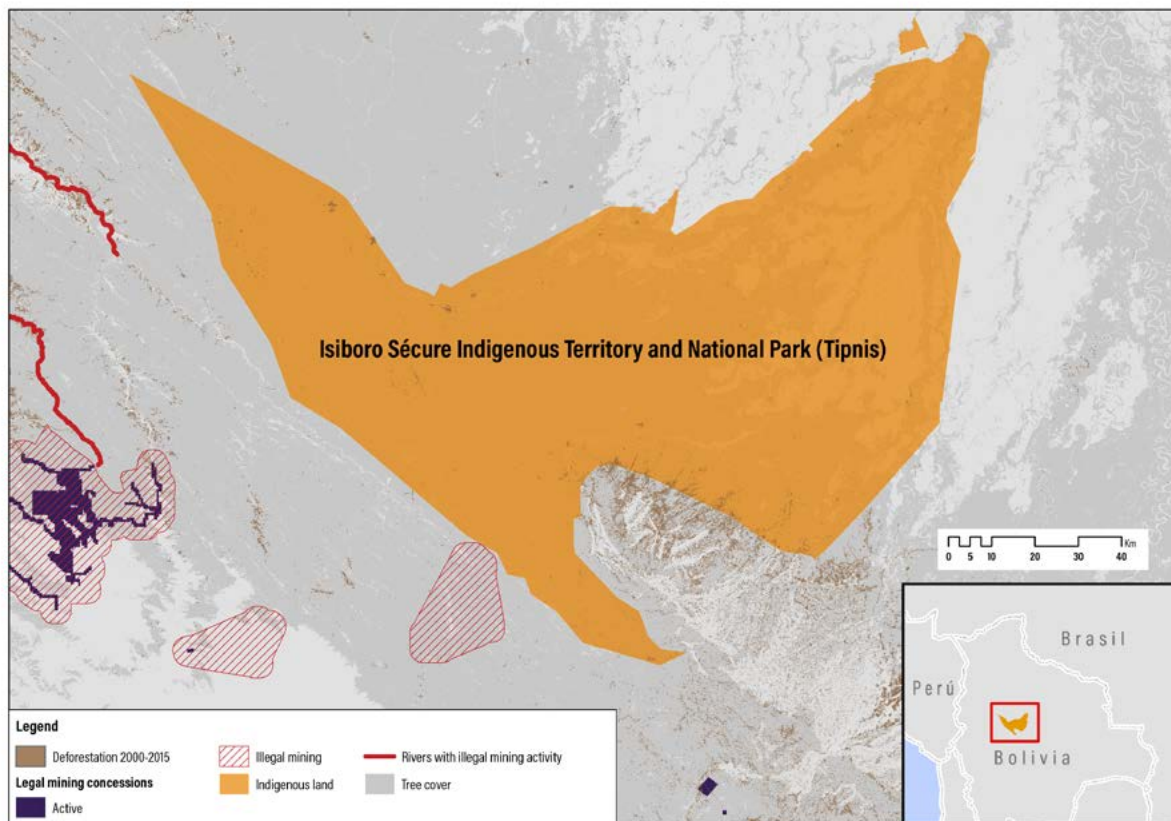
On August 15, 2011, Tipnis' indigenous people joined another march of more than 500 mostly indigenous people from Trinidad to La Paz demanding that the government halt the construction of the second section of the road. The march and other collective actions opposing the road were organized by the Confederation of Indigenous Peoples of the Bolivian East (Confederación de Pueblos Indígenas del Oriente Boliviano, CIDOB), as well as other NGOs, former senior government officials, opposition politicians

from the region, and other concerned citizens (Delgado 2017). During the march, other social sectors of the eastern region that traditionally shied away from the indigenous movement also expressed their opposition to the road (Canelas and Errejón 2012).

The government sought to promote dialogue, but opposition to the road construction grew and the protests turned violent. More than 100 indigenous people were attacked and beaten by the police. These beatings came to be known as the "Chaparina Massacre." Toward the end of October 2011, the government reached an agreement with representatives of indigenous communities. A new law was enacted which declared Tipnis an "intangible" (untouchable) area. This designation meant that settlements and *de facto* occupations of persons from outside the indigenous territory were prohibited in the area (Law N° 180). Mining, industrial agriculture, and other developments were also prohibited. Further, the new law established that the Villa Tunari–San Ignacio de Moxos Highway and any other proposed roads, could not cross Tipnis. As a result, road construction was suspended.

In April 2013, in the run-up to the 2014 presidential election, the president announced that the road would continue to be on hold for an estimated three-year period until extreme poverty in Tipnis was eliminated. But in August 2017, a new law was passed that annulled the "intangibility" status of Tipnis and again opened the possibility for the road to be built (Law 969). According to the government, the primary beneficiaries of the new law would be the Tipnis indigenous people, whose basic service and infrastructure needs could not be met if the area remained "intangible." Indigenous Tipnis leaders, environmental activists, and allied civil society organizations, however, argued that only a few indigenous people living near the proposed road would benefit from the services. Most indigenous people lived in remote river villages, located "two days by water or three days by trek" from the proposed road (Achtenburg 2017; Telma 2017a, 2017b).

Figure 5.1 | Deforestation (2000–15) and Legal and Illegal Mining Areas in the Vicinity of the Isiboro Sécore Indigenous Territory and National Park (Tipnis)



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

The government stated that it had reached out to 69 Tipnis indigenous villages and that 58 villages consulted with them over the road. It claimed that 57 of the 58 consulted villages asked it to repeal Law N° 180, and that 55 of the villages supported the construction of the road (*Opinión* 2017). The consultation process, however, has been widely criticized by opponents of the road and by national and international observers. Even the government’s human rights ombudsman concluded that the process failed to allow for free and informed consultation (FIDH and APDHB 2013). Given the controversies, the government decided again to put the project on hold.

In the indigenous lands, nearly 3,800 ha of forest cover was lost from 2000 to 2015, roughly 0.8 percent of its total area, with the vast majority of the loss occurring along the territory’s southern border (Figure 5.1). Other parts of the territory saw little forest loss. Legal and illegal mining is taking place near Tipnis lands, especially on its western border. There has been considerable forest loss immediately outside Tipnis from 2000 to 2015, especially on its southern border. This forest loss appears to be linked to agriculture and/or logging. The forest loss just outside Tipnis is not just an indication of the pressure on the indigenous land and national park but of the effectiveness of the measures used by the indigenous people to protect their lands from these pressures of deforestation.

Brazil: Yanomami Park

This case study highlights the extent of illegal mining in some indigenous lands in the Amazon. Despite considerable efforts by the Yanomami and Ye'kwana indigenous peoples, which have put their lives at risk, illegal mining is widespread on their lands. To date, government efforts have also failed to halt illegal miners from entering and conducting operations in the Yanomami territory. In recent years, the number of illegal miners has increased, and the operations have become more sophisticated.

The Yanomami are the largest indigenous group in South America, living in northern Brazil and southern Venezuela (Plummer 2015; Survival International 2019, 2020).⁵³ In Brazil, the Yanomami, together with the Ye'kwana indigenous people, live on 9,665,000 ha of land in the states of Roraima and Amazonas with a perimeter of 3,370 km (Decree of May 25, 1992), an area that is twice the size of Switzerland (Figure 5.2). The Yanomami territory extends into Venezuela, and the Yanomami and Ye'kwana peoples have been caught in the middle of escalating tensions between Brazil and Venezuela.⁵⁴ Approximately 35,000 Yanomami and Ye'kwana live in around 250 to 300 villages, some of which are uncontacted⁵⁵ and are particularly vulnerable to the impacts of mining and other developments.

A gold rush in the late 1980s and early 1990s brought approximately 40,000 illegal miners (*garimpeiros*) onto Yanomami lands. This influx of miners led to an increase in conflict and violence, the spread of diseases such as malaria, and poisonings from the use of mercury in gold mining. These and other factors led to a 20 percent decline in the Brazilian Yanomami population (Survival International 2020).

On May 25, 1992, following national and international campaigns denouncing the illegal miners, the government of Brazil demarcated the Yanomami lands as Yanomami Park (Decree of May 25, 1992).⁵⁶ Many illegal miners and other outsiders were evicted from the territory by the army, police, and FUNAI. In 1993, however, a group of illegal miners entered the village of Haximú in the

BOX 5.2 | Overview and Principal Findings: Yanomami Indigenous Land

- Mining is not legally possible on indigenous lands in Brazil. However, there are today perhaps 20,000 illegal miners operating on Yanomami lands.
- The Yanomami and their supporters have led national campaigns, called for international media attention, and received support from NGOs, but these efforts have not halted illegal mining on their lands.
- The government is responsible for monitoring and overseeing mining but, to date, has not curtailed illegal mining on Yanomami lands.
- Inactive mining concessions and illegal mining areas overlap with about 55 percent of the indigenous lands.
- Over the 15-year period from 2000 to 2015 about 7,000 ha of forest cover were lost in the Yanomami lands, a significant amount although a relatively small percentage (0.07 percent) of the large Yanomami territory. While some of this loss may be linked to agricultural or forestry activities, much of the forest loss is likely associated with the illegal mining operations.
- Outside the Yanomami territory, there was significant forest loss between 2000 and 2015, especially to the east but also on the southern border.

Sources: WRI authors.

Yanomami territory and murdered 16 Yanomami. The police arrested several people, and the Brazilian courts found five miners guilty of genocide (FUNAI 2019; Survival International 2020).

To protect the Yanomami territory from illegal miners, the army established four monitoring bases—Base of Ethno-environmental Protection (Bases de Proteção Etnoambiental, BAPE)—on site and along the territory's largest rivers, the Mucajaí and Uraricoera, the main entrances to the territory (ISA 2019). It also posted warning signs along the territory boundary.

The bases discouraged some illegal miners from entering the territory. Thousands of illegal miners, however, continued operating in the Yanomami

territory, cutting down forests, polluting rivers, and putting indigenous lives at risk (Branford 2019b). Between 2008 and 2012, the Yanomami as well as local and international organizations continued to protest the illegal invasion of their lands by gold miners and request the government to evict the miners (Survival International 2008, 2010, 2012).

Illegal mining was underway in many parts of the Yanomami's lands, and inactive large-scale mining concessions overlapped with much of the Yanomami territory. Today, there are perhaps 534 mining concessions that overlap with the Yanomami's lands (ISA 2019) although no mining concession is labeled as active by the government. The mining concessions and illegal mining areas overlap with about 55 percent of the indigenous lands (Figure 5.2). Over the 15-year period from 2000 to 2015 about 7,000 ha of forest cover was lost in the Yanomami territory, a significant amount although a relatively small percentage (0.07 percent) of the large Yanomami territory. While some of this loss may be linked to agricultural or logging activities, much of the forest loss is likely associated with the illegal mining operations. Outside the Yanomami territory, there was significant forest loss between 2000 and 2015, especially to the east but also on the southern border (Figure 5.2).

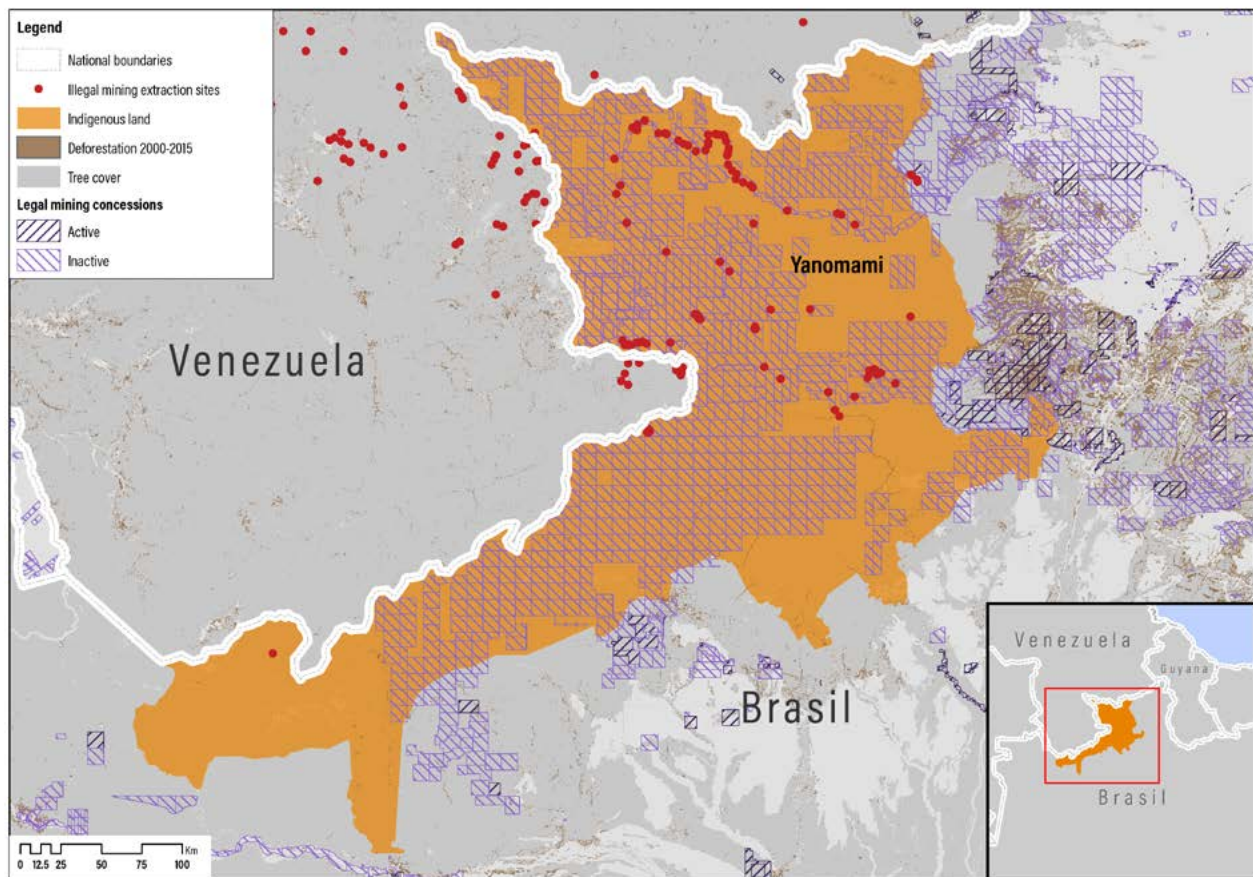
By the end of 2018, three of the four monitoring bases were closed. The government attributed these closures to budget constraints. The closures resulted in another influx of illegal miners (ISA 2019). Today, according to Yanomami leader Davi Kopenawa, about 20,000 illegal gold miners work three open-pit gold mines in the Yanomami territory (Branford 2019b; Survival International 2019). Many of the illegal miners are not typical ASM operations but rather well-financed, sophisticated operators. These miners are backed by entrepreneurs who pay them, give them shares of production, and equip them with dredges, heavy earth-moving equipment, as well as airplanes to bring supplies in and take the gold out. The miners have built three airstrips and have even set up a village in the Yanomami territory (Branford 2019b).

Between 2017 and 2019, another 1,174 ha of forest were lost due to gold mining in the Yanomami territory, with deforestation reaching about 500 ha in 2019 (Finer and Mamani 2020). And between October 2018 and March 2020, a total of 1,926 ha of forest was degraded by illegal mining (ISA 2020). In a recent survey, forest loss in the Yanomami territory ranked tenth among all indigenous lands in Brazil (ISA 2019). The miners are polluting the rivers with mercury and silt, eroding the riverbanks, cutting down the forest, scaring away the animals that the Yanomami hunt, and destroying fish stocks. They are also inciting indigenous women into prostitution and spreading diseases. Recently, the government expelled the missionaries and medical teams that were providing services to the Yanomami. The presence of the miners in the Yanomami territory has also again increased conflicts (Branford 2019b).

Despite the Yanomami's pleas to stop the exploitation of their lands, the government has not expelled the illegal miners from their territory (Branford 2019b). FUNAI's budget has been cut, making it difficult from a human and financial resource perspective to stop illegal mining in the Yanomami territory and, more generally, to enforce the range of laws designed to safeguard indigenous peoples and protect indigenous lands.

On July 3, 2020, however, the Regional Federal Court for the First Region (Tribunal Regional Federal da 1ª Região, TRF1), one of the most powerful judicial bodies in Brazil, ruled that the government's ministries of defense, justice, and environment must draw up within five days a comprehensive emergency plan to stop the spread of COVID-19 into the Yanomami Park and remove the 20,000 invading miners. The judge further decreed that the administration must effectively monitor the park's boundaries once the miners are evicted. The emergency measures must be implemented within a 10-day period following the announcement of the plan (Branford 2020). It is unclear whether the plan has been developed and implemented.

Figure 5.2 | Map of the Yanomami Park Showing Areas of Legal and Illegal Mining and Deforestation between 2000 and 2015



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

In May 2019, in compliance with national court mandates and acknowledging that illegal mining has damaged the region’s ecosystem as well as the life and integrity of the Yanomami, Yek’wana, and isolated peoples who live in the Yanomami Park, FUNAI announced the reopening of the monitoring bases in 2020 (it was not possible to confirm whether the bases have been actually reactivated). The bases are considered a first step to stopping illegal mining in the Yanomami territory—a way of blocking river access for illegal gold mining. Additional actions by the army, Federal Police,

Roraima Public Security Secretariat, IBAMA, and the Federal Prosecutor’s Office would likely be needed to halt illegal mining in the Yanomami territory (FUNAI 2019; Pontes 2019).

Colombia: Yaigojé Apaporis National Natural Park

This case study shows the extreme measures that some indigenous peoples will take to protect their lands from mining. The Yaigojé Apaporis Reserve was a formally recognized indigenous territory, but

when a mining company requested a concession on the indigenous lands, the Yaigojé Apaporis people requested the government establish the reserve as a national natural park where mining is prohibited. In doing so, the indigenous people forfeited some of their land use and management rights.

The original Yaigojé Apaporis Reserve is located in the lower Apaporis River basin in the Departments of Amazonas and Vaupés in southern Colombia. The reserve was declared an indigenous territory in 1988 and encompassed 518,320 ha (Resolution 035 of 1988). Ten years later, in 1998, the then Colombian Institute of Agrarian Reform (Instituto Colombiano de la Reforma Agraria, INCORA) doubled the size of the reserve to 1,020,320 ha (Resolution 006 of May 11, 1998).

Based on Decree 1088 of 1993, the Yaigojé Apaporis indigenous people are governed by two traditional authorities—the Association of Indigenous Captains of Yaigojé–Apaporis (ACIYA) and the Association of Indigenous Captains of Yaigojé Apaporis Vaupés (ACIYAVA).⁵⁷ The ACIYA and ACIYAVA represent the 19 indigenous communities—about 1,600 people—that live in the reserve. The community members are from several ethnic groups, including Tanimuca, Letuama, Macuna, Yauna, Yujup, Cabillari, Gente de Día, Tuyuca, Majiña, and Gente de Leña.

In 2007, Cosigo requested a gold mining concession from the Colombian government in the La Libertad mountain range within the Yaigojé Apaporis Reserve. Yuisi, a waterfall—among the most sacred sites for the indigenous peoples of the region—is within the proposed concession area.

BOX 5.3 | Overview and Principal Findings: Yaigojé Apaporis National Natural Park

- By law, mining is not allowed in national natural parks in Colombia.
- In 2007, Cosigo Resources Ltd. (hereafter Cosigo), a Canadian mining company, sought a gold mining concession within the Yaigojé Apaporis Reserve.
- In response, the Yaigojé Apaporis indigenous people asked the government to declare their lands a national natural park. In 2009, the Yaigojé Apaporis National Natural Park was established.
- Two days after the national natural park was established, the government's Department of Mining Services granted a mining concession to Cosigo inside the park. The concession was quickly terminated after the National Parks Unit demanded its cancellation in compliance with the law.
- Several lawsuits by Cosigo followed and, in 2015, the Constitutional Court of Colombia ordered the suspension of all mining exploration and exploitation activities in the park.
- There has been limited forest loss in the Yaigojé Apaporis National Natural Park before and after the park was established. In the 15-year period from 2000 to 2015, the nearly 1.06-million-ha park lost 4,200 ha of forest cover, less than 0.4 percent of its total area. Following the creation of the park in 2009, deforestation dropped in the period 2010 to 2015 from the previous 10 years.
- This contrasts sharply with deforestation outside the Yaigojé Apaporis National Natural Park. One active mining concession on the eastern boundary of the park shows some deforestation. There is also significant deforestation near the northern and southern borders of the park, with some deforestation on the southern border linked to illegal mining along a river. Other rivers north and south of the park are also affected by deforestation.

Source: WRI authors.

National law in Colombia allows the government to grant mining concessions on indigenous lands, including indigenous reserves, although it prohibits mining in national parks.⁵⁸ In response to Cosigo's request for a concession on their lands, ACIYA leaders, on March 17, 2008, requested that the Colombian Ministry of Environment establish the Yaigojé Apaporis Reserve as a national natural park. The government supported this request. Changing the status of the Yaigojé Apaporis Reserve and its forests to a national natural park would strengthen the protection and conservation of the land and eliminate, at least legally, the threat of mining.

The first steps in creating a park include informational meetings between the Special Administrative Unit of the National Natural Parks System (Unidad Administrativa Especial del Sistema de Parques Nacionales Naturales, UAESPNN) (hereinafter, National Parks Unit) and the ACIYA to discuss the ramifications of creating such a protected area, followed by negotiations and the signing of an agreement⁵⁹ between the parties to establish a system of co-management. The parties agreed the park would have a Special Management Regime (Constitutional Court of Colombia 2014) consisting of a set of rules and procedures to coordinate implementation and monitoring of the use, control, and administration of the land and natural resources between the National Parks Unit and the ACIYA. It was also agreed that the management of the park would be based on traditional knowledge and understanding of the forest.

While most of the indigenous peoples living in the Yaigojé Apaporis Reserve agreed to the creation of a national natural park, the indigenous communities of Taraira opposed its creation. The Taraira communities argued that the establishment of the park would curtail some of their land rights and park personnel would have some authority over how their land is used and managed (Decision N° T-384A/14; Revista Amazonas 2016). For example, the use of minerals and other natural resources in the park for commercial purposes would be prohibited, limiting the economic and livelihood opportunities of the indigenous peoples (Article

34, Mining Law, 2014). In order to protect the rights, culture, integrity, and autonomy of the communities, the National Parks Unit and the ACIYA developed a proposal for a consultation process involving the 19 indigenous communities living in the reserve.⁶⁰ In July 2009, consultations were conducted with 12 out of the 19 indigenous communities and, based on the discussions, it was decided to create the park.⁶¹

After the National Mining Agency (Colombian Agencia Nacional de Minería, ANM)⁶² confirmed that there were no mining concessions within the reserve, the Yaigojé Apaporis National Natural Park was legally recognized (Revista Investigare 2013) and formally created on October 27, 2009 (Resolution No. 2079 of 2009).⁶³ The park was extended to 1,055,740 ha (Parques Nacionales Naturales de Colombia 2020) to include the entire area of the indigenous lands.

Two days after the park was created, however, ANM granted a mining concession to Cosigo inside the park (Figure 5.3).⁶⁴ The concession was quickly terminated after the National Parks Unit demanded its cancellation in compliance with the law.⁶⁵ In response, Cosigo sued the government alleging breach of contract. ACIYAVA, on behalf of the Taraira communities, also sued the government over the creation of the Yaigojé Apaporis National Natural Park, alleging the lack of prior information and consultation, and that the park affected the autonomy of the indigenous peoples.

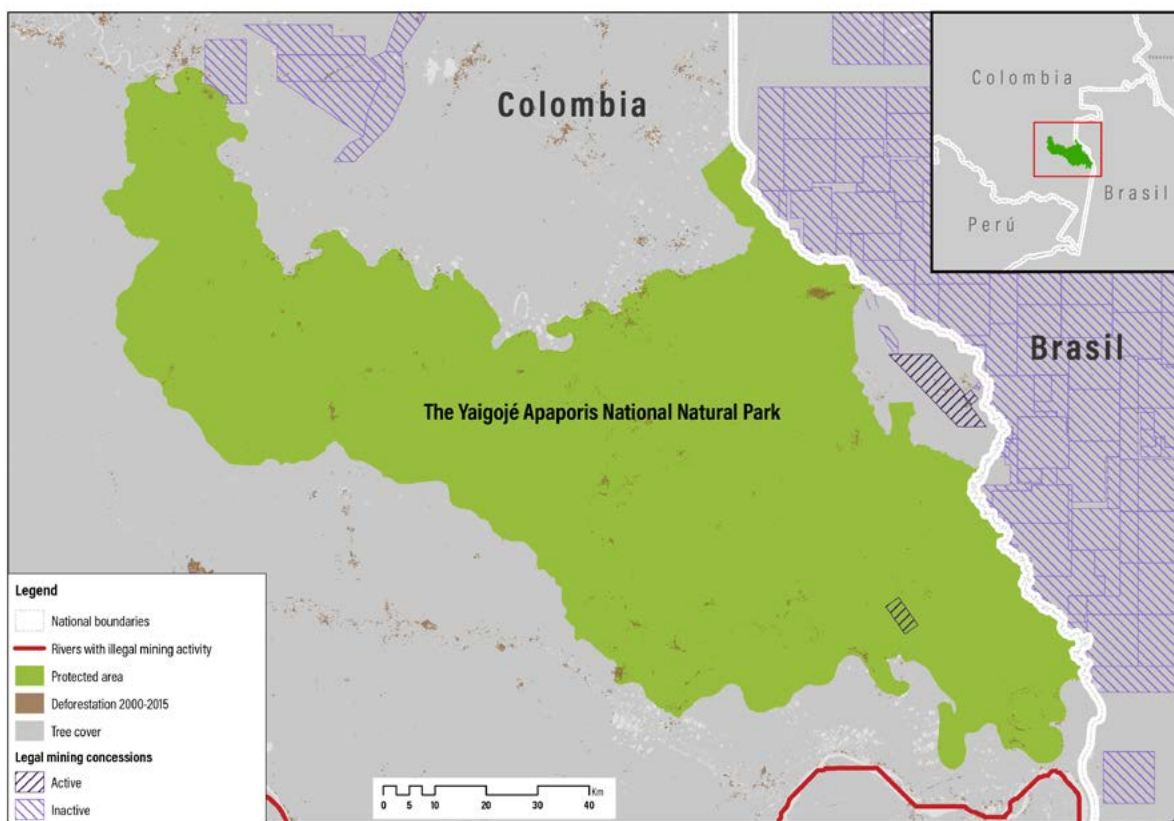
In 2015, the constitutional court ruled that the consultation process requirements had, in fact, been met and thus no rights were violated.⁶⁶ The court also ordered the suspension of all mining exploration and exploitation activity linked to any type of mining title granted in the park. Following the court ruling, the Taraira communities joined the other communities in support of the park.⁶⁷ In August 2015, however, Cosigo filed for arbitration at the United Nations Commission on International Trade Law (UNCITRAL), a subsidiary body of the United Nations General Assembly (UNCTAD 2020). The matter is still pending.

There has been limited forest loss in the Yaigojé Apaporis National Natural Park before and after the park was established. In the 15-year period from 2000 to 2015, the nearly 1.06-million-ha park lost 4,200 ha of forest cover, which equates to less than 0.4 percent of its total area (Figure 5.4). Following the creation of the park in 2009, deforestation dropped in the 2010–15 period from the previous 10 years (Figure 5.4).

This contrasts sharply with the deforestation outside the park. Most of the eastern boundary of the Yaigojé Apaporis National Natural Park is also

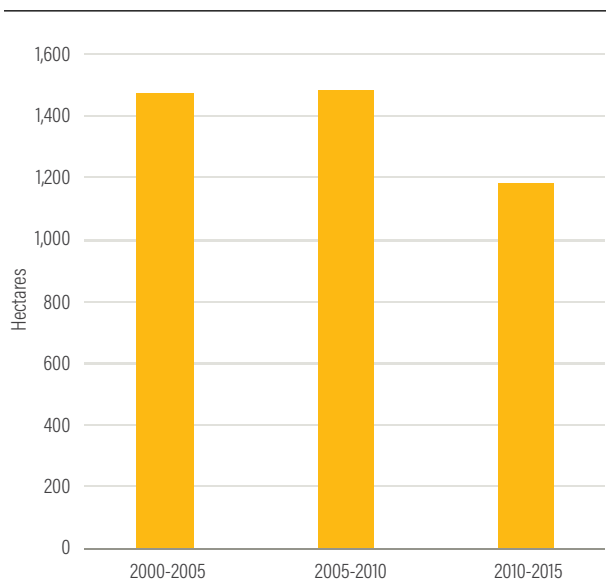
the international border between Colombia and Brazil. One active mining concession in Colombia on the eastern boundary of the park along the border with Brazil shows some deforestation. There is also significant deforestation near the northern and southern borders of the park, with some deforestation on the southern border linked to illegal mining along a river (Figure 5.3). Other rivers north and south of the park are also affected by deforestation. On the Brazilian side, the border region is blanketed in inactive mining concessions with little deforestation.

Figure 5.3 | Map of the Yaigoje Apaporis National Natural Park Showing Areas of Deforestation between 2000 and 2015 and Legal and Illegal Mining Areas



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

Figure 5.4 | Area of Deforestation for Each Five-Year Increment from 2000 to 2015 within the Yaigojé Aporis National Natural Park



Sources: Based on data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI authors.

Ecuador: Shuar Indigenous Lands

This case study highlights the importance of indigenous people being formally recognized by the government as indigenous and holding a title to their customary lands, even if formalization is not required for legal recognition. It also provides an example of a government establishing an easement on indigenous lands for industrial mining purposes, and the adverse impacts easements can have on indigenous people and other local communities.

Mirador is the first large-scale mining project in Ecuador (RAISG 2019b). Despite local resistance, on March 5, 2012, the government signed a mining exploitation contract with Ecuacorriente S.A. (hereinafter ECSA), a Chinese company (Spurrier 2012). The company was granted several concession areas in the Amazon, in the Cordillera del Cóndor, parish of Tundayme (El Panguí Canton, Zamora-Chinchi Province). This is a particularly sensitive area due to the high frequency of earthquakes, rich biodiversity, and high level of endemism.

It is also the land of the Shuar indigenous people (Investigación Acción Psicosocial et al. 2015). The Shuar are one of the largest indigenous peoples in the Amazon, with between 35,000 and 40,000

BOX 5.4 | Overview and Principal Findings: Shuar Indigenous Lands

- In March 2012, the government of Ecuador granted several mining concessions to a Chinese mining company, Ecuacorriente S.A. (ECSA), that overlapped with peasant farmer and Shuar indigenous lands.
- At ECSA's request, the government established several mining easements on indigenous and farmer lands, and the landholders were forcibly evicted.
- In February 2018, the Amazon Community of Social Action Cordillera del Cóndor Mirador (Comunidad Amazónica de Acción Social Cordillera del Cóndor Mirador, CASCAMI), an organization established by those affected by the mining, sued ECSA arguing that the mine was developed on ancestral lands and that the evictions were conducted violently and without prior and informed consultation.
- Lower courts ruled in favor of ECSA and the government on the grounds that CASCAMI did not represent indigenous peoples since it also included nonindigenous farmers. A final appeal is currently being prepared for the Constitutional Court of Ecuador, the country's highest court, and before the United Nations Committee on Economic, Social and Cultural Rights (CESCR).
- The indigenous lands that overlap with the Mirador concessions—the Tundayme and Area Del Proyecto De Desarrollo land—are composed of many separate plots of land that collectively total more than 12,000 ha. Overall, the Tundayme and Area Del Proyecto De Desarrollo lands lost about 260 ha of forest cover over the 15-year period from 2000 to 2015, about 2 percent of the total area. Much of the forest loss occurred in the concessions.
- Forest loss increased nearly twofold from the period 2005 to 2010 to the period 2010 to 2015. This corresponds to the time the Mirador project was approved and operations began.

Sources: WRI authors.

people living mainly in the southeastern provinces of Ecuador (Carvalho 2019). Today, they hold many separate plots of land, including several that now overlap with ESCA concessions (Van Teijlingen et al. 2017).



Mirador is planned as an open-pit copper mine that will extend to 115 ha. There will be two waste dump sites of 75 ha and 47.9 ha, and two tailings facilities of approximately 56.6 ha and 312 ha in size. The processing plant will eventually occupy an area of 20 ha (Chicaiza 2010). The parish of Tundayme has an estimated 3.18 million tons of copper reserves, along with 3.39 million ounces of gold and 27.11 million ounces of silver. Mirador began producing copper on July 18, 2019 (Llangari 2019).

Various social and environmental problems have plagued Mirador from the start of the project. A main issue is the forced evictions of Tundayme residents, including many indigenous people. In addition to the concession area, ECSA needed additional land to facilitate operations, including land that was held and used by Mestizo peasant families and Shuar families and communities.⁶⁸ Many peasant families refused to sell their land to ECSA either because they did not want to leave, the price ECSA offered was too low, or ECSA did not agree to relocate the families elsewhere. Similarly, the indigenous people resisted making their land available to the mining company. In response, and despite court rulings against easements on indigenous lands (see Legal Review), the company requested the government's Agencia de Regulación y Control Minero (Mining Regulation and Control Agency, ARCOM) to establish mining easements

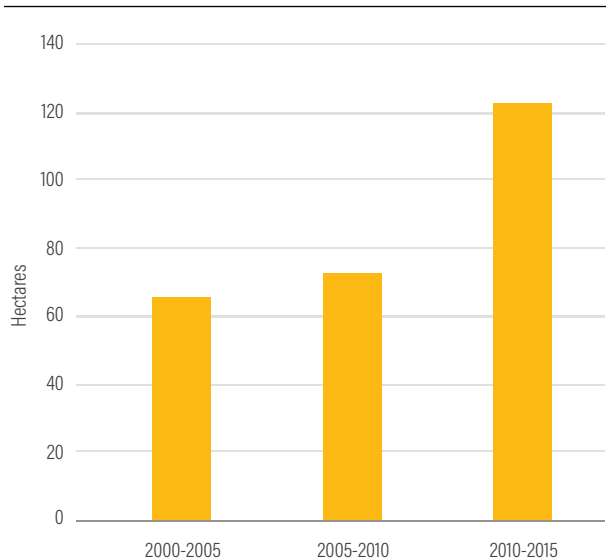
on the needed land. The easements—justified for a “public utility” purpose—allowed the mining company to occupy and “temporarily” use the land for its operations. Since 2013, 47 mining easements have been established.⁶⁹ As a result, ECSA is now “the largest landowner in Tundayme” (Sánchez-Vázquez 2016).

Forced evictions from the mining easements started in May 2014 in the town of San Marcos in the parish of Tundayme⁷⁰ and continued through December 2016. Private ECSA security personnel, together with the police and military, facilitated the evictions. These initial evictions directly affected 116 Shuar and Mestizo peoples (32 families) living in Tundayme and Güisme parishes (REPAM 2019b).

Affected and concerned peasant families and Shuar indigenous people formed the Condor Mirador Association (Asociación Condor Mirador, ACM) to address the land conflicts and advocate for the collective rights of those affected by the mining operations. Later, to strengthen its efforts, the association was registered with the government as CASCOMI (Warnaars 2012; Sánchez-Vázquez 2016). In August 2014, the government formally recognized CASCOMI as an indigenous organization. The Tundayme residents noted that even though the mine was in early stages of development and operation, its impact was already visible. The region's mountains were being carved up, forests were being lost, and rivers were already contaminated and discolored by runoff from the mine.

The indigenous lands that overlap with the Mirador concessions—the Tundayme and Area Del Proyecto De Desarrollo lands—are composed of many separate plots of land that collectively total more than 12,000 ha (Figure 5.5). Overall, the Tundayme and Area Del Proyecto De Desarrollo lands lost about 260 ha of forest cover over the 15-year period from 2000 to 2015, which equates to about 2 percent of the total area. Much of the forest loss occurred in the concessions. Forest loss increased nearly twofold from the 2005–10 period to the 2010–15 period (Figure 5.5). This corresponds to the time the Mirador project was approved and operations began.

Figure 5.5 | Area of Deforestation (total ha) for Each Five-Year Period between 2000 and 2015 within the Tundayme and Area Del Proyecto De Desarrollo Indigeno Territories That Intersect with the Mirador Mining Concession



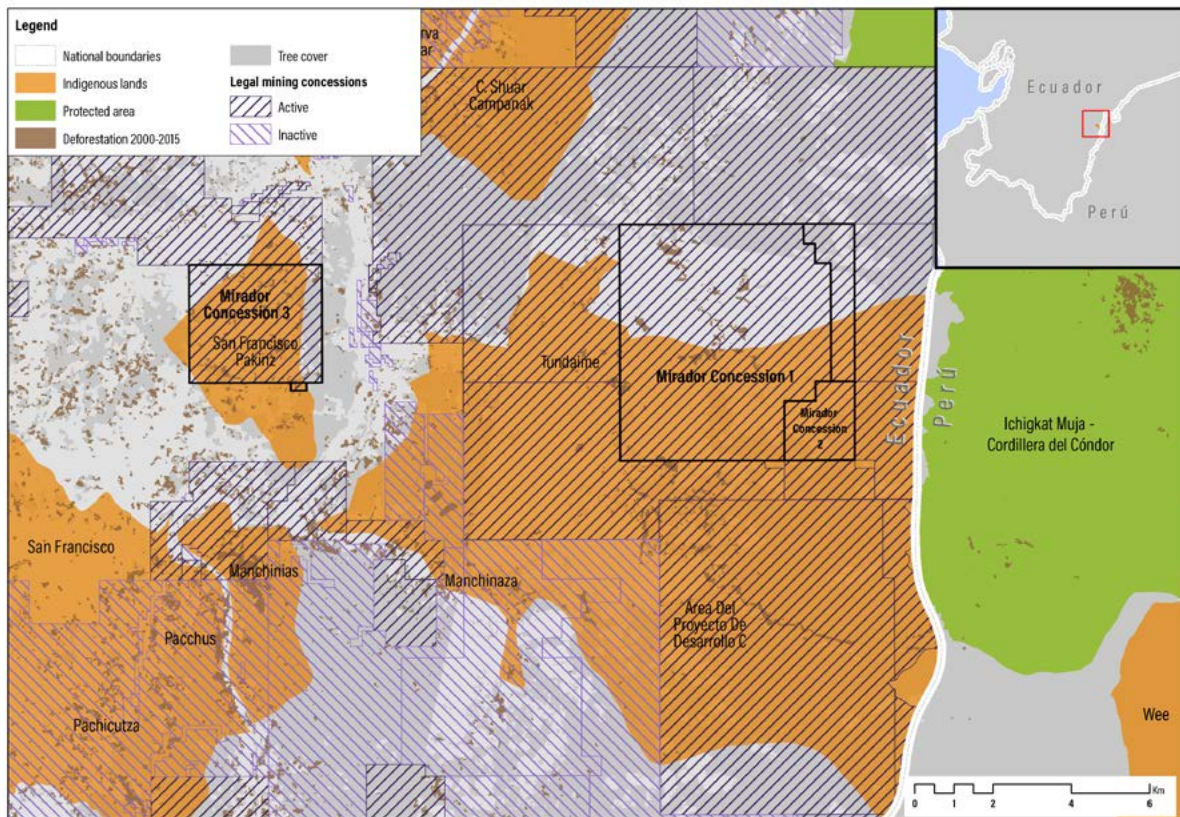
Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI authors.

In June 2015, CASCOMI requested the national court to issue an injunction to stop the evictions as a precautionary measure to protect the indigenous peoples from losing their lands. The request, however, was denied on the grounds that there was neither urgency nor irreparable damage to the territory. Shortly thereafter, in September 2015, another 16 communities were evicted from their homes by the national police force and ECSA’s security personnel. Residents who refused to leave were physically, sometimes violently, removed. Houses and other property were damaged or destroyed in the process. The communities were not relocated, and in some cases their belongings were not returned to them. In December 2015, another 10 communities in the Via del Cóndor, in the parish of Tundayme, were evicted in a similar manner. On May 13, 2016, eight families of the Shuar community, Yanua Kim, were evicted from their land by ECSA’s security personnel who used heavy machinery to destroy crops and clear the land. Later, when the rains came, the homes of the evicted families were flooded.

In February 2018, CASCOMI sued ECSA and the government, arguing that Mirador was developed on ancestral land, the evictions were conducted violently and without prior and informed consultation, and the compensation for the land lost as a result of the easements was fixed and not negotiated with ARCOM. The law does not require ARCOM to negotiate the amount of compensation, although it does require ARCOM to carry out a conciliation hearing between the miner and the property owner to reach an agreement on the establishment of easements (including the price). The lawsuit was supported by the Panamazonic Ecclesial Network (Red Eclesial PanAmazónica, REPAM) and the Regional Advisory Foundation for Human Rights (Fundación Regional de Asesoría de Derechos Humanos, INREDH). Lower courts ruled in favor of ECSA and the government on the grounds that CASCOMI did not represent an indigenous community (despite being recognized by the government as an indigenous organization in 2014). The courts also argued that there was no collective title that demarcated indigenous lands in Tundayme and, therefore, the community did not have the right to prior consultation. The decision was based on a report ordered by the judicial authority to clarify the nature of CASCOMI. That report noted that while CASCOMI included indigenous peoples, it was not an indigenous organization because it also included nonindigenous peasant families.⁷¹

CASCOMI appealed the decision, but in June 2018 the court again ruled in favor of ECSA and the government. A final appeal is currently being prepared before the Constitutional Court of Ecuador, the country’s highest court, as well as before the United Nations Committee on Economic, Social and Cultural Rights (CESCR). To create international pressure on ECSA and the government, indigenous leaders have also discussed the case at the Inter-American Commission on Human Rights (IACHR) in Washington, DC, and at the United Nations in Geneva when it reviewed China’s human rights record.

Figure 5.6 | Map of Indigenous Territories, Mining Concessions and Areas of Deforestation between 2000 and 2015. The Mirador Mining Concessions Are Outlined in Black



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

Guyana: Patamona Indigenous Lands

This case study highlights the fact that some indigenous peoples in the Amazon mine their land for commercial purposes. Indigenous mining operations must meet the same social and environmental safeguards as all other miners. In this case in Guyana, indigenous mining operations are conducted with the approval of traditional leaders, meet the interests of the community, and allow for indigenous people to capture important mining benefits.

Mahdia is a gold and diamond mining town of just over 4,000 people in the Potaro-Siparuni region in Guyana, approximately 200 km from Georgetown, the nation’s capital. The town has a history of mining beginning in the late 1800s.

Near Mahdia lies Campbelltown, the customary lands of the Patamona indigenous people, which was established in 1940. The lands, however, have been occupied by the Patamona indigenous people for a much longer time. Campbelltown is a recognized Amerindian village and home to about 1,000 Patamona people. The Patamona people of Campbelltown received a land title in 2006 and the land was demarcated in 2008. The land title covers a significantly smaller area than the Patamona people traditionally used and had requested from the government. Today, the Patamona people still hunt, fish, and gather materials in an area exceeding the boundaries of the existing title (Atkinson et al. 2018).

BOX 5.5 | Overview and Principal Findings: Patamona Indigenous Lands

- Many residents of Campbelltown, who are primarily Patamona indigenous people, mine their land. The indigenous miners have been encouraged by their leaders to find innovative ways to reduce the impact of mining (e.g., El Dorado Initiative on responsible mining), while also increasing production and profits.
- Like other Patamona villages in Guyana, Campbelltown has requested an extension of its 2006 land title arguing that the title does not include the full extent of its customary lands. The view among coastlander miners (miners from the coast of Guyana) and dredge owners, however, is that the Patamona indigenous people are applying for an extension to gain control of additional mining tracts.
- In the nearly 6,000-ha Patamona lands, 96 ha of forest cover was lost over the 15-year period from 2000 to 2015, about 1.6 percent of the area with the most recent time period (2010 to 2015) showing the greatest net loss.
- Some deforestation has occurred on the Patamona indigenous lands outside the three mining concessions. This forest loss is likely linked to the artisanal and small-scale miners operating on the land with the permission of the village council.

Sources: WRI authors.

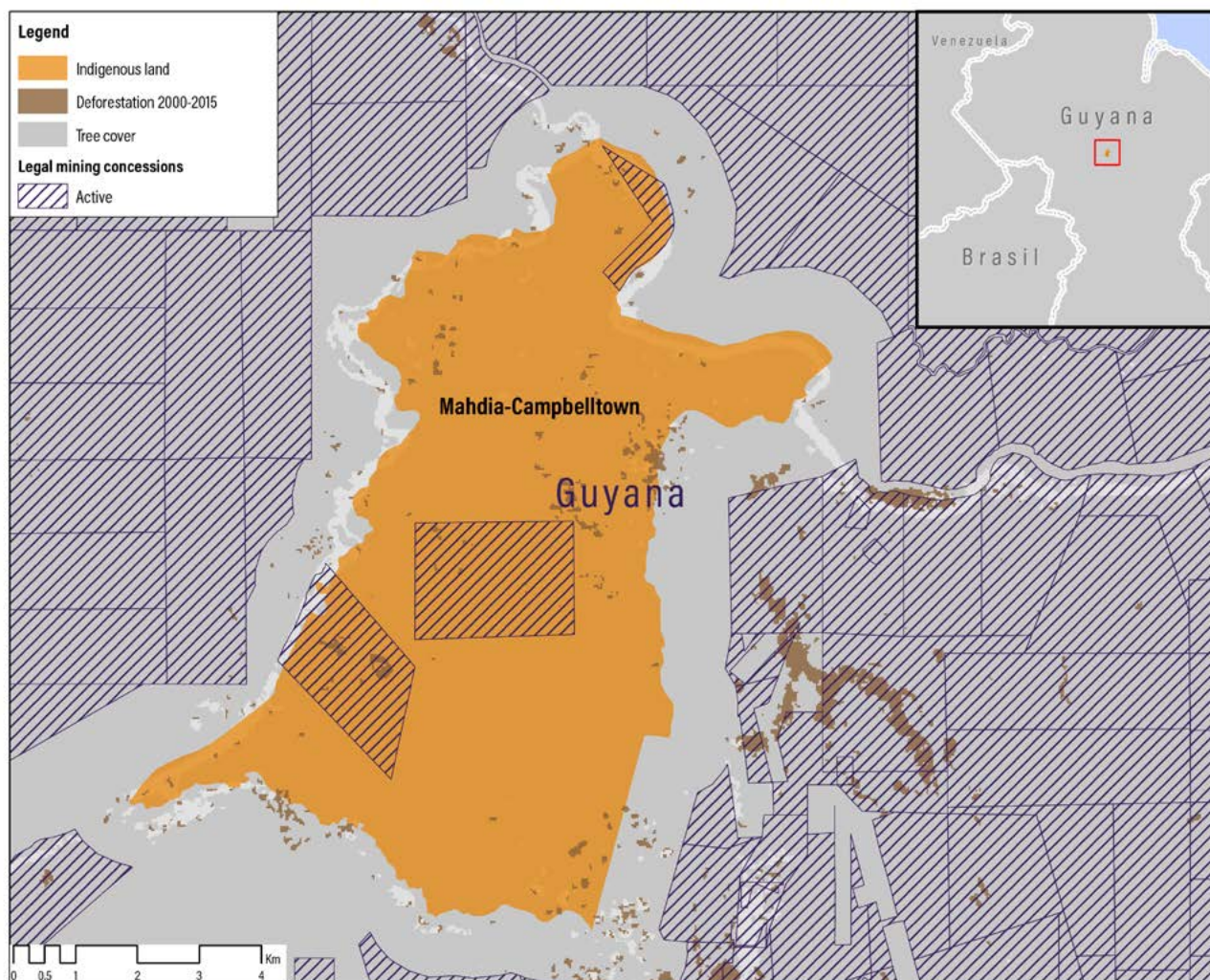
Mining is the principal source of income for Campbelltown villagers who either have their own operations on their indigenous land or work for mining operators in nearby Mahdia (Hilson and Laing 2017; Atkinson et al. 2018). There are three mining concessions in Campbelltown's titled land⁷² and many active mining concessions surround the titled land (Figure 5.7). The Campbelltown indigenous people were not consulted about the mining concessions and did not give their consent—the three mining concessions on Campbelltown land predated the Amerindian Act of 2006 and the land title from 2006. Many of the artisanal and small-scale miners working on the land, however, are operating with permission from the village council and pay royalties to the council (Atkinson et al. 2018).

Over the past two decades, Guyana has experienced an unprecedented rise in gold production driven by small and medium-scale mining activity financed by people from the coast (hereafter coastlanders). Between 1995 and 2015, declared gold production increased by almost 500 percent, rising from 91,451 ounces per year to 451,490 ounces. While indigenous peoples in Campbelltown and elsewhere in Guyana's interior are engaged in gold mining, many indigenous peoples in Guyana do not mine their land and do not want their land mined by third parties. As gold mining expands into the interior, conflicts have increased and escalated between indigenous peoples and coastlanders over control of indigenous lands with gold deposits (Hilson and Laing 2017). Gold mining operations by coastlanders often damage important cultural sites and destroy the local environment. Guyana's draft REDD+ strategy identifies mining as the main driver of deforestation (Severino et al. 2019). The indigenous peoples argue that while coastlanders have benefited from mining their land, they have not significantly contributed to local development.⁷³

Guyana's gold mining economy is controlled by "a small group of wealthy elites with strong political connections" (Hilson and Laing 2017). As such, the few indigenous peoples in Guyana who do wish to mine their land often struggle to secure mining claims and extract the gold. Many of the interested indigenous peoples lack the information and political connections needed to obtain a mining license as well as the capital to acquire the mining equipment and supplies (Hilson and Laing 2017).

Guyana's Amerindian Act of 2006 governs the recognition and protection of the collective land rights of indigenous peoples, including the rights of indigenous villages over lands titled to them by the government. The act also provides indigenous peoples—who are both recognized by the government as being indigenous and have a land title—the right of consent with respect to mining (non-petroleum) and forestry. These provisions of the act are, however, unevenly applied or enforced by the government.

Figure 5.7 | Map of the Campbelltown Indigenous Land Showing Areas of Legal Mining Concessions and Deforestation between 2000 and 2015



Sources: Data from RAISG 2016, Guyana Lands and Surveys Commission 2018, and Guyana Geology and Mines Commission 2016, modified by WRI and RAISG authors.

Across Guyana, indigenous peoples have used the act—often unsuccessfully—to title the full extent of their customary lands. While the Amerindian Act recognizes indigenous village lands, it does not provide for collective titles over the larger indigenous territories. For various reasons, including poor surveying, many existing indigenous land titles do not include all customary village lands (Cameron Ellis, personal communication, 2020).

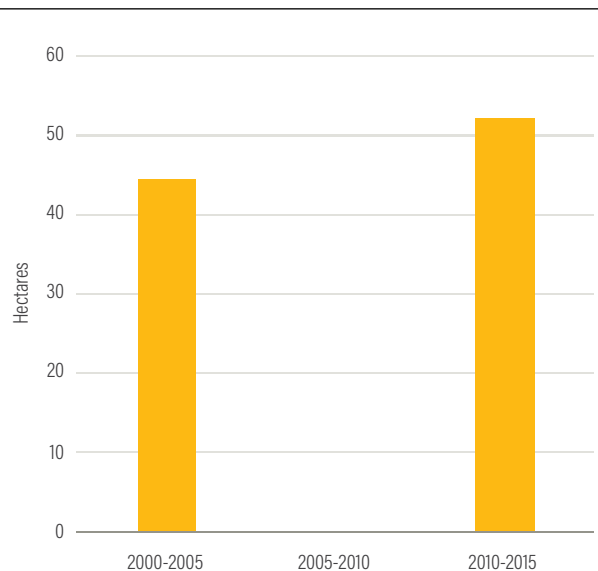
As a result, many indigenous communities—motivated by a wide range of cultural, social, environmental, and economic factors—have requested extensions to their currently titled lands (Joshua Lichtenstein, personal communication, 2020). The view among coastlander miners and dredge owners working in nearby Mahdia, however, is that some indigenous people in Campbelltown

are using the Amerindian Act to apply for extensions to their existing lands to gain control of mining tracts and extract the gold themselves.

While mining, by its very nature, is environmentally damaging, Campbelltown’s indigenous miners have shown some willingness to practice mining in a way “that has minimum impact on the environment and is safe for people” (*Guyana Times* 2018). The indigenous miners have been encouraged by their leaders and other residents to find innovative ways to reduce the impact of mining, while also increasing production and profits. In September 2018, for example, Campbelltown’s leaders, miners, and other residents met with a group of organizations implementing the El Dorado—Responsible Mining for Guyana Initiative.⁷⁴ Among other measures, the initiative seeks to reduce the impact of exploitation on forests and fresh water, eliminate the use of mercury from artisanal and small-scale gold mining, and rehabilitate mining sites (GEF 2017). More, however, needs to be done to ensure that small and medium-scale mining is less damaging to the environment and sustainable in the long run (Severino et al. 2019).

Overall, in the nearly 6,000-ha Patamona lands, 96 ha of forest cover were lost over the 15-year period from 2000 to 2015, which equates to 1.6 percent of the total area (Figure 5.7). The village lands experienced forest cover loss prior to the Amerindian Act of 2006 and then no loss between 2005 and 2010 (Figure 5.8). Forest was again lost, however, in the most recent time period of 2010 to 2015. In the 15-year period, a significant amount of forest was lost in two of the three concessions in the indigenous lands as well as in other parts of the indigenous lands. Many artisanal and small-scale miners operate on the lands with the permission of the village council (see above), although RAISG did not have data on legal ASM or illegal mining for the GIS analysis. Some deforestation in the indigenous lands, but outside the three mining concessions, is likely linked to the ASM although it may also be due to other activities, such as farming. Outside the indigenous lands, but especially in the mining concessions east of the indigenous lands, there is significant forest loss in the time period from 2000 to 2015 (Figure 5.8).

Figure 5.8 | Area of Deforestation for Each Five-Year Period Between 2000 and 2015 Within Campbelltown’s Titled Village



Sources: Based on data from RAISG 2016, Guyana Lands and Surveys Commission 2018, and Guyana Geology and Mines Commission 2016, modified by WRI authors.



Peru: Shipibo and Ese'Eja Indigenous Lands

This case study provides the experience of the Tres Islas community, mainly Shipibo and Ese'Eja indigenous peoples, which effectively used local and national courts as well as the Inter-American Commission on Human Rights (IACHR) to protect its lands from mining. In Peru, the courts are increasingly engaging in the complexities of indigenous affairs, including customary land tenure systems. A growing number of courts now recognize the unique forms of indigenous social organization with regard to their lands and traditional land uses.

The Tres Islas community of mainly Shipibo and Ese'Eja indigenous peoples lives in the sub-basin of the Madre de Dios River, Tambopata Province, Department of Madre de Dios. The community consists of approximately 103 families of Ese'Eja, Shipibo, as well as Asháninka⁷⁵ indigenous peoples who depend on the plants, fruits, animals, and wood from the forest, and the fish from the river. On June 24, 1994, the Ministry of Agriculture issued the Tres Islas community a land title (N° 538) to 31,423 ha and 71 square meters of land.⁷⁶ In issuing the title, the government formally recognized the land as the territory “occupied permanently” by the Tres Islas community.

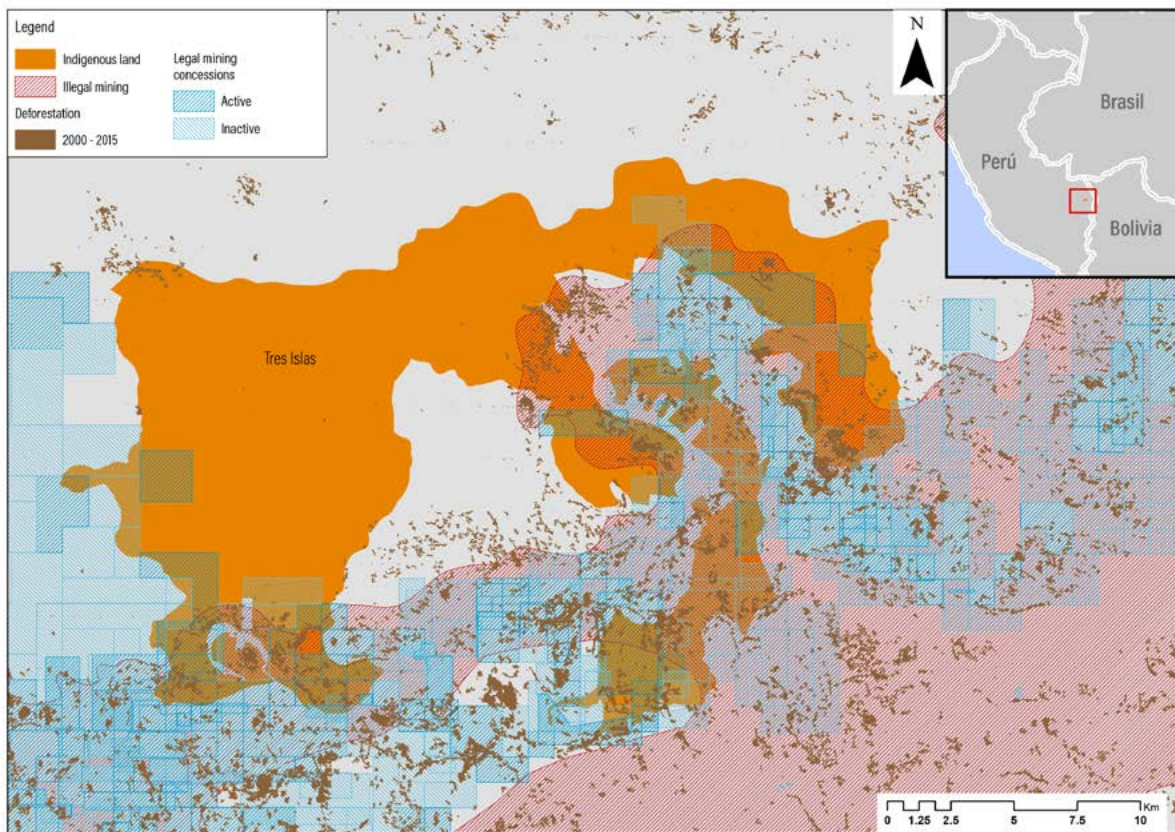
In the early 2000s, the government of Peru granted more than 100 mining concessions and several logging concessions on Tres Islas' territory without informing or consulting the community. By early 2010, these mining and logging operations had significantly damaged the environment and resulted in the loss of vegetation, fish, birds, and other wildlife. Community members also developed health problems from the high concentrations of mercury in the soil and water, and from the increased occurrence of prostitution (Movimiento Regional por la Tierra 2017).

BOX 5.6 | Overview and Principal Findings: Shipibo and Ese'Eja Indigenous Lands

- In the early 2000s, the government of Peru granted more than 100 mining concessions and several logging concessions on Tres Islas lands without informing or consulting the Tres Islas indigenous community, which is made up principally of Shipibo and Ese'Eja indigenous peoples.
- In response, the Tres Islas community assembly decided in August 2010 to construct a booth and wooden gate to control access to its lands. The booth was manned by members of the community.
- Two transport companies sued the Tres Islas community demanding free transit into their lands. The court ruled in favor of the companies and ordered the removal of the booth and gate.
- The Tres Islas community appealed the decision and took the matter to the Peruvian Constitutional Tribunal. In September 2012, the tribunal ruled that the Tres Islas community had the right to control the entry of third parties into its lands. The community reestablished the booth and gate and resumed controlling access to its lands.
- Thereafter, the Tres Islas community sued the regional government of Madre de Dios in the regional Court of Justice over the mining concessions granted without a prior consultation process. In March 2019, the Superior Courts of Justice of Peru declared the 127 mining concessions on the Tres Islas lands, including eight concessions that were in the process of being granted, to be null and void, and ordered all activities resulting from them to be halted.
- In total, 93 percent of the deforestation that occurred on the Tres Islas lands during the 15-year time period from 2000 to 2015 occurred in the portion of the lands that overlapped with legal and illegal mining areas. Deforestation drastically declined between 2010 and 2015, coinciding with the community regaining control of access to its lands.

Sources: WRI authors.

Figure 5.9 | Map of the Tres Islas Territory Showing Areas of Legal and Illegal Mining and Deforestation between 2000 and 2015



Sources: Data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI and RAISG authors.

To address these challenges, the Tres Islas community assembly decided in August 2010 to construct a booth and wooden gate to control access to its territory. The booth was manned by members of the community. In response, two transport companies, Los Mineros S.A.C. and Los Pioneros S.CR.L., sued the Tres Islas community requesting free transit into their lands. The court ruled in favor of the transport companies and ordered the removal of the booth and gate (Clínica Jurídica de Acciones de Interés Público 2012, Enfoque Derecho 2015, Environmental Justice Atlas 2018).

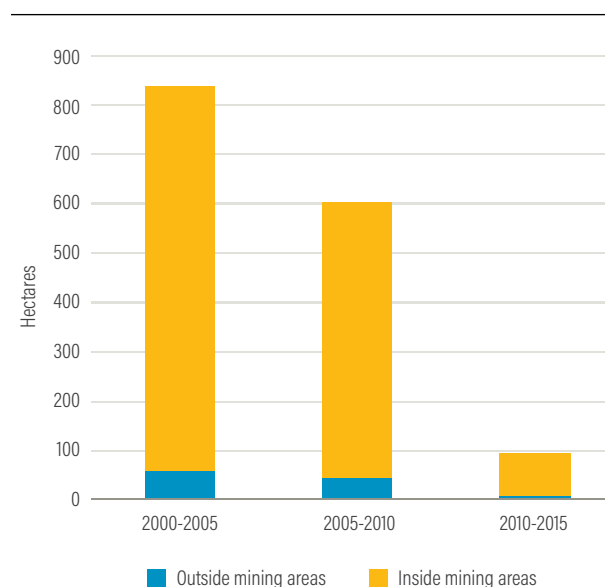
The Tres Islas indigenous people appealed the decision and took the matter to the Peruvian Constitutional Tribunal. In September 2012, the tribunal confirmed that the Tres Islas community had the right to control the entry of third parties into its territory as an expression of its right to property and communal autonomy. It determined that the transport companies did not have an easement right nor any other title to pass through the Tres Islas' lands. The tribunal recognized that while the freedom of transit is a fundamental right, this right is subject to certain limits, such



as not invading land without the consent of the landholders. While the possession of a land title by the Tres Islas indigenous people was not the single determining factor in the ruling, the court recognized it as one of the conclusive elements supporting its decision. Following the tribunal’s decision, the community quickly reestablished the booth and gate and resumed controlling access to its lands.

At the time, the Tres Islas lands were affected not just by legal large-scale mining operations but also considerable illegal mining (Figure 5.9). In total, 93 percent of the deforestation that occurred on the Tres Islas lands during the 15-year time period from 2000 to 2015 occurred in the portion of the territory that overlapped with illegal and legal mining areas. Deforestation, however, drastically declined between 2010 and 2015, coinciding with the community regaining control of access to its territory (Figure 5.10).

Figure 5.10 | Area of Deforestation per Five-Year Period (2000–15) inside Overlapping Mining Concession Areas in the Indigenous Land versus the Rest of the Indigenous Land



Sources: Based on data from RAISG 2016, 2018c, 2018d, 2018e, 2019c, modified by WRI authors 2018, and Guyana Geology and Mines Commission 2016, modified by WRI authors.



Because of persistent health risks and death threats to community members from outsiders, in March 2016, the Tres Islas community filed a request for an injunction to halt all mining on its lands—a precautionary measure to protect the indigenous people—before the Inter-American Commission on Human Rights (IACHR). In September 2017, IACHR granted the request, noting that the absence of medical attention and the lack of protection for threatened community members jeopardized their rights to life and personal integrity.

Encouraged by these rulings, the Tres Islas community sued the regional government of Madre de Dios before the regional Court of Justice over the mining concessions granted without a prior consultation process.⁷⁷ In March 2019, the Superior Court of Justice of Madre de Dios recognized the community's rights to prior consultation, territorial property, autonomy, life and physical integrity, health, environment, and water (IIDS 2019a,

2019b, *La República* 2019, SERVINDI 2019). It declared the 127 mining concessions on the Tres Islas' lands (including eight concessions that were in the process of being granted) to be null and void, and ordered all activities resulting from them to be halted (Figure 5.9). (Figure 5.9, which uses mining data from June 2019, shows that at least some of the concessions were still active three months after the court ruling). To compensate for the damage caused to the Tres Islas community and its environment by the mining operations, the superior court of justice also ordered the regional government of Madre de Dios to implement various protection measures, including decontaminating water, air, and soil; providing a clean supply of drinking water; and reforesting the affected areas (Dossier N° 00675-2017-0-2701-JM-CI-01, 2019).



RECOMMENDATIONS

Based on the research findings, five recommendations are presented to empower indigenous peoples to take charge of their own development and to ensure mining on indigenous lands delivers positive social and economic outcomes while not causing irreparable damage to the environment. The recommendations target four audiences: indigenous peoples and their representative bodies and supporters, government agencies responsible for mining and for supporting indigenous people, miners and mining companies, and the broader human rights and forest conservation communities. The challenges and opportunities in the Amazon are not unique. As a result, these recommendations likely also apply to other countries around the world where mining is occurring on indigenous or community lands.

As the global demand for minerals rises and prices soar, governments of Amazonian countries are placing mineral exploitation at the center of their economic development plans and putting in place incentive packages for mining investments. Now, with the novel coronavirus pandemic shutting down many sectors of the economy, governments are allowing large-scale mining to continue operating and encouraging expansion in Peru and other Amazonian countries. Mining, both legal and illegal, as well as associated infrastructure development (e.g., roads, railways, and dams) and other supportive investments are moving deeper into the Amazon to exploit the world-class reserves. These developments, coupled with the expansion of agriculture, cattle production, and other economic pressures, threaten indigenous lands and the people who hold and depend on the lands and natural resources for their livelihoods and well-being. In Brazil, which holds 60 percent of the forest and indigenous peoples in the Amazon, commercial mining on indigenous lands is not permitted, but the government is moving ahead with a bill that would open indigenous lands to mining and other developments.

The research findings provide compelling evidence of the following:

- The laws governing minerals and mining by third parties on indigenous lands provide indigenous peoples with some rights over their lands and the minerals on and below it. Overall, however, they put indigenous peoples at a legal disadvantage with miners. Legal miners have important authorities to enter onto and use indigenous lands to realize their mineral rights, while indigenous peoples lack critical rights that would help them better protect their lands.
- Many indigenous peoples in the Amazon do not want commercial mining by third parties on their lands and have deployed a range of measures such as protests and litigation—some successful, others less so—to keep miners off their lands.
- All mining, whether ASM or industrial mining, on indigenous lands is linked to environmental damages, including the loss of forests and

associated ecosystem services. Indigenous lands absent mining have significantly lower deforestation rates than indigenous lands with mining.

As a result, the expansion of mining in the Amazon must be carefully considered and, if sanctioned, well planned and monitored. Efforts are needed to sufficiently empower indigenous peoples to take charge of their own development, protect indigenous lands and safeguard local livelihoods from the significant and adverse social and environmental impacts of mining, provide that miners are respectful of indigenous peoples and mining operations are conducted in responsible ways, and ensure national laws and directives are well implemented and enforced.

The research findings have implications for indigenous peoples confronted with mining as well as for governments, development assistance agencies, miners and mining companies, NGOs, and other civil society organizations. Five recommendations are provided that recognize the challenges confronting indigenous peoples in the Amazon and that build on the laws and experiences in the six research countries. The broader literature on mining makes clear that the challenges and opportunities in the Amazon are not unique (A.J. Bebbington et al. 2018; D.H. Bebbington 2018a, 2018b; Alden Wily 2018). As a result, these recommendations likely also apply to other countries around the world where mining is occurring on indigenous or community lands, threatening people and local environments.

While the research focused on minerals, the findings may also have implications for oil and natural gas developments and perhaps the extraction of other natural resources. Like mining, the footprint of oil and natural gas extraction commonly does not reach the geographic scale of agriculture and livestock, but the effects of these activities can be felt in ways that are just as problematic, such as the infrastructure developed for oil extraction opening up land for farming and ranching (A. Bebbington et al. 2018; RAISG 2018b).

The five recommendations are:

Provide strong legal rights to indigenous peoples:

While the national laws in the research countries include provisions designed to empower indigenous peoples and safeguard indigenous lands for indigenous peoples, they do not establish the strong legal protections needed for indigenous peoples to manage and use their lands and forests for their own development purposes. This is the case for indigenous peoples holding land under customary tenure arrangements and those with formal land rights (e.g., land titles or those living on lands designed by government for their use).⁷⁸ This finding is consistent with the legal protections afforded indigenous lands in cultures around the world (Alden Wily 2018). As a result, indigenous peoples in the research countries and elsewhere are at a legal disadvantage compared to miners with formal rights to minerals on indigenous lands.

Stronger rights would further empower indigenous peoples and help them to sustainably manage their lands and protect their forests and other natural resources. Tenure security creates critical incentives for indigenous peoples to make land-related investments in their lands and forests by providing them with high expectations of rights over the returns. Governments must enact legislation that better protects indigenous peoples and their lands, CSOs must press their governments to make these reforms, development agencies should use their support to ensure effective implementation, and mining companies should respect the new laws and build partnerships with indigenous peoples to ensure they benefit in meaningful ways.

The research identified four sets of rights critical for indigenous peoples to secure and protect their lands—land rights; mineral rights; the right of free, prior, and informed consent; and the right of first refusal.

Land rights:

Like all citizens, indigenous peoples need strong, secure land rights to effectively protect, use, and manage their lands. Governments should review and, if necessary, reform national laws to ensure

indigenous peoples have the rights and authorities they need to take charge of their own development. National laws in the research countries recognize indigenous lands and customary tenure systems, although such legal recognition alone does not always translate into tenure security. Indigenous peoples in the research countries have rights to access and occupy their lands, but their management, withdrawal/use, exclusion, and alienation rights are often limited. In many cases, they cannot exclude all unwelcome people from entering and using their lands, cannot lease their lands to third parties, and cannot withdraw minerals or other natural resources for commercial purposes without receiving a separate government authorization.

Moreover, in many countries, these rights are conditioned—sometimes in law, and often in practice—on indigenous peoples being formally recognized as such by the government and/or on them having formal land rights (i.e., holding a land title or other official land document). Such conditions, along with other benefits, have encouraged many indigenous peoples to become formally recognized as indigenous and to formalize their customary land rights (“double lock” their land rights) (Alden Wily 2017). Many indigenous peoples, however, need outside assistance to navigate and complete the formalization procedures. Government definitions of indigenous people are often unclear and open to interpretation. Land formalization procedures are commonly complex, costly, and do not recognize all customary rights and land (Notess et al. 2018). Governments should streamline the formalization procedures and provide indigenous peoples with the assistance they need to complete the processes.

The values and customs of many Amazonian indigenous peoples align with and support sustainable land management and forest conservation. Limiting land rights can protect communities vulnerable to political and economic interests from exploitative and corrupting relationships with external actors.

But limiting land rights also means limiting economic options and opportunities for indigenous peoples. Finding the right balance is key to empowering indigenous peoples.

Governments should couple laws that recognize strong land rights for indigenous peoples with incentive packages that promote and support sustainable land use and forest conservation. For example, payment for ecosystem services (PES) schemes that reward indigenous peoples who conserve forests and protect biodiversity can further encourage sustainable forest management (de Koning et al. 2011). Such incentive packages can also protect against changing customs and external political and economic pressure, increase tenure security, and reduce conflict (Jones et al. 2020). Recognizing significant land rights for indigenous peoples is fairer, more equitable, and more consistent with laws governing most private property tenure systems.

Mineral rights:

Indigenous peoples are empowered when they have more rights and greater control over the minerals (and other natural resources) on and below the surface of their lands. In all research countries,

minerals (along with oil, natural gas, and other high-value natural resources⁷⁹) are under the control of the government, which has the authority to grant mineral rights to outside miners, mining companies, or other entities. Indigenous peoples in the research countries have only limited rights over the minerals on their lands. For example, they may use minerals for subsistence, domestic, or customary purposes without government approval in Brazil, Colombia, and Guyana, but authorization is required to mine even for domestic purposes in Bolivia, Ecuador, and Peru. Commercial mining by indigenous peoples on their lands requires a separate authorization from the government in all research countries, except Brazil, where commercial mining on indigenous lands is currently prohibited.

Governments should reform laws to recognize more rights for indigenous peoples over the minerals on their lands whether the lands are formalized or held under customary tenure arrangements. Doing so would give them greater control over their lands and minerals and help ensure they have a voice in decisions regarding mineral developments on their lands. It would also empower them in their negotiations with miners or mining companies operating on their lands and help ensure they receive a fair share of resulting benefits (see below).



National laws in all six research countries establish procedures for the acquisition of mineral rights for commercial exploration and exploitation, but only in Colombia does the law provide for differentiated, simplified procedures for indigenous peoples to acquire rights to commercially mine their land. In Colombia, the law also mandates that the government provide indigenous peoples comprehensive technical assistance to exercise their mineral rights, including support to mitigate the environmental risks. While many indigenous peoples in the Colombian Amazon do not currently want to commercially mine their land, this law provides an important economic opportunity should they want or need to engage in mining in the future. Indeed, given the important role of ASM in rural livelihoods, licensing procedures should be made more accessible to rural people as part of the governments' efforts to curtail illegal mining.

In the other five research countries—Bolivia, Brazil, Ecuador, Guyana, and Peru—indigenous peoples must meet the same requirements as other parties applying for commercial mineral rights. The lack of technical expertise and financial resources of indigenous peoples, however, hinders, delays, or prevents them from being granted such mineral rights. Other countries should follow Colombia's effort to address these entry barriers and establish streamlined procedures for indigenous peoples to commercially mine their land. The laws should also require that the government provide them with the technical assistance needed to ensure indigenous commercial mining is undertaken with minimum social and environmental impacts.

Right of free, prior, and informed consent:

Governments should recognize the right of free, prior, and informed consent (FPIC), not just consultation, for indigenous peoples regarding mining and other developments that may affect them or their lands. FPIC is a collective right embedded in the right to self-determination. It helps ensure indigenous peoples are consulted and participate in decision-making on all development matters that affect them. FPIC is central to indigenous peoples protecting their forests from the harmful effects of mining as well as other extractive industries, agrobusiness, ranching, and infrastructure developments. The right of

FPIC is particularly important for indigenous peoples who do not have strong, secure rights over their lands and the minerals on their lands. Without FPIC, indigenous peoples are subject to developments that may threaten their well-being and their forest homes.

All six research countries have adopted the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which calls for the right of FPIC. Governments should enact enabling national legislation to domestic UNDRIP and FPIC, specifically. Indigenous peoples in Guyana have, by law, a limited right of FPIC, but those in Bolivia, Brazil, Colombia, Ecuador, and Peru only have the right to consultation. The government of Guyana should strengthen its FPIC law by, for example, recognizing FPIC of indigenous peoples who hold lands under customary tenure arrangements and for all developments, not just mining and forestry. Amazonian governments should build on Guyana's example and enact legislation that recognizes the right of FPIC to indigenous peoples as well as Afro-descendants and other communities that hold land in a collective manner. The right of FPIC should not be limited to just a few types of developments, and governments should only have the authority to override refusal of consent to developments that are in the narrowly defined national or public interest (e.g., in countries around the world, economic development projects, such as mining, are not recognized as a genuine public interest) (Veit et al. 2008; Tagliarino 2016, 2017).

Right of first refusal:

Given the interest of some indigenous peoples to commercially mine their land (see Guyana Case Study), governments should recognize the right of first refusal to exploit minerals for commercial purposes. With this right, indigenous peoples must first refuse their right to exploit minerals on their lands before the government can grant the mineral rights to a third party. In Colombia, national law recognizes the right of first refusal for indigenous peoples and Afro-descendants. The law does not recognize this right for indigenous peoples in the other five research countries. In Brazil, Bill 191/2020, which would open indigenous lands to mining and other developments, would provide this right to indigenous peoples (Box 4.4). The right of

first refusal is particularly important for indigenous peoples who do not have strong, secure rights to their lands or the minerals on their lands or the right of FPIC.

The government of Colombia should consider reforming its laws to strengthen the right of first refusal for indigenous peoples to be more impactful. Other governments should follow Colombia's example in recognizing the right. The right of first refusal should be recognized for all communities, not just indigenous peoples, that hold land in a collective manner and whether this land is titled or held only under customary tenure arrangements. Moreover, in exercising their right of first refusal, indigenous peoples and other communities should have the option of either directly engaging in commercial mining or establishing a partnership or joint venture with a third party. In Colombia, the law allows indigenous peoples to transfer part of their mining concession to third parties, with certain limits, and mandates the government to provide them with technical support to ensure the mining meets established social and environmental safeguards. Governments, NGOs, and development organizations can help indigenous peoples build the skills and capacities they need to mine safely and mitigate environmental damage. They can also support indigenous peoples in their negotiations with external miners or mining companies to ensure fair benefit-sharing agreements (see below).

Establish strong environmental safeguards:

National laws in all research countries provide for the protection of forests and the environment and require miners and mining companies to minimize their environmental impact, whether mining on indigenous lands or other lands. National laws prohibit mining on certain sensitive lands, require compensation for damages to property, and mandate that land is restored when mining operations are concluded. Environmental Impact Assessments (EIA) are required to ensure that mining projects will be conducted in accordance with environmental safeguards and without causing avoidable damage to the environment. These environmental safeguards are often codified in national environmental protection laws as well as mining regulations and indigenous rights legislation. While some national environmental

safeguards meet international standards, others, however, fall short and must be strengthened to provide the level of protection needed to adequately safeguard forests and their critical ecosystem services, including carbon sequestration. Stronger environmental laws coupled with effective enforcement (see below) will help ensure the forest homes of indigenous peoples in the Amazon are protected.

All mining brings risks to the environment and to the health and well-being of affected populations. The process of extracting minerals from the ground, by ASM or industrial mining, is by its very nature damaging to the environment. In the Amazon, large-scale strip mining results in the loss of natural vegetation and critical ecosystem services, including carbon sequestration and biodiversity, while ASM often involves the dredging of rivers, poisoning of water from the use of mercury, and loss of fisheries. The GIS analysis conducted for this report finds that indigenous lands not affected by mining have lower deforestation rates than indigenous lands with mining. These findings are consistent with other research that shows deforestation rates on tenure-secure indigenous lands in the Amazon are significantly lower than on similar lands not managed by indigenous peoples (Ding et al. 2016; Blackman et al. 2017; Blackman and Veit 2018).

The links between mining and deforestation must be recognized by governments and their development partners (e.g., Global Environmental Facility and Green Climate Fund) and integrated into their analysis and projects on forest conservation and climate mitigation (e.g., REDD+). National finance and mining ministries together with the World Bank, other international financial institutions and instruments, and private finance for mining projects must also consider how their investments are contributing to forest loss, climate change, and resulting rural hardships. Better connections are needed between ministries, forest departments, and government agencies responsible for indigenous affairs to address policy incoherence, and more cooperation is needed to ensure national sustainable development goals are achieved.

To mitigate these risks, mining, whether conducted by mining companies or indigenous peoples, must recognize and adhere to minimum social and environmental safeguards. Major mining disasters, such as the Mariana and Brumadinho tailings dam collapses in Brazil, and their lasting impact on local populations and the environment, make clear that mining companies must invest more in protecting the environment and local populations. In all six research countries, governments are by law responsible for monitoring and overseeing mining companies to ensure their operations are conducted in accordance with the law and the conditions in their licenses or concession agreements, that they are meeting their social and environmental commitments, and that they mitigate and compensate for any environmental damage or other loss caused by their activities. When mining activities damage the environment on indigenous lands, the government in all six research countries has the authority to arrest and detain illegal miners, impose fines, and mandate compensation for the affected indigenous peoples.

New mining technologies are being developed and adopted by mining companies that minimize the footprint of extraction and throughout the value chain (e.g., processing, transportation, production, and sale of mineral products),⁸⁰ and that promise better social and environmental outcomes (Mayorga Alba 2009; World Bank 2017b). These include: advanced airborne gravity gradiometer and 3D imaging technology that make mineral exploration less destructive to the environment; more efficient shaft and tunnel boring machines that increase worker safety and reduce the environmental footprint; automated robotic technologies that improve worker safety; microorganisms that recover minerals, such as copper, from tailings; electric vehicles that reduce emissions and temper climate change; and remote operating and monitoring centers that improve worker safety and reduce environmental impacts (Mining Technology 2014).

To ensure mining operations do not irreparably damage the environment and the nation's valuable mineral resources provide the promised benefits of local and national development, governments must also be more selective in the allocation of

mineral rights and mining concessions. Companies with strong track records in mining operations that meet or exceed national and international social and environmental standards, that make use of the latest technologies, and that engage communities and protect forests should be prioritized. Proposal vetting processes should not just focus on the public revenue generated or how quickly the mine can begin production. Broader selection criteria can create incentives for companies to adopt mining practices and technologies that are less damaging to the environment and more supportive of indigenous peoples and other affected communities.

Build indigenous capacity:

As the threats to their lands, livelihoods, and well-being escalate and become more complex, many indigenous peoples realize they lack the expertise, contacts, and resources needed to effectively address the challenges and mitigate the risks. Governments and their development partners can provide training and critical technical and financial resources for indigenous peoples to develop new skills and capacities to better protect their lands and themselves. These include skills to effectively negotiate with mining companies, monitor their lands for illegal activities, and better protect themselves and their community from harm.

When indigenous lands are mined by third parties, negotiated agreements between indigenous peoples and the miners play a critical role in setting the conditions under which that mining occurs (O'Faircheallaigh 2018). Conditions must be established on the use of indigenous lands, compensation for any loss from or damage to property caused by mining operations, and for benefits-sharing arrangements (see below). Communities "must have the ability to negotiate on fair terms with government and private companies . . . [and] must be able to benefit equitably from extractive processes" (UNDP 2012). A company will typically have its own internal legal team and even outside counsel to negotiate an agreement. Indigenous peoples and other local communities, on the other hand, are often at a disadvantage given their unfamiliarity with mining, limited awareness of their legal rights, and lack of financial resources to represent themselves or hire adequate

legal representation or independent outside experts (O’Faircheallaigh 2008; Ruwhiu and Carter 2016; Carlos Zambrano-Torrelío, personal communication, 2020). With this imbalance in experience and negotiating skills, social issues and conflicts within the community and with miners often arise and can become violent.

Governments, NGOs, and development assistance agencies should step up to help build indigenous capacity to better negotiate with mining companies and support independent counsel for indigenous peoples in these processes. Such independent counsel could come from public interest law NGOs or private law firms. Ombudsman offices within the government (e.g., Defensoría del Pueblo in Peru, Colombia, and other Latin American countries) can provide independent oversight or mediate these negotiations.

When mining takes place on indigenous lands it is important for indigenous peoples to have the skills and capacity to monitor for compliance of the mining agreements and to detect any illegal activities. In the absence of adequate government support, some indigenous peoples have organized their own patrols to monitor their lands, evict intruders, and confiscate their equipment (Veit 2018). While such actions can be effective, they also expose indigenous peoples to new risks, including violent attacks. All citizens, including indigenous peoples, have certain rights to protect themselves and their property. In the research countries, indigenous peoples have the right to evict illegal operators and unauthorized actors from their lands. National laws, however, do not give them the authority to capture, retain, judge, or punish illegal operators; confiscate equipment; or take possession of any minerals extracted by the illegal operators.

Governments must step up to take charge of their policing roles and responsibilities, including protecting indigenous peoples and their lands from illegal mining operations. Indigenous peoples and their supporters can help governments by monitoring their lands for illegal operators, reporting incidents of unauthorized activities, supporting (and, in some circumstances,

BOX 6.1 | Monitoring of Indigenous Land

One example of new monitoring technology is Global Forest Watch (GFW), an online platform that provides near real-time information about where and how forests are changing in addition to tools for monitoring forests.^a Several international NGOs provide training for indigenous people and other local communities on how to use GFW as well as a new mobile app called Forest Watcher, which provides offline access to GFW’s forest cover change data and other contextual data (e.g., forest cover data and fire alerts).^b These tools allow deforestation to be easily located and reported. Indigenous people in the Amazon using Forest Watcher have successfully identified and halted illegal mining and other activities on their land. Some indigenous groups have used the app to collect information as evidence in a court of law to prosecute wrongdoers.^c

Notes:

^a GFW 2020b

^b GFW 2020c

^c Weisse and Nogueron 2017; Ionova 2019

participating) in government patrols, and providing evidence for the prosecution of offenders in a court of law.

To support government operations, indigenous peoples can build skills in collecting data on illegal activities that meet the legal burden of proof. Indigenous organizations and NGOs can raise awareness on the law or rules of evidence⁸¹ and provide training on tools and techniques for collecting information that meets the standard of evidence. At the same time, local and national government agencies and courts of law must accept such information from indigenous peoples in their investigative and sanctioning processes. There are precedents for governments to officially recognize indigenous monitoring efforts and the data generated, as well as partnerships for joint monitoring efforts, including patrols. In Peru, Law, Environment and Natural Resources (Derecho, Ambiente y Recursos Naturales, DAR), a national NGO, is developing a legal framework on the use of information collected by indigenous peoples as legal evidence in a court of law (DAR 2020). Governments should also establish clear,

BOX 6.2 | Protecting Land Defenders

When indigenous people in the Amazon stand up for their rights, intimidation and violence can ensue. In many places around the world, land and environmental defenders face diverse and growing threats, including surveillance and stigmatization (being labeled as “anti-development,” “anti-state,” “traitors,” “terrorists,” or “criminals”), harassment, criminalization of their efforts, false criminal charges and civil actions, and acts of physical violence, including torture and murder. Threats to land and environmental defender organizations include burdensome registration and government reporting requirements, Strategic Lawsuits Against Public Participation (SLAPP) suits, restrictions on funding, and other regressive laws and regulations.

There is an urgent need to achieve more rigorous protections for all defenders, but especially indigenous people given their unique vulnerabilities. All governments have the obligation and the authority needed to protect defenders. While many acknowledge the threats to defenders, few have prioritized actions that have significantly reduced those threats or improved the protection of land and environmental defenders. Attacks continue to be underreported, and there are high levels of impunity for those responsible. This is particularly alarming for indigenous people in the Amazon given the consistently high incidence of harassment and murders in Latin America.

Source: WRI authors.

accessible procedures for indigenous peoples to make complaints or appeal decisions, and for them to request and receive relevant government and company information.

Indigenous peoples would benefit from training on ways to safely monitor their lands for illegal activities. In recent years, new technologies have been developed and made available to quickly and precisely map indigenous lands, and to monitor large areas in real or near-real time, including using data from unmanned aerial vehicles/drones and satellites (Box 6.1). Deploying such technologies to monitor indigenous lands can be safer than manned patrols as they eliminate the possibility of direct confrontation with illegal miners or other violators. All monitoring should

be coordinated with local police forces, which have the authority to apprehend violators and confiscate their equipment.

As the risks to them and their communities increase, indigenous peoples are taking more precautions to carry out their activism and campaigning safely and effectively, and to defend themselves from harassment and physical attacks. This is particularly important for indigenous women as they become ever more active in protecting their lands from mining (Mujeres Defensoras 2018; Brown 2018b). Many land and environmental defenders, however, would likely benefit from gaining a better understanding of their legal rights, training on risk assessment information systems, learning how to better recognize threats and minimize risks, building capacity in new approaches to deescalating confrontational situations, and building skills in self-defense techniques. Indigenous activists should also have access to emergency funds, contact information for legal counsels, and NGOs that can provide urgent assistance and other support resources and protection mechanisms. Governments must establish an enabling environment that strengthens safeguards and reduces risks to indigenous defenders, adopt mechanisms to better monitor conflicts and attacks against defenders in near-real time, empower institutions responsible for protecting defenders, increase access to justice for indigenous activists, and ensure the people responsible for threats and attacks are held accountable for their actions (ProDESC 2019; Scheidel et al. 2020) (Box 6.2).

Ensure responsible mining:

All mining in the Amazon, whether by indigenous peoples, large mining companies, or ASM miners, should be responsible mining—mining that is safe, fair, and mitigates social and environmental risks. Governments must provide stronger oversight of mining operations and better enforce applicable laws, but miners and mining companies must also become better corporate citizens and take more responsibility in meeting social and environmental safeguards. Companies can no longer operate without social legitimacy, skirt the law and cause

major environmental devastation, and simply leave when an area is exhausted of economically viable minerals. New, stronger national laws and regulations are needed to ensure miners and mining companies operate safely and with the least social and environmental harm.

Some mining companies and mining associations have established social and environmental standards (Box 6.3), made voluntary commitments to responsible mining, and established corporate policies or guidelines that align with the commitments. Several mining standards exist for large-scale mining and ASM. Mining company-developed standards include the Mining Principles

of the International Council on Mining and Metals (ICMM 2020b) and the Responsible Gold Mining Principles of the World Gold Council (WGC 2019) as well as WGC's Conflict-Free Gold Standard (WGC 2012). Other responsible mining standards have been developed by mining associations such as the Artisanal Gold Council and the Mining Association of Canada.

Some mining companies are protecting forests and biodiversity by staying out of national protected areas and identifying no-go areas for mining on indigenous and other lands, such as ecologically sensitive areas (e.g., headwaters and primary intact forests) and sacred places (Miranda et al. 2003).

BOX 6.3 | International Council on Mining and Metals (ICMM)

ICMM is an international organization dedicated to a safe, fair and sustainable mining and metals industry. ICMM brings together 27 of the world's leading mining and metals companies and 36 regional and commodities associations to address the core sustainable development challenges faced by the industry. It serves "as a catalyst for change; enhancing mining's contribution to society." ICMM strengthens environmental and social performance. Participating companies include Alcoa, Anglo American, Anglo Gold Ashanti, Barrick, BHP, Codelco, Freeport-McMoRan, JX Nippon Mining & Metals, Minera San Cristóbal, Newmont Mining and Goldcorp, Rio Tinto, and Vale.

ICMM's 10 Mining Principles define the good practice environmental, social, and governance requirements of company members. These principles are:

- Ethical Business. Apply ethical business practices and sound systems of corporate governance and transparency to support sustainable development.
- Decision-making. Integrate sustainable development in corporate strategy and decision-making processes.
- Human Rights. Respect human rights and the interests, cultures, customs and values of employees and communities affected by our activities.
- Risk Management. Implement effective risk-management strategies and systems based on sound science, and which account for stakeholder perceptions of risk.
- Health and Safety. Pursue continual improvement in the health and safety performance with the ultimate goal of zero harm.
- Environmental Performance. Pursue continual improvement in environmental performance issues, such as water stewardship, energy use, and climate change.
- Conservation of Biodiversity. Contribute to the conservation of biodiversity and integrated approaches to land-use planning.
- Responsible Production. Facilitate and support the knowledge base and systems for responsible design, use, reuse, recycling, and disposal of products containing metals and minerals.
- Social Performance. Pursue continual improvement in social performance and contribute to the social, economic and institutional development of host countries and communities.
- Stakeholder Engagement. Proactively engage key stakeholders on sustainable development challenges and opportunities in an open and transparent manner. Effectively report and independently verify progress and performance.

Source: Based on data from ICMM 2020b, modified by WRI authors.

Companies are also making progress on restoring and reforesting their mining sites when operations have concluded. In Brazil, the multinational corporation Vale has been a pioneer in reforestation with natural tree species (Funk 2015; Pires et al. 2017). In recent years, some companies have also worked more closely with indigenous peoples and other communities affected by their operations in an effort to win their support. Leading mining companies are also increasing their CSR investments, focusing on local initiatives designed to address the social, economic, and environmental impacts of their mining.

As indigenous peoples and other local communities learn of their rights, take actions to protect their lands, and press miners to perform better, more mining companies recognize the growing risks to their reputation and bottom line. Risk assessors working for mining companies and their investors are increasingly concerned about land conflicts and are factoring associated risks into their assessments. National and global information hubs, such as Tierras Indígenas in Paraguay (Tierras Indígenas 2020) and LandMark: The Global Platform of Indigenous and Community Lands (LandMark 2020), provide precise boundaries of indigenous and community lands (formalized and customarily held lands) and other critical information, and are now commonly used by risk assessors.

The industry-developed standards and the voluntary commitments made by ASM miners and large multinational mining companies are to be applauded and encouraged. There is, however, growing evidence that voluntary approaches do not always lead to responsible mining as many companies fail to meet their commitments (WEF 2016). At the same time, the effectiveness of company CSR initiatives in mining (and in oil and natural gas) is being questioned (Sharma and Bhatnagar 2014). Over time, the aspects of these voluntary approaches that meet international standards should be incorporated into national laws and regulations. Companies that make voluntary commitments (e.g., engage in comprehensive community consultation processes and establish no-go areas) may be at a competitive disadvantage with those that do not. Enacting legislation requiring all companies to meet the same social

and environmental standards can level the playing field for companies that are voluntarily following good practices.

Certainly, more efforts are needed to ensure all mining is responsible mining. In particular, more needs to be done with regard to transparency and sharing of company information with stakeholders, company engagement in meaningful consultations with affected indigenous peoples and local communities, and benefit-sharing arrangements with those negatively impacted by mining operations. For example, mining and other companies do not always provide communities with information on the full extent of the environmental impacts of their operations. Too many companies abridge the requisite community consultation processes by convening just a single meeting or acquiring a token approval from a community leader (Notess et al. 2018). And women continue to face systemic discrimination in all phases of mining projects and in accessing their economic benefits (Hinton et al. 2003; Oxfam 2017).

Companies must also increase their support to indigenous peoples and other communities and negotiate fairer agreements that provide benefit-sharing packages that address community interests and aspirations and strengthen local capacity for self-determined development. Indigenous peoples should insist on formal agreements and governments should mandate them (Dalupan 2015; Loutit et al. 2016).⁸² Such community-company benefit-sharing agreements should include both financial and nonfinancial benefits. For revenue sharing, indigenous peoples and communities could demand fixed, predictable payments (although these may not change if the company's profits increase); royalties based on the volume of production or outputs; revenue streams based on company profits; or an equity share in the mine, which is more risky and dependent on the market.⁸³ Nonfinancial benefits could include local employment opportunities, commitments to source goods and services from local providers, support services, and training in transferable skills (e.g., business and management skills that equip the community to continue its economic development if the mine fails, becomes less productive, or closes) (Dalupan 2015; Loutit et al. 2016).

Ensure effective implementation and law enforcement:

To protect indigenous peoples, their lands, and their livelihoods, Amazonian governments must strengthen the public institutions that have critical roles in advancing indigenous matters. These include government agencies and departments responsible for establishing and implementing indigenous policies; for mapping, demarcating, and documenting indigenous lands; and for preventing invasions of indigenous territories by unauthorized outsiders. FUNAI in Brazil, the Ministry of Culture in Peru, and other national government agencies in the Amazonian countries with such responsibilities must be empowered—politically, legally, and practically—with sufficient human and financial resources to effectively discharge their roles and duties (Zambrano Chávez 2020). Actions that weaken these agencies by cutting budgets or rolling back their authorities threaten to further marginalize indigenous peoples and could lead to more conflict.

Amazonian governments must also strengthen their oversight of mining on indigenous lands. Mining operations must conform with the law and meet the provisions of licensing and concession agreements. Illegal operations must be halted, and illegal occupants must be removed. Government efforts should not be limited to capturing and prosecuting illegal miners on indigenous lands but also include the individuals who hire, finance, or otherwise facilitate the illegal miners. Those who sell and profit from the illicit trade in gold, diamonds, and other minerals must also be identified and prosecuted. Such operations require coordination across national borders and partnering with relevant international police bodies, such as the International Criminal Police Organization (INTERPOL) and the International Criminal Court (ICC).

The research provides clear evidence (see Case Studies) that while national laws establish some social and environmental safeguards, they are not always implemented by miners or effectively enforced by governments. Illegal mining is widespread, the right of consultation is often violated by governments and mining companies,

miners do not always mitigate the environmental impacts of their operations, indigenous peoples are not always fairly compensated for their losses, and many are forcibly evicted from their lands and not adequately resettled elsewhere.

While national social and environmental safeguards must be strengthened to meet international standards, effective implementation and enforcement of the existing laws would help protect indigenous peoples and their lands from the most harmful effects of mining. In the absence of effective law enforcement, indigenous peoples and their forest homes suffer. The research shows that forest losses on indigenous lands with mining are considerably greater than on indigenous lands without mining (see GIS Analysis). With the loss or degradation of forests, indigenous peoples lose their livelihood, which has adverse impacts on their well-being.

Indigenous lands in the Amazon are often remote from local police and government agencies. The effective delivery of public services in rural regions may require more resources and involve more public servants than in urban settings (Gribble and Preston 1993; OECD 2010), but such investments are essential to the well-being of rural populations and help ensure indigenous peoples and other local communities are not neglected or marginalized. Local police and other important government agencies must be empowered, properly resourced, and motivated to ensure they meet their roles and responsibilities. This may require local government agencies to hire additional staff, provide local officers with more training, and invest in new tools and technologies for monitoring and overseeing mining on indigenous lands (see above).

Today, in many places, however, local government agencies responsible for monitoring mining, protecting forests, and supporting indigenous peoples are ill-equipped to ensure local and national laws are effectively implemented and enforced. Rather than build local capacity to improve performance, the budgets of crucial agencies in some countries have been slashed

and senior staff furloughed or let go. Such actions further weaken agency capacity to ensure compliance with mining regulations, while emboldening those involved in illegal actions.

In addition to improving law enforcement, Amazonian governments—and consumer country governments—can address the demand of gold and other minerals that are illegally mined by establishing certification systems. Such schemes can promote actions by miners that protect forests and respect indigenous peoples. The efforts could build on the successes of initiatives designed to ensure other goods and products are responsibly sourced, such as conflict-free diamonds, certified wood and paper products from responsibly managed forests, and responsible soy production.

Governments can work with public and independent organizations to identify an appropriate existing set of standards or establish a new set for responsible mining in the Amazon and build a chain of custody certification process. In addition to the standards developed by mining companies and mining associations (Box 6.3), independent standards include the Fairmined Standard (Version 2.0) of the Alliance for Responsible Mining (for ASM) (ARM 2014), the Standard for Responsible Mining (IRMA-STD-001) of the Initiative for Responsible Mining Assurance (IRMA 2018), the Environmental Management System Standard, ISO 14001, of the International Organization for Standardization (ISO 2015), and the Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas of the Organisation for Economic Co-operation and Development (OECD 2013).

The system would track certified minerals through the extraction, processing, transformation, manufacturing, and distribution procedures. Independent auditors would then be in a position to assess production and issue certificates to mining operations that comply with the agreed-upon standards.

Consumer country governments can support the successful implementation of responsible sourcing certification schemes (Eslava 2018). They can implement an outreach and information campaign designed to educate consumers on the value of purchasing certified minerals or products that use them. They can encourage responsible mineral sourcing through their public procurement rules by requiring bids to contain certified minerals or through preferential bid evaluation. They can require publicly traded downstream companies to report whether they source certified minerals in their country's securities and exchange commission. Consumer country governments can also support downstream companies, especially small and medium-sized enterprises (SMEs), which face implementation challenges, including understanding exact requirements, costs, lack of cooperation from suppliers, and reporting (Eslava 2018).



APPENDICES

Appendix A. Categories of Indigenous Lands in the Amazon Based on Their Legal Status.

Table A1 | Types of Indigenous Lands Included in the Spatial Analysis per Country (Classified According to Legal Status)

COUNTRY	AREAS OF TRADITIONAL OCCUPATION AND USE: OFFICIALLY RECOGNIZED	AREAS OF TRADITIONAL OCCUPATION AND USE: NOT OFFICIALLY RECOGNIZED, IN PROCESS OF BEING DEMARCATED, OR WITHOUT STATUS INFORMATION	OFFICIALLY RECOGNIZED INDIGENOUS RESERVATIONS OR 'INTANGIBLE ZONES'	PROPOSED INDIGENOUS RESERVATIONS
Bolivia	Indigenous territory (Territorio Indigena Originario Campesino, registered)	Request for registration or in process of registration	N/A	N/A
Brazil	Indigenous lands (identified, declared, or homologated)	No data	N/A	N/A
Colombia	Indigenous reservation (decreed)	No data	N/A	N/A
Ecuador	Community lands (registered or decreed)	Request for registration or in process of registration	Zone set aside for voluntarily isolated indigenous people	
Guyana	Amerindian lands (decreed)	No data	N/A	N/A
French Guiana	Area of collective use right for the benefit of local communities	No data	N/A	N/A
Peru	Native communities (demarcated and registered); peasant communities	Native community in process of registration	Indigenous reservation for isolated indigenous people	Proposed indigenous reservation
Suriname	No data	Without status information	N/A	N/A
Venezuela	Indigenous lands (demarcated community)	Areas of traditional use without demarcation or self-demarcated territory	N/A	N/A

N/A = the category is not applicable to the country.

Source: Based on data from RAISG 2019a, modified by WRI authors.

Appendix B. Data Sets Used in the Spatial Analysis.

Table B1 | Description of Geospatial Data Sets Used in the Spatial Analysis (Including Geographic Coverage, Source, and Notes)

DATA SET	GEOGRAPHIC COVERAGE	CREATOR AND DATE OF DATA	NOTES	SOURCE
Indigenous lands	Bolivia, Brazil, Colombia, Ecuador, French Guiana, Peru, Suriname, Venezuela	RAISG, 2019	RAISG compiles data from multiple sources that vary per country; see https://www3.socioambiental.org/geo/RAISGMapaOnline/ for complete details. Lands were categorized according to their legal recognition status (i.e., acknowledged by government/titled vs. not acknowledged by government/held under customary tenure).	Red Amazónica de Información Socioambiental Georeferenciada (RAISG). 2019c. Indigenous territories data, compiled from various sources. Available at: https://www3.socioambiental.org/geo/RAISGMapaOnline/ .
Indigenous lands	Guyana	Guyana Lands and Surveys Commission, 2018		Guyana Lands and Surveys Commission. 2018. Amerindian Lands.
Areas of illegal mining	Bolivia, Brazil, Colombia, Ecuador, Peru, Venezuela	RAISG, 2018	Data were available in different geospatial formats (polygon, point, or line) that varied by country. No data were available for French Guiana, Guyana, or Suriname.	RAISG. 2018c. Illegal mining data, compiled from various sources. Available at: https://www3.socioambiental.org/geo/RAISGMapaOnline/ .
Legal mining concessions	Bolivia, Brazil, Colombia, Ecuador, Peru, Suriname, Venezuela	RAISG, 2018	Data are compiled from multiple sources that vary per country; see https://www3.socioambiental.org/geo/RAISGMapaOnline/ for complete details. Data were categorized by status (i.e., exploration, exploitation, under tender, open for bidding, suspended, or cancelled) where available. No data were available for French Guiana.	RAISG. 2018d. Mining concessions data, compiled from various sources. Available at: https://www3.socioambiental.org/geo/RAISGMapaOnline/ .
Legal mining concessions	Guyana	Guyana Geology and Mines Commission, 2016	Medium-scale mineral licenses	Guyana Geology and Mines Commission. 2016. Medium-scale mineral licenses data.

DATA SET	GEOGRAPHIC COVERAGE	CREATOR AND DATE OF DATA	NOTES	SOURCE
Deforestation: 2000–05, 2005–10, 2010–15	All countries	RAISG, 2016	Satellite-derived deforestation data are representative of tree cover loss across three time intervals: 2000–05, 2005–10, and 2010–15.	RAISG. 2016. Deforestation in the Amazon: 2000–2015. Available at: https://www3.socioambiental.org/geo/RAISGMapaOnline/ .
National natural protected areas	All countries	RAISG, 2018	RAISG organizations compiled data from multiple sources, as follows: Bolivia (FAN): SERNAP 2015; Brazil (ISA): digitized by ISA 2019, from official documents, based on IBGE/DSG/MMA, 1:100,000; Colombia (FGA): National Registry of Protected Areas 2017; Ecuador (EcoCiencia): MAE 2018; STAGE 2018; sustainable development program of the Yasuni Biosphere Reserve and GIZ 2014; French Guiana (DEAL): DEAL 2007; Guyana (collaboration of Roxroy K. Bollers, GIS/IT Coordinator/ Iwokrama International Center for Rain Forest Conservation and Development): Iwokrama 2012; Peru (IBC): Ministry of Environment (MINAM)–National Service of Natural Areas Protected by the State (SERNANP) 2018; Suriname (ACT Suriname): World Database Protected Areas (WDPA) 2006; Venezuela (IVIC and Provita): Rodríguez, Jon Paul, Sergio Zambrano-Martínez, Maria A. Oliveira-Miranda, Rodrigo Lazo (2014); Digital Representation of Protected Natural Areas of Venezuela, IVIC and Total Venezuela S.A; Provita 2015, on the revision of Decrees 1,233 (Extraordinary Official Gazette 4,250/1991), 2,987 (Extraordinary Official Gazette 2417/1979).	RAISG. 2018e. National Natural Protected Areas data, compiled from various sources. Available at: https://www3.socioambiental.org/geo/RAISGMapaOnline/ .

Sources: Based on data from RAISG 2016, 2018, 2019, Guyana Lands and Surveys Commission 2018, and Guyana Geology and Mines Commission 2016, modified by WRI authors.

Appendix C. Indicators and Questions for the Legal Reviews

Ownership

1. Does the law define minerals?
 - a. If so, how (e.g., sand, gravel, stones, gold, gemstones, etc.)?
 - b. What minerals are allowed to be extracted by law?
2. Does the law define indigenous people or/and indigenous land? If so, how is it defined?
3. Does the law define communities and community land? If so, how is it defined?
4. Does the law allocate ownership over minerals?
 - a. Who owns the country's minerals?
 - i. State
 - ii. Landowner
 - iii. Indigenous peoples/communities
 - iv. Public resources held in trust by the government for the people
5. Does the law recognize indigenous/community land and customary tenure arrangements?
 - a. Does it recognize lands/natural resource rights?
 - b. Must customary rights be formally registered and documented with the government to be recognized?
 - c. What is the bundle of rights with different types of legal recognition/titles (e.g., withdrawal, management, exclusion, alienation, and access rights)?
 - d. What rights does the state retain over indigenous/community lands?
5. Do mineral rights prevail over customary/titled indigenous/community land rights when they overlap?
 - a. Can the government acquire customary or titled indigenous/community lands in a compulsory manner (eminent domain) for mining purposes?
 - b. Are indigenous peoples/communities obligated to lease or otherwise let miners use their customary or titled lands for mining purposes?
 - c. Does the law demand compensation to be paid in favor of indigenous peoples/communities for the acquisition/use of their lands?
 - i. How is it calculated (e.g., government appraisal, market rate, etc.)?
6. Can the government establish concession blocks and allocate rights to minerals on/under customarily or titled indigenous/community lands?
7. Are there any conditions or restrictions placed when mining on indigenous/community lands?
 - a. Must miners have the approval of indigenous peoples/communities to exercise their mineral rights on indigenous/community lands?
 - b. Must miners have to pay indigenous peoples/communities to exercise their mineral rights on indigenous/community lands?
 - c. Must miners have to pay the government to exercise their mineral rights on indigenous/community lands?
 - d. If so, is there any legal provision that states how this amount should be distributed to indigenous peoples/communities?
 - e. Are indigenous peoples/communities legally entitled to any benefits from mining on their customary or titled lands (e.g., corporate social responsibility [building of schools, medical centers, etc.], share of profits, co-ownership of operations, etc.)?

Allocation

1. Does the law recognize rights over minerals in favor of indigenous peoples/communities on or under their customarily held/titled lands?
2. Are the indigenous peoples/communities eligible to acquire mineral rights for subsistence and/or commercial purposes?
3. Do indigenous peoples/communities have the right of first refusal to exploit minerals on/under their customary or titled lands when the government makes them available for extraction?
4. Is there any established procedure to acquire mineral rights for all interested parties (including indigenous peoples/communities)?
 - a. Which mechanisms are used by the government to regulate/govern minerals and their extraction/use (e.g., industrial concessions, licenses, etc.)?

Information, consultation, and consent

1. Must the government inform and/or consult indigenous peoples/communities on the requests for allocating mineral rights on their customary or titled lands?
 - a. Must the government/mining company engage indigenous peoples/communities in negotiating the mining concession agreement, contract, or license?
2. Do indigenous peoples/communities have the right of free, prior, and informed consent over the establishment of concession blocks and/or the allocation of mineral rights on their customary or titled lands?

Protection

1. Are there any indigenous/community lands where mining is prohibited or limited (e.g., cropped lands, sacred groves, protected areas, etc.)?
2. Is the government legally responsible for monitoring company performance on customary or titled indigenous/community lands?
 - a. What is the basis for government monitoring?
 - b. Are there any legal consequences of noncompliance (e.g., revocation, fines, etc.)?
3. Is the mining company/miner legally responsible for any damage caused by their operations on customary/titled lands of indigenous peoples/communities?
 - a. Must they pay the indigenous peoples/communities for any damages?
 - b. Must they pay the government for any damages? If so, must the government pay (or compensate in any way) the indigenous peoples/communities?
 - c. Is there any legal obligation to adopt rehabilitation (when restoration is possible) and/or compensation (in case of irreversible damages) measures on customary/titled lands?
 - d. Are there any consequences of noncompliance with the (rehabilitation/compensation) measures ordered by the government; for instance, revoking the mineral rights or applying fines to the company?
 - i. If so, what happens if the miner/mining company continues with its operations? Is the government allowed to evict or halt mining operations?
4. Do indigenous peoples/communities have authorities over legally sanctioned miners/mining operations on their customary or titled lands (e.g., evicting miners or halting mining operations if they take illegal actions or act in ways not consistent with their concession/license or any agreement/contract with the community)?
5. Do legally sanctioned miners/mining operations (mobilized by the government) have authorities over customary or titled indigenous/community lands to exercise their mineral rights (e.g., entering onto and using indigenous/community lands)?
6. Does the government have the authority to remove illegal miners from indigenous peoples/community lands?
 - a. Does it have the authority to monitor, capture, detain, or punish illegal miners operating on indigenous peoples/community lands?
 - b. Does it have the authority to take possession of their equipment and keep or destroy any confiscated minerals?
7. Do indigenous peoples/communities have the authority to remove illegal miners from their customary or titled lands?
 - a. Do they have the authority to monitor, capture, detain, or punish illegal miners operating on their customary or titled lands?
 - b. Do they have the authority to take possession of their equipment and keep any confiscated minerals?

Appendix D. List of International Treaties and National Laws and Regulations Reviewed

International treaties

- International Labour Organization, Indigenous and Tribal Peoples Convention (ILO Convention 169), June 27, 1989.
- The United Nations Declaration on the Rights of Indigenous Peoples, United Nations (UNDRIP), September 13, 2007.

Bolivia

Political Constitution of the Plurinational State of Bolivia, 2007

Laws and Legislative Decrees:

- Ley N° 969, Ley de Protección, Desarrollo Integral y Sustentable del Territorio Indígena y Parque Nacional Isiboro Sécore–Tipnis [Law of Protection and Sustainable Development of Tipnis], August 13, 2017.
- Ley N° 535, Ley de Minería y Metalurgia [Mining Law], May 19, 2014.
- Ley N° 450, Ley de Protección a Naciones y Pueblos Indígena Originarios en Situación de Alta Vulnerabilidad [Law on Protection of Indigenous Peoples of High Vulnerability], December 4, 2013.
- Ley N° 300, Ley Marco de la Madre Tierra y Desarrollo Integral para Vivir Bien [Law of Mother Earth], October 15, 2012.
- Decisión Andina N° 774, Política Andina de Lucha contra la Minería Ilegal [Andean Decision N° 774], July 30, 2012.
- Ley N° 180, Ley de Protección del Territorio Indígena y Parque Nacional Isiboro Sécore–Tipnis [Law of Tipnis], October 24, 2011.
- Ley N° 112, Aprueba el Contrato de Colaboración Financiera N° 10219991 suscrito entre el Estado Plurinacional de Bolivia y el Banco Nacional de Desarrollo Económico e Social–BNDES de la República Federal del Brasil (Approves the Collaboration Contract between Bolivia and BNDES), May 7, 2011.
- Ley N° 1333, Ley de Medio Ambiente [Environmental Law], April 27, 1992.
- Ley N° 1257, que aprueba y ratifica el Convenio 169 sobre Pueblos Indígenas y Tribales en Países Independientes, aprobado en la 76a Conferencia de la Organización Internacional del Trabajo realizada el 27 de junio de 1989 [Law 1257 That Approves the ILO Convention 169], July 11, 1991.
- Decreto Ley N° 07401, Declara "Parque Nacional del Isiboro y Sécore" [Law of the Isiboro and Sécore Park], November 22, 1965.

Decrees/Regulations:

- Resolución Ministerial N° 023/2015, Reglamento de Otorgación de y Extinción de Derechos Mineros [Regulation of Granting and Extinction of Mining Rights], January 30, 2015.
- Decreto Supremo N° 24782, Reglamento Ambiental para Actividades Mineras [Environmental Regulation for Mining Activities], July 31, 1997.
- Decreto Supremo N° 22610 [Regulation of Law of the Isiboro and Sécore Park], September 24, 1990.

Brazil

Constitution of the Federative Republic of Brazil, 1988

Laws and Legislative Decrees:

- Lei Nº 13.575, de 26 de Dezembro de 2017, Cria a Agência Nacional de Mineração (ANM); extingue o Departamento Nacional de Produção Mineral (DNPM); altera as Leis n.º 11.046, de 27 de dezembro de 2004, e 10.826, de 22 de dezembro de 2003; e revoga a Lei n.º 8.876, de 2 de maio de 1994, e dispositivos do Decreto-Lei n.º 227, de 28 de fevereiro de 1967 (Código de Mineração) [Law That Creates the National Mining Agency], December 26, 2017.
- Decreto Legislativo Nº 143, de 2002, Aprova o texto da Convenção n.º 169 da Organização Internacional do Trabalho sobre os povos indígenas e tribais em países independentes [Law That Approves the ILO Convention 169], June 20, 2002.
- Lei Nº 10.406, de 10 de Janeiro de 2002, Institui o Código Civil [Civil Code], January 10, 2002.
- Lei Nº 9.605, de 12 de Fevereiro de 1998, Dispõe sobre as Sanções Penais e Administrativas Derivadas de Condutas e Atividades Lesivas ao Meio Ambiente, e dá outras Providências [Environmental Crimes Law], February 12, 1998.
- Lei Nº 6.001 de 19 de Dezembro de 1973, Dispõe sobre o Estatuto do Índio [Indian Statute], December 19, 1973.

Decrees/Regulations:

- Decreto Nº 9.406, de 12 de Junho de 2018, Regulamenta o Decreto-Lei n.º 227, de 28 de fevereiro de 1967, a Lei n.º 6.567, de 24 de setembro de 1978, a Lei n.º 7.805, de 18 de julho de 1989, e a Lei n.º 13.575, de 26 de dezembro de 2017 [Regulation of the Mining Code], June 12, 2018.
- Portaria Interministerial Nº 60, Estabelece Procedimentos Administrativos que Disciplinam a Atuação dos Órgãos e Entidades da Administração Pública Federal em Processos de Licenciamento Ambiental de Competência do Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis-Ibama [Ordinance on Procedures for Environmental Licensing Processes], March 24, 2015.
- Resolução CONAMA Nº 237, de 19 de Dezembro de 1997, Dispõe sobre a Revisão e Complementação dos Procedimentos e Critérios Utilizados para o Licenciamento Ambiental [Procedures and Criteria Used for Environmental Licensing], December 19, 1997.
- Decreto Nº 1.775/96, de 8 de Janeiro de 1996, Dispõe sobre o Procedimento Administrativo de Demarcação das Terras Indígenas e dá outras Providências [Law of the Indigenous Lands Demarcation], January 8, 1996.
- Decreto de 25 de Maio de 1992, Homologa a demarcação administrativa da Terra Indígena YANOMAMI, nos Estados de Roraima e Amazonas [Decree That Approves the Demarcation of the Yanomami Indigenous Land], May 25, 1992.
- Resolução CONAMA Nº 1, de 23 de Janeiro de 1986, Dispõe sobre Critérios Básicos e Diretrizes Gerais para a Avaliação de Impacto Ambiental [Guidelines for Environmental Impact Assessment], January 23, 1986.

Court decisions and legal opinions:

- Processo Nº 1000580-84.2019.4.01.3200, 1ª Vara Federal Cível da Seção Judiciária do Estado do Amazonas, Ministerio Publico Federal [Process Nº 1000580], August 2, 2019.
- Parecer Nº 001/2017/GAB/CGU/AGU, Advocacia-Geral da União-AGU [Legal Opinion Nº 01/2017], July 19, 2017. <https://www.conjur.com.br/dl/parecer-agu-raposa-serra-sol.pdf>.
- Parecer Nº 469/2015/HP/PROGE/DNPM, Agência Nacional de Mineração-ANM (before, Departamento Nacional de Produção Mineral, DNPM) [Legal Opinion Nº 469/2015], December 4, 2015.
- Petição Nº 3.388 Roraima, Supremo Tribunal Federal [Petition Nº 3388 ED/RR], October 23, 2013.

Bills:

- Projeto de Lei Nº 191/2020, Regulamenta o § 1º do art. 176 e o § 3º do art. 231 da Constituição para Estabelecer as Condições Específicas para a Realização da Pesquisa e da Lavra de Recursos Minerais e Hidrocarbonetos e para o Aproveitamento de Recursos Hídricos para Geração de Energia Elétrica em Terras Indígenas e Institui a Indenização pela Restrição do Usufruto de Terras Indígenas [Bill 191/2020], February 6, 2020.
- Projeto de Lei Nº 1610/1996, Dispõe sobre a Exploração e o Aproveitamento de Recursos Minerais em Terras Indígenas, de que tratam os arts. 176, parágrafo 1º, e 231, parágrafo 3º, da Constituição Federal [Bill 1610/1996], March 11, 1996.

Colombia

Constitution, 1991

Laws and Legislative Decrees:

- Ley Nº 1955, Por el cual se expide el Plan Nacional de Desarrollo 2018-202 [National Development Plan (2018-2022) Law (Law 1955 of 2019)], May 25, 2019.
- Decisión Andina Nº 774, Política Andina de Lucha contra la Minería Ilegal [Andean Decision Nº 774], July 30, 2012.
- Ley Nº 1333 de 2009, por la cual se establece el procedimiento sancionatorio ambiental y se dictan otras disposiciones [Law 1333, environmental sanctioning procedure], July 21, 2009.
- Ley Nº 685 de 2001, Código de Minas [Mining Code], August 15, 2001.
- Código Penal [Criminal Code], July 24, 2000.
- Ley Nº 70 de 1993, por la cual se desarrolla el artículo transitorio 55 de la Constitución Política [Law 70, about Afro-Colombian peoples], August 27, 1993.
- Ley Nº 21 de 1991, por medio de la cual se aprueba el Convenio número 169 sobre pueblos indígenas y tribales en países independientes, adoptado por la 76a. reunión de la Conferencia General de la O.I.T., Ginebra 1989 [Law That Approves the ILO Convention 169], March 4, 1991.

Decrees/Regulations:

- Decreto N° 1666 de 2016, Por el cual se adiciona el Decreto Único Reglamentario del Sector Administrativo de Minas y Energía, 1073 de 2015, relacionado con la clasificación minera [Decree on Mining Classification], October 21, 2016.
- Decreto N° 1073 de 2015, Por medio del cual se expide el Decreto Único Reglamentario del Sector Administrativo de Minas y Energía [Decree of the Administrative Sector of Mines], May 26, 2015.
- Decreto N° 1353 de 2014, Por el cual se crea un régimen especial con el fin de poner en funcionamiento los Territorios Indígenas respecto de la administración de los sistemas propios de los pueblos indígenas hasta que el Congreso expida la ley de que trata el artículo 329 de la Constitución Política [Special Regime for Indigenous Territories], October 7, 2014.
- Resolución N° 396 de 2013, por medio de la cual se establece el Procedimiento para la Radicación de Solicitudes Mineras en Ejercicio del Derecho de Prelación consagrado en los Artículos 124 y 133 del Código de Minas [Procedure for Exercising the Right of First Refusal], June 14, 2013.
- Decreto N° 2235 de 2012, por el cual se reglamentan el artículo 6° de la Decisión número 774 del 30 de julio de 2012 de la Comunidad Andina de Naciones y el artículo 106 de la Ley 1450 de 2011 en relación con el uso de maquinaria pesada y sus partes en actividades mineras sin las autorizaciones y exigencias previstas en la ley [Decree on the Use of Heavy Machinery in Mining Activities], October 29, 2012.
- Decreto N° 1320 de 1998, por el cual se reglamenta la consulta previa con las comunidades indígenas y negras para la explotación de los recursos naturales dentro de su territorio [Decree on Prior Consultation], July 13, 1998.
- Decreto N° 2164 de 1995, Por el cual se reglamenta parcialmente el Capítulo XIV de la Ley 160 de 1994 en lo relacionado con la dotación y titulación de tierras a las comunidades indígenas para la constitución, reestructuración, ampliación y saneamiento de los Resguardos Indígenas en el territorio nacional [Regulation on Titling of Indigenous Peoples' Lands], December 7, 1995.
- Decreto N° 1745 de 1995, por el cual se reglamenta el Capítulo III de la Ley 70 de 1993, se adopta el procedimiento para el reconocimiento del derecho a la propiedad colectiva de las "Tierras de las Comunidades Negras" y "se dictan otras disposiciones" [Decree on the Procedure for the Recognition of the Right to Collective Property of Afro-Colombians], October 12, 1995.
- Decreto N° 1088 de 1993, Por el cual se regula la creación de las asociaciones de Cabildos y/o Autoridades Tradicionales Indígenas [Decree 1088 of 1993], June 11, 1993.
- Resolución N° 035 de 1988, Por la cual se constituye como Resguardo Indígena Yaigojé-Río Apaporis en favor de las Comunidades Tanimuca, Yucuna, Barasano, Letuama, Matapí, Macuna y Macú un globo de terreno baldío situado en ambas márgenes de los Ríos Popeyacá y Apaporis, en jurisdicción de los Corregimientos Comisariales de Mirití—Paraná y Pacoa, Municipios de Leticia y Mitú, Comisarias de Amazonas y Vaupés, respectivamente [Resolution 035 of 1988], April 23, 1988.

Court decisions:

- Sentencia N° T-005/16, Corte Constitucional [Decision N° T-005/16], January 19, 2016.
- Sentencia N° T-384A/14, Corte Constitucional [Decision N° T-384A/14], June 17, 2014.
- Sentencia N° T-387/13, Corte Constitucional [Decision N° T-387/13], June 28, 2013.
- Sentencia N° T-129/11, Corte Constitucional [Decision N° T-129/11], March 3, 2011.

Ecuador

Constitution of the Republic of Ecuador, 2008

- Decisión Andina N° 774, Política Andina de Lucha contra la Minería Ilegal [Andean Decision N° 774], July 30, 2012.
- Ley N° 45, Ley de Minería [Mining Law], January 29, 2009.
- Ley N° 86, Ley Orgánica de las Instituciones Públicas de Pueblos Indígenas del Ecuador que se autodefinen como Nacionalidades de Raíces Ancestrales [Law of Indigenous Peoples' Public Institutions], September 11, 2007.

Decrees/Regulations:

- Resolución N° 043-DIRARCOM-2015, que Sustituye Íntegramente el Instructivo para la Constitución de Servidumbres contenido en la Resolución N° 003-INS-DIR-ARCOM-2011 de fecha 21 de Septiembre de 2011 [Rules for the Establishment of Mining Easements], August 13, 2015.
- Decreto Ejecutivo N° 119, Reglamento de la Ley de Minería [Regulation of the Mining Law], November 16, 2009.

Court decisions:

- Judgment of June 27, 2012, Case of the Kichwa Indigenous People of Sarayaku v. Ecuador, Inter-American Commission on Human Rights (IACHR) [Case of the Kichwa Indigenous People of Sarayaku v. Ecuador], June 27, 2012.
- Sentencia N° 001-10-SIN-CC, Corte Constitucional [Decision N° 001-10-SIN-CC], March 18, 2010.

Guyana

Constitution of the Co-operative Republic of Guyana, 1980

- Protected Areas Act, No. 14, 2011
- Forests Act (Cap. 67:01), 2009
- Amerindian Act (Cap. 29:01), 2006
- Environmental Protection Act, 1996
- Mining Act (Cap. 65:01), 1989
- Land Registry Act (Cap. 5:02), 1959
- State Lands Regulations, 1919
- State Lands Act (Cap. 62:01), 1903

Peru

Political Constitution of Peru, 1993

Laws and Legislative Decrees:

- Decisión Andina N° 774, Política Andina de Lucha contra la Minería Ilegal [Andean Decision N° 774], July 30, 2012.
- Ley N° 29785, Ley del derecho a la consulta previa a los pueblos indígenas u originarios, reconocido en el Convenio 169 de la Organización Internacional del Trabajo (OIT) [Law on the Right to Prior Consultation of Indigenous Peoples], September 7, 2011.
- Ley N° 28736, Ley para la protección de pueblos indígenas u originarios en situación de aislamiento y en situación de contacto inicial [Law of Indigenous or Native Peoples in Isolation Situation and Initial Contact Situation], May 18, 2006.
- Ley N° 27811, Ley que establece el régimen de protección de los conocimientos colectivos de los Pueblos Indígenas vinculados a los Recursos Biológicos [Law for the Protection of the Collective Knowledge of Indigenous Peoples Associated with Biological Resources], August 10, 2002.
- Ley N° 26505, Ley de la inversión privada en el desarrollo de las actividades económicas en las tierras del territorio nacional y de las comunidades campesinas y nativas [Law of the Development of Economic Activities in the Lands of the National Territory and Peasant and Native Communities], July 18, 1995.
- Ley N° 24656, Ley General de Comunidades Campesinas [Peasant Communities Law], April 14, 1987.
- Decreto Legislativo N° 109, Ley General de Minería [Mining Law], June 13, 1981.
- Decreto Ley N° 22175, Ley de Comunidades Nativas y de Desarrollo Agrario de la Selva y Ceja de Selva [Native Communities Law], May 10, 1978.

Supreme Decrees/Regulations:

- Decreto Supremo N° 042-2017-EM, Reglamento de Protección Ambiental para las Actividades de Exploración Minera [Environmental Protection Regulations for Mining Exploration Activities], December 22, 2017.
- Decreto Supremo N° 040-2014-EM, Reglamento de Protección y Gestión Ambiental para las Actividades de Explotación, Beneficio, Labor General, Transporte y Almacenamiento Minero [Regulation of Protection and Environmental Management for Exploitation Activities], November 12, 2014.
- Decreto Supremo N° 001-2012-MC, Reglamento de la Ley N° 29785, Ley del Derecho a la Consulta Previa a los Pueblos Indígenas u Originarios reconocido en el Convenio 169 de la Organización Internacional del Trabajo (OIT) [Regulation of the Law on the Right to Prior Consultation], April 3, 2012.
- Decreto Supremo N° 002-2016-VIVIENDA, Decreto Supremo que aprueba el Reglamento del Capítulo I del Título IV de la Ley N° 30327, Ley de Promoción de las Inversiones para el Crecimiento Económico y el Desarrollo Sostenible [Regulation of the Investment Promotion Law for Economic Growth and Sustainable Development], January 22, 2016.
- Decreto Supremo N° 001-2015-EM, Aprueban disposiciones para procedimientos mineros que impulsen proyectos de inversión [Regulations for Mining Procedures That Promote Investment Projects], January 6, 2015.
- Decreto Supremo N° 017-96-AG, Aprueban el Reglamento del Artículo 7 de la Ley N° 26505, referido a las servidumbres sobre tierras para el ejercicio de actividades mineras o de hidrocarburos [Regulation on Easements for Mining Activities], October 19, 1996.
- Decreto Supremo N° 03-94-EM, Aprueban el Reglamento de diversos Títulos del Texto Único Ordenado de la Ley General de Minería [Regulation of the Mining Law], January 15, 1994.
- Decreto Supremo N° 18-92-EM, Aprueban el Reglamento de Procedimientos Mineros [Mining Procedures Regulation], September 8, 1992.
- Decreto Supremo N° 014-92-EM, Texto Único Ordenado de la Ley General de Minería [Mining Law Decree], June 4, 1992.

Court decisions:

- Resolución N° 28, Expediente N° 00675-2017-0-2701-JM-CI-01, Corte Superior de Justicia de Madre de Dios [Resolution N° 28], February 27, 2019.
- Resolución N° 20, Expediente N° 00675-2017-0-2701-JM-CI-01, Corte Superior de Justicia de Madre de Dios [Resolution N° 20], December 11, 2018.
- Resolución N° 38/17, Inter-American Commission on Human Rights (IACHR) [Resolution N° 38/17], September 8, 2017.
- Expediente N° 01126-2011-HC/TC, Tribunal Constitucional [Dossier N° 01126-2011-HC/TC], September 11, 2012.
- Expediente N° 00025-2009-PI/TC, Tribunal Constitucional [Dossier N° 00025-2009-PI/TC], March 17, 2011.
- Expediente N° 05427-2009-PC/TC, Tribunal Constitucional [Dossier N° 05427-2009-PC/TC], June 30, 2010.
- Expediente N° 0022-2009-PI/TC, Tribunal Constitucional [Dossier N° 0022-2009-PI/TC], June 9, 2010.

ENDNOTES

1. Revenue, including foreign exchange, is generated from royalties, taxes, fees, fines, and other sources.
2. Commercial-scale mining has an employment multiplier effect from two to five, including indirect jobs that support mining, and induced jobs that are a result of direct and indirect employees spending money in the community (Walser 2002).
3. The comparative importance of mining and contribution to the world's GDP during the last century shows an increase by a factor of 27 in ores and minerals production, and by a factor of eight in total materials extraction, while GDP rose 23-fold (Carvalho 2017).
4. Peru's Fiscal Stabilization Fund was created in 1999 to give the government spending capacity in the face of emergencies (Salas et al. 2018).
5. Dredging involves the extraction of gold or other minerals from sand, gravel, and dirt on the bottom of streams, rivers, and other water bodies.
6. More than 1,000 murders have been recorded by Global Witness since 2010. UN Rapporteurs and regional human rights bodies, including the Inter-American Commission on Human Rights (IACHR), have also documented a distinct surge of instances of physical violence and criminalization of defenders, especially indigenous people. Moreover, the level of impunity is high for killings, with only 34 perpetrators charged, and just 10 convicted, of the 908 recorded killings between 2002 and 2013 (Global Witness 2014). Nearly all the known killings occurred in the context of large infrastructure developments, extractive industries, and other environmentally destructive projects.
7. In 2017, mining conflicts accounted for 36 killings (Global Witness 2018; Watts 2018).
8. The Amazon River basin is the portion of land drained by the Amazon River and its many tributaries.
9. For RAISG, the total area of the Amazon—7.8 million sq. km (calculated by GIS)—refers to the biogeographical boundary in Colombia and Venezuela; the Amazon basin boundary in Peru, Bolivia, Ecuador; the regional boundary (referred to as the Legal Amazon region) and the Amazon watershed in Brazil; and the entire countries of Guyana, French Guiana, and Suriname (RAISG 2019a).
10. The Amazon forest is Earth's most biodiverse tract of tropical rainforest, with an estimated 16,000 tree species and 390 billion individual trees. At least 2.5 million insect species, 40,000 plant species, 2,200 fishes, 1,294 birds, 427 mammals, 428 amphibians, and 378 reptiles have been scientifically classified in the region. About 20 percent of the world's bird and fish species are found in the Amazon (Da Silva et al. 2005).
11. Amazonian forest is estimated to have accumulated 0.62 ± 0.37 tonnes of carbon per hectare per year between 1975 and 1996 (Tian et al. 2000).
12. The Amazon River is about 640 km long (second in length to the Nile River) and the world's largest in terms of discharge of water—about 6,591 cubic km of water per year.
13. Afro-descendants can be found in several Amazonian countries, including Brazil and Colombia. In Brazil, there are 2,962 *quilombolas* (Afro-Brazilian communities) with a total population of some 16 million people. Just 219 *quilombolas* have land titles, while 1,673 are pursuing the process of acquiring legal title. Titled *quilombola* territories include 767,596 ha (1.9 million acres); these settlements have a good record of protecting their forests (Branford and Torres 2018a). They claim, however, more than 20 million ha (Mongabay 2018).
14. Prior to 2000, forest loss was partly due to agrarian reforms by governments in each of the countries. In the 1990s and onwards governments began implementing environmental protection legislation as part of the general awareness raised about the impacts on environment (e.g., Rio Summit) and the need to take care of the environment for sustainability and for future generations.
15. From 27,772 sq. km/year to 4,571 sq. km/year.
16. The states of Pará, Mato Grosso, and Rondônia in Brazil accounted for nearly three quarters of deforestation—they are also major agricultural commodity producers (Weisse and Goldman 2019).
17. Almost half of the increase in deforestation in Colombia occurred in three regions—Meta, Guaviare, and Caquetá—with new hot spots of loss in previously untouched areas, including indigenous territories (Jong 2018; Weisse and Goldman 2019).
18. Together, the forests in South America, Africa, and Asia are now a net source of atmospheric carbon dioxide (Baccini et al. 2017).
19. Although market-oriented cattle production has expanded rapidly during the past decade, across much of the Amazon, a principal objective for cattle ranching is to establish land claims rather than produce beef or leather. In Brazil, 60 percent to 80 percent of cleared land ends up as pasture, most of which has low productivity, supporting less than one head per hectare (GFW 2020a; Barbosa 2019). In 2018, Brazil was the world's top exporter of beef, accounting for around one-fifth of total exports, even though nearly 80 percent of production is for domestic consumption (GFW 2020a). Beginning in the early 1990s, industrial agricultural production, especially soybean farms, resulted in significant land use changes and loss of forest. In 2006, however, the Brazilian soybean industry established a moratorium on new forest clearing for soy.

20. Research shows that forests that have been selectively logged are eight times more likely to be settled and cleared by shifting cultivators than untouched forests because of access granted by logging roads (Butler 2019b).
21. RAISG identifies 327 oil or gas blocks available for bidding or under exploration across the basin (covering some 1.08 million sq. km).
22. As well as oil and natural gas extraction.
23. The remote southern Peruvian Amazon was made accessible by the completion of the Inter-Oceanic Highway connecting Peru and Brazil.
24. French Guiana, Suriname, and Venezuela were not included in this study largely because of the paucity of spatial data for GIS analysis on indigenous lands (Suriname), industrial concessions (Venezuela), and illegal mining sites (French Guiana and Suriname), as well as the difficulty of acquiring relevant national laws, regulations, and court rulings (French Guiana and Venezuela). More than 90 percent of the land in French Guiana and Suriname is forest, but these areas constitute only small portions of the Amazon (1 percent and 1.7 percent, respectively) and the Amazon population (0.5 percent and 1.1 percent, respectively). Venezuela includes 5.5 percent of the Amazon and 5 percent of the Amazon population.
25. Like minerals, the Amazon holds large reserves of oil and natural gas, and concessions for oil and gas exploration and extraction are proliferating across Amazon countries, especially in western Amazon. A vast extent of the Colombian, Peruvian, Ecuadorian, Bolivian, and Brazilian Amazon is under concession for oil and gas exploration and production. In 2012, more than 100 million ha of the Amazon were under concession for exploration and extraction of hydrocarbons, with Peru having the largest number of potential oil zones, covering 659,937 sq. km or 84 percent of the Peruvian Amazon (RAISG 2012). Colombia (193,414 sq. km—40 percent of the Colombian Amazon), Brazil (127,862 sq. km—21 percent), and Bolivia (73,215 sq. km—15 percent) follow (RAISG 2012). Moreover, the vast majority of planned drilling wells, production platforms, and pipeline routes overlap with indigenous territories, protected areas, and other critical/sensitive areas.
26. Established in 2007, RAISG is a network of eight civil society organizations from six Amazonian countries (Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela) with extensive work experience with the Amazon and its indigenous peoples. The organizations include: Friends of Nature Foundation (Fundación Amigos de la Naturaleza, FAN, Bolivia), Institute for the Common Good (Instituto del Bien Común, IBC, Peru), Gaia Amazonas Foundation (Fundación Gaia Amazonas, FGA, Colombia), Ecuadorian Foundation for Ecological Studies (Fundación Ecuatoriana de Estudios Ecológicos, EcoCien-cia, Ecuador), Provita (Provita, Venezuela), Wataniba (Wataniba, Venezuela), Amazon Institute of People and Environment (Instituto de Hombre y Medio Ambiente de la Amazonía, Imazon, Brazil), and Socio-environmental Institute (Instituto Socioambiental, ISA, Brazil). RAISG produces and disseminates knowledge, statistical data, and geospatial information on Amazonia.
27. There is no legal (industrial and ASM) or illegal mining data for French Guiana, and, for Suriname, there is no reliable indigenous land boundary data and no data on ASM and illegal mining.
28. Approximately 16,000 sq. km of mining concessions were classified as "no information," which represents about 1 percent of the total area of mining concessions.
29. RAISG, using a definition of the Amazon larger than the biogeographic region, calculates that mining blocks cover 1.68 million sq. km of the Amazon. In Brazil, mining leases, concessions, and exploration permits cover 1.33 million sq. km—79 percent of all mining concessions in the Amazon basin (CITE).
30. The equation is: Percent forest loss inside indigenous lands 2000–2015 = (Area of forest loss 2000–2015 inside indigenous lands) / (Area of forest cover inside indigenous lands in 2000).
31. Sustainable Development Goal 16 is to "promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels." Target 16.1 is to "significantly reduce all forms of violence and related death rates everywhere" (UN 2019).
32. The Regional Agreement on Access to Information, Public Participation and Justice in Environmental Matters in Latin America and the Caribbean, which was adopted on March 4, 2018, in Escazú, Costa Rica. Also known as the Escazú Agreement, this binding instrument obligates governments to, among other matters, act to prevent attacks against defenders and address impunity. To date, of the nine Amazonian countries, Bolivia, Brazil, Ecuador, Guyana and Peru have signed the agreement, but only Guyana has ratified it. Suriname, Venezuela, and French Guiana have not signed the Escazú Agreement. It needs to be ratified by 11 states to enter into force, so, given that it has eight ratifications so far, it is not yet in force.
33. Venezuela has ratified ILO Convention 169, while Suriname and French Guiana have not.
34. Case of the *Saramaka People v. Suriname* 2007; case of the *Sawhoy-amaxa Indigenous Community v. Paraguay* 2006 (Notess et al. 2018).
35. Simple translation of "La protección a la propiedad colectiva y al territorio ancestral se derivan de la relación espiritual y ancestral que existe con la tierra, por ser el lugar donde desarrollan sus actividades culturales, religiosas y económicas de acuerdo con sus tradiciones y costumbres, de modo que el concepto va más allá del título de propiedad, y en ese orden de ideas, es deber del Estado proteger a las comunidades indígenas frente a las perturbaciones que puedan sufrir en el ejercicio de sus actividades en lo que han considerado su territorio ancestral, y adoptar todas las medidas pertinentes para evitar que conductas de particulares puedan afectar sus derechos, siendo el mecanismo idóneo la consulta previa" (Decision N° T-005/16, 2016).

36. Simple translation of "la Asamblea Nacional Constituyente en la ponencia sobre 'Los Derechos de los Grupos Étnicos' al enunciar los derechos fundamentales étnicos, resaltó la importancia del derecho al territorio, al afirmar que sin este, las garantías superiores a la identidad cultural y la autonomía son un formalismo, ya que las comunidades indígenas necesitan el territorio en el cual se han asentado, para desarrollar su cultura" (Decision N° T-005/16, 2016).
37. Simple translation of "La diferencia entre el concepto de tierra y territorio radica en que el primero se encuentra dentro de una dimensión civil o patrimonial, mientras que el segundo tiene una vocación política de autogobierno y autonomía. Así, esta dimensión política del término territorio se ajusta a la realidad de los pueblos indígenas, que descienden de las poblaciones que habitaban lo que ahora es el territorio de la República del Perú. Pero que, no obstante, luego de haber sido víctimas de conquista y colonización, mantienen sus instituciones sociales, económicas, culturales y políticas, o partes de ellas" (Dossier N° 01126-2011-HC/TC, 2012).
38. An instrument that constitutes legal evidence of ownership rights of property (Notess et al. 2018).
39. The procedure for establishing an indigenous reserve varies by country. For example, in Brazil, the demarcation process of an indigenous reserve is the responsibility of FUNAI, although final approval is issued by the president, after which it is officially registered.
40. Indigenous reserves are the collective property of indigenous communities constituted in favor of them (Articles 63 and 329, Constitution of Colombia). They are inalienable, imprescriptible, and unattachable. Indigenous reserves are a legal and socio-political institution of a special nature, made up of one or more indigenous communities. With a collective property title that provides private property guarantees, these communities possess their territory, and through an autonomous organization protected by indigenous jurisdiction and its own regulatory system, they are able to govern and manage their lands and internal life (Article 21, Regulation on Titling of Indigenous Peoples' Lands, 1995).
41. Simple translation of: "Artículo 2. (DOMINIO Y DERECHO PROPIETARIO DEL PUEBLO BOLIVIANO) I. Los recursos minerales, cualquiera sea su origen o forma de presentación existentes en el suelo y subsuelo del territorio del Estado Plurinacional de Bolivia, son de propiedad y dominio directo, indivisible e imprescriptible del pueblo boliviano; su administración corresponde al Estado con sujeción a lo previsto en la presente Ley (...)."
42. "In any case, mining cannot be confused as an economic activity with those traditional forms of extractivism, practiced immemorially, in which the collection constitutes a cultural expression or an element of the way of life of certain indigenous communities" (Petition N° 3388 ED/RR, 2013).
43. In the case of exploitation projects with significant negative environmental impacts, the environment authority, National Service of Environmental Certification for Sustainable Investments (SENACE), approves environmental certifications. However, for exploitation projects with moderate negative environmental impacts and exploration projects of medium and large-scale mining, the environmental certification is approved by the General Directorate for Environmental Affairs (Dirección General de Asuntos Ambientales—DGAAM) at the Ministry of Energy and Mines.
44. Article 122 of the Mining Code provides, "Based on technical and social studies, the mining authority shall designate and delimit indigenous mining areas within indigenous territories, in which the exploration and exploitation of mining soil and subsoil shall comply with the special provisions on protection and participation of indigenous peoples and groups settled in these territories."
45. Bolivia's constitution also recognizes the right of consultation.
46. Ecuador is the first country to recognize rights of nature in its constitution. It provides that nature in all its life forms has the right to exist, persist, maintain, and regenerate its vital cycles.
47. This case is notable partly because it is the first case in which the IACHR conducted an on-site visit.
48. Further, the IACHR noted: "This case concerns the State's alleged lack of judicial protection, failure to observe judicial guarantees, and limits of rights to freedom of movement and to cultural expression of the indigenous population" (Judgment of the Case of the *Kichwa Indigenous People of Sarayaku v. Ecuador*, IACHR).
49. According to title of June 2009 (SERNAP 2019).
50. The march also paved the way for Eva Morales, an indigenous leader, to be elected president in 2006.
51. Through Law N° 112, the government approved the Financial Collaboration Contract N° 10219991 signed between Bolivia and Brazil's BNDES on February 15, 2011, for up to \$332,000,000,000 intended to finance the "Proyecto Carretero Villa Tunari–San Ignacio de Moxos."
52. "All three sections were originally combined in a single contract with the Brazilian firm OAS, which the president revoked in April 2012. The southern segment, now complete, was built by a joint venture between the state and a construction cooperative sponsored by the cocalero union federation, with government financing. The northern section is being undertaken directly by the Binational Army Corps of Engineers (Bolivia–Venezuela)" (Achtenburg 2017).
53. In Venezuela, the Yanomami live in the 8.2 million-hectare Alto Orinoco–Casiquiare Biosphere Reserve (Survival International 2020). Considering Brazil and Venezuela, the Yanomami territory is about 178 million ha (178,000 sq. km) (Esri 2019).

54. The borders are dangerous flashpoints in a showdown between Venezuela's president, Nicolás Maduro, and Venezuela's self-declared interim president, Juan Guaidó, who is supported by Brazil, Colombia, the United States, and other countries.
55. Known as Moxateteu. Although most Yanomami are in contact with nonindigenous society, one uncontacted group is known to live in the area being invaded, and authorities are investigating signs of up to six other uncontacted communities living there (Survival International 2020).
56. The Yanomami Park, one of Brazil's largest indigenous territories, covers 96,650 sq. km of rainforest in the states of Roraima and Amazonas (Branford 2019b).
57. Registered in the Registry of Traditional Indigenous Authorities 2002 (Resolution No. 0135 of October 11, 2002) and 2011 (Resolution No. 009 of February 8, 2011), respectively. Until 2017, the Association of Indigenous Captains of Yaigojé Apaporis Vaupés was known as the Association of Indigenous Communities of Taraira Vaupés (Acitava). The association was created by the captains of some communities in the Department of Vaupés who left Aciya because they did not agree with the creation of the Yaigojé Apaporis National Natural Park. The change of name in 2017 was motivated by the objective of working together with Aciya for the territorial defense of their land.
58. Indigenous reserves are the collective property of indigenous communities constituted in favor of them (Articles 63 and 329, Constitution of Colombia). They are inalienable, imprescriptible, and unattachable. Indigenous reserves are a legal and socio-political institution of a special nature, made up of one or more indigenous communities. With a collective property title that provides private property guarantees, these communities possess their territory and through an autonomous organization protected by indigenous jurisdiction and its own regulatory system, they are able to govern and manage their lands and internal life (Article 21, Regulation on Titling of Indigenous Peoples' Lands, 1995).
59. Cooperation Agreement No. 3.
60. The consultation process was approved by the appropriate authorities on June 30, 2009.
61. According to the information provided by the competent authority, Department of Vaupés: Bocas de Taraira, Vista Hermosa, Bocas Uga, Curipira, Santa Clara, Agua Blanca, and Jotabeyá. Department of Amazonas: Puerto Cedro, Centro Providencia, Bellavista, Bocas de Pira, Paromena, Villa Rica, Sabana, La Playa, Unión Jirijirimo, and Cordillera. Campo Alegre y Ñumi (Vaupés) also needed to be considered although it was not in the ethnic group register but belonged to the affected area (Decision N° T-384A/14, 2014).
62. The ANM replaced the Instituto Nacional de Investigaciones Geológico-Mineras (INGEOMINAS) in 2011.
63. There were no mining concessions in the Yaigojé Apaporis Reserve when the request was made.
64. Mining concession contract IGH-15001X registered in December 13, 2012, in the National Mining Registry.
65. In response, Cosigo Resources sued the government alleging breach of contract. Until 2016, the condition of the concession was on the exploratory stage.
66. Decision N° T-384A/14, 2014. In this case, Benigno Perilla, representing ACITAVA, sued the competent authorities for creating the Yaigojé Apaporis National Natural Park. He alleged the lack of prior information and consultation when the decision was made, and that the establishment of the park would affect the autonomy of its peoples. The Constitutional Court concluded that the consultation processes requirements were met and, thus, no rights were violated.
67. It is alleged that Cosigo offered bribes to the Taraira communities to oppose the creation of the park (UNDP 2016) and when the company failed to pay, the Taraira communities joined with the other communities to support the park. Cosigo subsequently argued that the indigenous people only have rights over the land, not the subsoil, which is state property. As such, they only need government approval to mine the subsoil for gold, not the support of the indigenous communities (UNDP 2016).
68. The company requested the extension of the amount of extracted mineral, which was approved by the authority. Thus, according to the expansion of the Environmental Impact Study of the project, the daily volume of treated material was doubled from 30,000 to 60,000 tons.
69. Since 2013, 47 mining easements have been applied, affecting 14 Cascomi territories (PLAN V 2018).
70. In May 2014, the church and community school of San Marcos, Tundayme parish, El Pangui canton, Morona-Santiago province were destroyed.
71. The expert indicated that in the territory of CASCOMI there was a Shuar indigenous population—considered an ethnic group that is subject to the collective rights in accordance with the constitution of Ecuador—and a mixed-race population with a collective identification, recognized as farmers, who have acquired cultural practices of the place (INREDH 2019).
72. The concession in the north is to METEL and is dated 1998; the center concession is to Asiel Marcus and dated 2004, and the concession in the southwest portion of the indigenous land is to Frank Taylor and dated 2003.

73. Aside from creating avenues for low-level employment, gold mining is contributing very little, developmentally, to rural Guyanese communities.
74. In September 2018, Campbelltown welcomed the partners implementing the El Dorado—Responsible Mining for Guyana Initiative designed to eliminate mercury use from small-scale artisanal gold mining. The initiative encompasses a Global Environment Facility (GEF) project and a Norwegian Agency for Development Cooperation-funded mining project with the objective of tackling and reducing the use of mercury in gold mining, as well as the impact of mining activities on forests (GEF 2017).
75. Declarations of the former president of the Tres Islas community on March 2017 (Movimiento Regional por la Tierra 2019).
76. Of which, 18,402 ha and 7 sq. m constituted lands suitable for cultivation and livestock, and 9,173 ha and 10 sq. m for forestry purposes by the community.
77. To raise further awareness about the issues, the community members also participated in marches in Lima, Peru's capital, and spoke about their concerns at public meetings.
78. In some cases, nonindigenous communities have even fewer rights over their land than indigenous people. Other communal tenure regimes, however, offer similarly strong land ownership rights for nonindigenous identifying communities in Bolivia (*quilombolas*), Colombia (Afro-Colombian communities), and Peru (Tierras de Comunidades Campesinas con Aptitud Forestal).
79. Land and high-value natural resources are often governed by different sets of national laws and administered by different government agencies.
80. A value chain is a set of activities that a firm operating in a specific industry performs in order to deliver a valuable product (i.e., good and/or service) for the market.
81. The law or rules of evidence clarify how strong evidence must be to meet the legal burden of proof in a given situation, ranging from reasonable suspicion to preponderance of the evidence, clear and convincing evidence, or beyond a reasonable doubt.
82. High-value minerals are commonly national or public goods with national governments receiving most of the revenue from mining companies in the form of taxes, fees, and royalties. This public revenue is used for national development with the affected local governments and communities rarely receive their fair share.
83. For example, the Newmont Ahafo Mine Development Foundation Agreement in Ghana, West Africa, contains multiple types of financial benefit sharing. The agreement requires the company to pay to a community foundation \$1 for every ounce of gold from the mine sold, as well as 1 percent of the company's net pre-tax income, and of any gains made in selling assets that total \$100,000 or more (Loutit et al. 2016).

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ABOUT RAISG

Established in 2007, RAISG is a network of eight civil society organizations from six Amazonian countries (Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela) with extensive work experience with the Amazon and its indigenous peoples. The organizations include: Friends of Nature Foundation (Fundación Amigos de la Naturaleza, FAN, Bolivia), Institute for the Common Good (Instituto del Bien Común, IBC, Peru), Gaia Amazonas Foundation (Fundación Gaia Amazonas, FGA, Colombia), Ecuadorian Foundation for Ecological Studies (Fundación Ecuatoriana de Estudios Ecológicos, EcoCiencia, Ecuador), Provita (Provita, Venezuela), Wataniba (Wataniba, Venezuela), Amazon Institute of People and Environment (Instituto de Hombre y Medio Ambiente de la Amazonía, Imazon, Brazil), and Socio-environmental Institute (Instituto Socio-ambiental, ISA, Brazil). RAISG produces and disseminates knowledge, statistical data, and geospatial information on Amazonia.

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