

ENDANGERED AMAZONIA



AMAZONIA ALIVE:
**PROTECT +
RESTORE**
80% 2025
2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA

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PRESENTATION

What does an Endangered Amazonia mean for Indigenous Peoples of the Amazon?

A legacy of colonialism is that it turned Amazonia into an object—of research, observation, and extraction—distant and inhospitable, which, its physical and epistemological remoteness, nonetheless, it is intended to sustain humanity and the modern state. A place that in the collective memory of our countries, it is seen as “empty,” and therefore, ready to be put at the service of development—an insatiable machine that sustains the market and the State, and must be conquered for this purpose. For Amazonian Indigenous Peoples, Amazonia is our home. The great Amazon River and its more than 1,100 tributaries are sacred and connect our hundreds of cultures, our worldview, mythology, and spirituality.

Our genesis is anchored in the very origin of the Amazon, in the Tree of Life, a giant tree that reached the sky and is known as *Moniya Amena* in the Huitoto tradition (Colombia-Peru), *Samuna Supay* among the Quechua of Peru, and *Lupuna* for the Yaguas of Peru, among dozens of

other names. The river was born when the great tree was felled to reach its abundant fruits and quell famine. For other peoples, *Yacumama* (Mother of Water), the primordial anaconda *Roní* (Shipibo-Konibo) or Great Anaconda, governs the aquatic world. She is the mother of all Amazonian waters, emanating from its depths to protect the forest from those who wish to destroy it. For some peoples in Brazil, the great river was born from the tears shed by the Moon, mourning her impossible love with the Sun—who could not embrace her without melting, nor could she approach him without extinguishing his light.

Our relationship with the territory is therefore intimate—it is within us. It is not a polygon on a map nor a resource; it is who we are from the moment we are born until we return to it and to our origins, with our ancestors. Understanding the extinction of water, of the forest, of the peoples who inhabit the jungle, and in turn, who are inhabited by it, requires breaking with the colonial anthropocentrism, where humans

conquer nature,—claiming life for themselves in a logic of possession like any object, destruction, and exploitation, without reciprocity.

Our ancestral mythical systems, like our territories, which are inseparable in unity, have been traversed by repeated incursions, mostly violent, that have sought to erase our essence. Territory, in the urban logic inherited from Castile during the Colony and still prevailing today in our countries, understands space from the location from the perspective of the urban eye of the settler: as the location of a dwelling. For us, territory is integral: we are the earth, the water, the forest, the lagoon, the air, the mountains, the subsoil, and all living and dead—human and non-human—who converge in this space, beneath it in the depths of the rivers and in the air, in unity.

There are as many mythologies as there are peoples in the Amazon that remain unknown even within our own States. This intentional omission of our worldview, languages, governance and knowledge systems is the reason why the Amazon, this great maloca, is in grave danger of extinction. Extinction, tipping point, or the point of no return are terms that must be understood as the death of the territory, where the violence of deforestation and degradation prevents the self-generation of the forest, the very foundation of what we call Amazonia. It is a metastasis that devastates the entire territory, its biodiversity, its waters, our ancestors who inhabit it, ultimately resulting in the forced

displacement of our peoples, urbanized, and westernized while losing at the same time, the knowledge that has kept the Amazon alive for millennia. What is at risk, therefore, is not only an ecosystem—it is life itself.

Long ago, our elders and wise men warned that the destruction of the territory is the destruction of the webs of life—of the songs fading, of the memories of our grandmothers and grandfathers who no longer recognize the sounds of the forest. Thus, in 2021, amid a pandemic threatening our peoples, we, the Indigenous leaders gathered under COICA took a consensus-driven proposal to the International Union for Conservation of Nature (IUCN) Congress: to avoid a point of no return by protecting at least 80% of the Amazon by 2025. This was the first time in the IUCN's 72-year history that an Indigenous organization proposed a motion—now Resolution 129—grounded in scientific evidence describing the Amazon's dieback.

IUCN Resolution 129 of the IUCN catapulted the initiative “Amazonia for Life: Protect 80% by 2025, Avoiding the tipping point” and positioned Indigenous leaders gathered at COICA as the governing body in the construction of a vision guiding today's urgent global agenda to preserve the Amazon rainforest as an unavoidable measure to prevent mass extinction. We are not alone, to date over 1,300 organizations worldwide have supported us, including nearly 100 Indigenous Amazonian organizations. The tipping point has been recognized as the greatest challenge in

the Belém Declaration (2023). The UN Permanent Forum on Indigenous Issues issued two resolutions in 2023 urging Amazonian governments to protect 80% of the Amazon, prioritizing Indigenous the recognition of indigenous territories. Colombia adopted the goal in 2023, among other milestones. We have shifted narratives and influenced policies—but it is still not enough.

Our work has been to educate humanity about what the collapse of our home means for us, for the governments struggling with droughts have left entire countries without water, and for all of humanity as a whole. In 2021, the “tipping point” or “point of no return” was a scientific term difficult to digest. Our efforts bore fruit at the 2023 Belém Amazon Summit, where civil society unanimously demanded the 80% protection goal by 2025, the tipping point enshrined in the Belém Declaration as the region’s gravest challenge. However, we see today that the COPs and the declarations that emerge from each meeting of ministers, presidents, and summits are smokescreens that mask an aimless trajectory toward perpetual drought and death of our Amazonia, and with it, of the planet. It is not just the Amazon that is dying; three-quarters of Earth’s life-support systems are in danger. Humanity has surpassed seven of nine planetary boundaries for its survival, and as we write this report, the planet has crossed its first climate tipping point: coral reef degradation is widespread, and without decisive action, great reefs will vanish. COP30 cannot be just another COP.

The severe drought of 2023–2024 and more than 150,000 fires that followed the Belém Declaration and devastated an area larger than Italy—challenge both Amazonian countries and the strategies from the Global North to change this trajectory. If in 2022, combined deforestation and degradation accounted for 26% of Amazonia’s 847 million hectares, data confirms that in 2025, 30% has been lost. We are already living a tipping point scenario, with areas in Bolivia and Brazil witnessing the death of their Amazon rainforests. Another important fact for policy is that destruction in one location ripples beyond its location borders. The alarming forest loss in Brazil threatens tipping points in Bolivia and Peru. Hence, we all need to see a single Amazonia; there are not nine Amazon rainforests or nine Amazon rivers; there is a single megasystem called the Amazon.

Our report, “Endangered Amazonia,” confirms that the scars created by repeated fires year after year and degradation culminate in deforestation. The data we present in this report includes and emphasizes degradation as a prelude to total land-use transformation. Therefore, in 2025, we proposed a new motion to the IUCN Congress to complement Resolution 129: “Emergency Action to Restore 80% of Amazon Ecological Integrity by 2030, Avoiding Cascading Tipping Points.” Our findings show that there is not a single, instantaneous tipping point, but rather it will be a prolonged, recurring, asynchronous, and cascading agony unless we act now. COP30 must be a deal breaker, a gateway to a different story.

The expansion of extractive industries—whether agriculture, oil, or mining—puts our peoples on the front lines. The Amazon is the most dangerous region for environmental defenders in the world. Failure to recognize our rights and territories will soon amount to genocide. Our waters and the fish that feed us are poisoned by mercury, pesticides, and thousands of gallons of oil spilled with impunity into the Amazon waters. It's been decades since the rubber boom arrived in the territories, then came the industrial agriculture, oil, large-scale mining, and now illegal logging and mining. Hundreds of Indigenous defenders have been murdered protecting life and territory. We cannot allow the sacrifice of so many to remain invisible or fruitless. We are the seeds of change.

We need binding decisions, no more promises. It is imperative that States adopt the 80% target by 2025 as regional policy and guarantee direct funding for managing the vast areas we call Indigenous territories. While protected areas receive budget allocations, albeit meager, our territories, which equal or register even higher performance in ecosystem conservation, do not receive a single cent of national or international public investment. Indigenous Peoples receive less than 1% of climate finance and still lack guaranteed rights or territories with legal, physical, and financial security. Once again, the 2025 Bogotá Declaration reaffirmed the political will of the Amazonian countries to cooperate regionally to safeguard the survival of the Amazon, its biodiversity, and that of its peoples. However, when evaluating the system that has

been implemented so far in the Amazon, we see that it is a failed system, inter-governmental cooperation alone is insufficient. The meetings of Parties, led and decided essentially by States, have failed to stem the encroachment of the planet's ecosystems. We call for a new formula: cooperation with knowledge holders who have preserved the rainforest for millennia. A cooperation among States, Indigenous Peoples, civil society, and scientists. This is the formula we applied in the Initiative and we know it works. It is not a new proposal. The IUCN Durban Accord in 2003 initiated this new paradigm for protected areas, explicitly recognizing the rights of Indigenous peoples and local communities in their planning and management. Twenty-two years later, it remains an unfinished task, teaching us a moral lesson: the Amazon will be saved by the communities who live in and defend it every day—not from desktops.

At COICA, we raise a collective voice that comes from the roots, from the territories, from the fires of our grandmothers, the songs of our elders, and the daily work of women. This voice joins the global call of the Initiative “Amazonia for Life: Protect 80% by 2025”, which is not merely an ecological goal but a historic, ethical, and political mandate. . Protecting 80% of the Amazon means protecting life on Earth. It means reorienting local, national, and international policy toward life. The forest does not need us to save it; it needs us to stop destroying it. The Indigenous Peoples of the Amazon, represented in COICA, demand an immediate commit-

ment that will translate this target into tangible, binding, and funded policies.. The Amazonian States are not the only ones responsible. States hosting banks that finance mining and oil expansion must regulate their financial systems to stop colliding with the planet, and ensure that the human rights their corporations uphold within their borders are the same standards they apply beyond them.

The extinction of the Amazon can be reversed by protecting and restoring the hundreds of ecosystems stretching from the Andes to the Atlantic, its vast biodiversity which remains incompletely documented, but above all, by bringing Indigenous Peoples to the decision-making table

with their knowledge and governance systems to reconcile and end a patriarchal, colonial, extractive system par excellence that leaves a trail of destruction, segregation, and death. This report, written by Indigenous experts and leaders from diverse territories and paths, is a first step to open new trails together, to merge with the forest, the waters, the myths, and the peoples. Otherwise, divided, we will face an irreversible tipping point. This is a call and an invitation to join a movement for life that allows no truce and requires everyone's enlistment. Protecting and restoring 80% of Amazonia (2025–2030) is not a mere technical goal—it is a continuous, disciplined action for life, and our most important legacy for generations to come.

Fany Kuiru Castro
General Coordinator
Coordinator of Indigenous Organizations
of the Amazon Basin (COICA)



JITOMA MANAYAÏNHÖ
(which means sunrise sun) or
Fany Kuiru

Leader of the Uitoto People of the Jitomagaro clan, the people of the sun from the Colombian Amazon, whose mother tongue is Uitoto Minika.

At the age of 14, she began taking part in collective discussions within her territory, and by 21, she was involved in the struggles to reclaim her land, the Indigenous Reserve Predio Putumayo (Colombia). She was the only Indigenous woman to officially participate in the process of recognition, titling, and transfer of the Great Indigenous Territory of the Predio Putumayo Reserve, covering an area of six million hectares—bringing an end to one of the darkest periods of violence against Indigenous Peoples in Colombia.

A lawyer from the Santo Tomás de Aquino University, she specialized in public administration and holds a master's degree in Political and International Studies.

Expert in legal and political advisory work on matters related to public policy, Indigenous Peoples, women's rights, economic, social, and cultural rights, and gender issues.

Coordinator of the translation of the Peace Agreement summary between the national government and the FARC armed group into 68 native languages spoken in Colombia.

The Colombian Indigenous leader Fany Kuiru Castro is the first woman to serve as General Coordinator of the Coordinator of Indigenous Organizations of the Amazon Basin (COICA), which represents more than 500 Indigenous Peoples across nine countries, for the 2023–2027 term.

Fany Kuiru Castro received recognition at the DVF Awards 2025. The Amazonian leader thus underscores a truth her experience has confirmed: economic autonomy is inseparable from social and political autonomy.

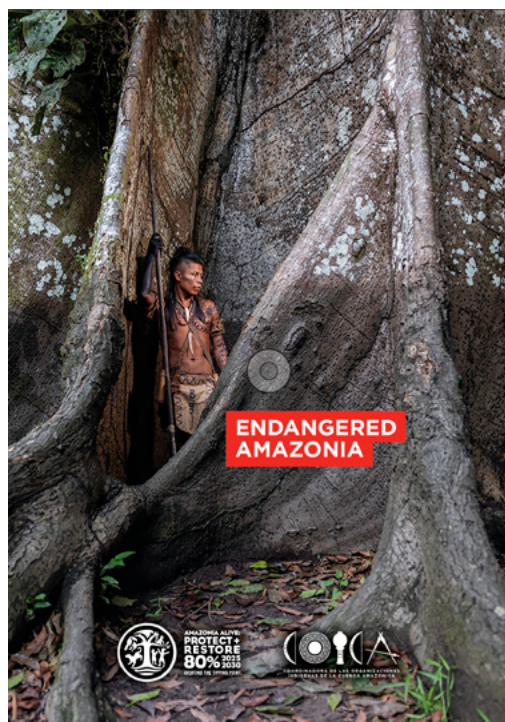
INTRODUCTION

Endangered Amazonia

ORIGINS OF OUR JOURNEY: THE 2021-2024 PATHWAY

The Report “Endangered Amazonia” is not the *continuum* of the 2022 report “Amazonia against the clock”; rather, it presents data indicating a significant shift from patterns established over millennia. **Currently, 30% of what we call Amazonia is deforested or severely degraded.** The climate crisis, the tipping points we are already crossing, reflect symptoms of a profound civilizational crisis. As COP30 approaches—marking three decades of voluntary engagement without enforceable decisions— we have been passively observing from afar, through media and networks, the subjugation of our planet, of our forests and rivers, of our fellow citizens, in the name of a model based on destruction.

In 2021, in that feverish context of the pandemic, walled off, we devoted ourselves to focus on work and maintain “virtual” con-



tact as a means of coping with an overwhelming reality shaped by death, a war of unknown origin, whose most lethal weapon was our closest loved ones, our communities. The pandemic revealed the

dismantling of the welfare state around the world, with particularly stark effects in our global south and, in the Amazonian countries, with unimaginable severity. Economic growth metrics—unfortunately still maintained as the beacon that guides public policies despite ongoing climate change, widespread deforestation justified in the name of growth, and those who gave their lives in silence, without rituals or farewells—served the stage as the backdrop for evaluating the situation in Amazonia, a region marked by vitality yet facing alarming future projections. The data we gathered revealed a hidden war.

In 2021, our homes were the trenches from which adaptations of resistance, advocacy, and solidarity emerged. In our nests of terror, we forged in WhatsApp and Zoom conversations of what is today, surely, one of the most disruptive initiatives to create a global vision to save the Amazon: “Amazonia for Life: protect 80% by 2025”. With this flag, we arrived in Marseille in 2021, during ongoing border restrictions, and led to the approval of Resolution 129—the first motion submitted by indigenous organizations in the 72-year history of IUCN—to “Avoid a tipping point by protecting 80% by 2025” supported by 541 organizations and 61 ministries. Prior to this, the concept of tipping point was primarily discussed within academic circles.

Over several months, we assembled a select group of organizations and individuals committed to initiating a collaborative endeavor—without a parachute into an adventure informed by the limited data available on the Amazon’s current condition.

This effort was led by indigenous organizations from the nine Amazonian countries and supported by the comprehensive data provided by the Amazon Network of Georeferenced Socio-Environmental Information (RAISG). At that time, most existing data primarily focused on Brazil. Rather than engaging in academic debates over definitions of the Amazon—whether in terms of basin or biome—we opted to utilize RAISG’s¹ established pan-Amazonian datasets. As a coalition, we resolved to formulate a political strategy rooted in both indigenous and academic scientific perspectives, forming the foundation for our communication and advocacy efforts to pursue a regional target.

The 2021-2024 coalition comprised scientists, Amazonian leaders, and international, national, and grassroots activist organizations. We always recognized that isolated efforts would not succeed. Our initial decisions were instinctive and were guided by the conviction that indigenous and southern worldviews will prevail in our decisions. We baptized the initiative adopting the definition of “Amazonia” defined by the Amazon Network of Georeferenced Socio-environmental Information (RAISG, 2020, p.11) which refers to an area that includes the Amazon biome, associated drainage basins, headwaters, Amazonian ecosystems and administrative regions of nine countries. Also, the term “Amazonia” was intentionally chosen for its prevalence in both Spanish and Brazilian Portuguese, serving as a lingua franca for indigenous and non-indigenous stakeholders and fostering recognition within this interconnected megasystem.

¹ RAISG is a consortium of civil society organizations from Amazonian countries focused on the socio-environmental sustainability of the Amazon.

Protecting 80% of Amazonia is not a slogan. The regional goal we promote aligns with the 20-25% deforestation threshold identified by Lovejoy and Nobre (2019) beyond which the tipping point is triggered. However, it is essential to establish that the authors were referring to the eastern, southern, and central Amazon and not to the entire region defined within the Initiative, nor did it include degradation data. Accordingly, the results included in our first report “Amazonia against the clock” (2022) were unique in terms of geographic scope, temporal data, and analytical depth. Following the occurrence of approximately 150,000 fires during 2023-2024, we emphasize the imperative need of including degradation data in the final statistics.

The percentages reported in 2022 were derived from RAISG’s 2020 data, which already showed, three years ago, that combined deforestation, and degradation had already surpassed the reference threshold of Lovejoy and Nobre (2019) by one percentage point, reaching 26% —comprising 20% land use change and 6% of high degradation. Hence, our strategy was to establish that the tipping point was not and is not now a future scenario but a current reality. We exacerbated, however, that we were still on time to protect 74% of standing forests and restore a marginal 6% of severely degraded ecosystems. Our data were disaggregated by country to inform international negotiations at COPs and with Amazonian governments. Our objective was twofold: to facilitate recognition of the Amazonian tipping point as both a regional and global concern, and to advocate for the adoption of a regional target as a preventative strategy. In *Amazonia against the Clock*, we were able to establish

that extensive areas in Brazil and Bolivia were already exhibiting multiple indicators of tipping points. This represented a second critical juncture, shifting the discourse from hypothetical futures to observable realities on the ground.

Regardless, Nationally Determined Contributions (NDCs) of certain Amazonian countries currently omit indigenous territories, which have been classified as a new category of conservation under the Global Biodiversity Framework (2022). For countries within the Amazon region, many of which possess substantial areas of officially recognized indigenous territories (ITs), incorporating ITs into their NDCs would offer significant advantages. This approach could reduce costs related to identifying strategies for achieving the goal of protecting 30% of land by 2030 and establishing potential protected areas, while simultaneously positioning the Amazon as a pioneer and leader in integrating ITs into national commitments.

Four years later, we are able to reflect on numerous achievements however, a significant challenge remains for COP30: adopting a binding regional target to save Amazonia. The adoption of IUCN Resolution 129 initiated multilevel negotiations. To date, 1300 organizations worldwide have endorsed the target as well as more than 100 indigenous organizations. In 2022, the Initiative’s strategy focused on the insertion of Indigenous Territories as a new conservation category within Target 3 of the Global Biodiversity Framework. IT encompasses over 20% of the planet and account for more than one-third of Amazonia. With strong support of the Global South and the leadership of Amazonian Indigenous Peo-

The Report “Endangered Amazonia” is not the *continuum* of the 2022 report “Amazonia against the clock”; rather, it presents data indicating a significant shift from patterns established over millennia. Currently, 30% of what we call Amazonia is deforested or severely degraded.

ples Indigenous Territories were officially recognized as their own conservation category, marking a historic achievement.

2023 was a plethoric year marked by significant developments. In March, at the 22nd Meeting of the United Nations Permanent Forum on Indigenous Peoples (UNPFII), follow-up was conducted to the inclusion of Indigenous Territories in Target 3 of the Global Biodiversity Framework. Sonia Guajajara, Minister of Indigenous Peoples of Brazil, along with other leaders, presented the imperative to protect 80% of these territories by 2025. The UNPFII endorsed this position through regional resolutions (18 and 19), emphasizing the neces-

sity to safeguard 80% by 2025 and urging Amazonian governments to promptly demarcate at least 100 million hectares of indigenous territories as an essential step toward achieving this goal. In July, WWF formally advocated for the conservation of 80% alignment with Resolution 129. In August, the Belém Declaration —endorsed by all Amazonian nations—recognized the region’s tipping point as its foremost challenge. During the Amazon Dialogues in Belém, Colombia officially adopted the 80% protection target by 2025.

In 2024, COICA and the IDB successfully established “Amazonia for Life,” the first fund dedicated to providing direct financing to Amazonian Indigenous Peoples, thereby challenging traditional models of official development assistance. Through this initiative, COICA has paved the way for the creation of a regional platform that serves as a pioneer in facilitating direct funding to Indigenous Peoples in the region.

Preliminary data collected following the 2023-2024 fires and drought indicate that the Amazon has experienced losses equivalent to the size of Italy, and high levels of degradation. In response, COICA and its partners introduced IUCN Motion 068 in early 2025, calling for an “Emergency action to restore 80% of ecological integrity in the Amazon by 2030 avoiding cascading tipping points” as a measure to complement Resolution 129, expanding both its scope and timeline. The current situation requires not only protection but also immediate restoration efforts to prevent ecological tipping points. Since September, Resolution 068 has been enacted with the approval of nearly 800 organizations during the IUCN Congress in Abu Dhabi.

What lies behind the scenes in this period, overwhelmingly intense, is that from the beginning we sought the voices of indigenous and non-indigenous elders. Individuals such as Thomas Lovejoy—among other notable leaders who have passed on but who accompanied us since the beginning—provided valuable guidance throughout this process. In this endeavor, we have woven a web, a network of solidarity among communities, scientists, some governments and/or officials, artists, youth and wise old men and women, technicians, communicators, and all of us who are enmeshed in this ecosystem because we defend it fiercely, both in the North and the South. The Amazon has united us, fostering an extensive epistemic community in a relationship of care, even if this was not originally our primary aim. Collectively, we advance toward the shared goal of safeguarding the region's survival. Today, the Initiative counts several new members among its ranks: the Science Panel for the Amazon (SPA), comprising over 300 indigenous and non-indigenous scientists from across the region; AQOCI, a Canadian coalition of 70 organizations, the Pan-Amazonian Social Forum (FOSPA) that brings together Indigenous Peoples, social movements and organizations to defend the Amazon with chapters in every country. This report also acknowledges the contributions of the Amazon Waters coalition—a partnership of 30 organizations—Susana Muhammad, former Minister of Environment of Colombia, and other key contributors who have enhanced understanding of Amazonia's current circumstances. While not all contributors are listed, the initiative remains open to participation by all interested parties in this broad citizens' movement.

ENDANGERED AMAZONIA: INTRODUCTION

Jitoma Manayaïnhö (which means sunrise sun) or Fany Kuiru, leader of the Uitoto people of the Jitomagaro clan, the “people of the sun” of the Colombian Amazon, a native Uitoto Minika speaker and the first woman to serve as COICA's General Coordinator in its 42 years of existence, begins this 22-chapter conversation by creating an umbilical cord between the territory, the authors, and the reader of this report. She explains that the relationship of Indigenous Peoples with the territory is intimate, it is within themselves, it is not a polygon on a map or a resource, but rather it forms part of who they are from the moment they are born until they are reunited with their ancestors in the afterlife. Fany highlights the role of extractivism in any of its forms—agriculture, oil, logging, mining—as mechanisms that push Indigenous Peoples onto the front lines. The Amazon is the most violent region in the world for defenders. Fany explains that the destruction of 30% of Amazonia has already put the region and all of us who live here on the front line, hopefully not the last. The first article in this collection addresses the methodology that arrives at this percentage and connects Fany's presentation to the statistics that warn of the danger of extinction of ecosystems, biodiversity and the Indigenous Peoples and local communities that inhabit this large region.

The methodology developed by RAISG and specifically by Marlene Quintanilla, as detailed in the first article of this report, outlines the variables incorporated into the Initiative's methodology developed in 2022. Marlene delineates the framework

used to identify Key Priority Areas (KPAs), which are determined through an analysis based on three criteria:

1. Ecosystem functionality and services:

Refers to the capacity of ecological processes to provide services that contribute to human well-being.

2. Ecological representativeness:

it is defined by the integration of areas that concentrate greater biodiversity richness of vertebrate species (amphibians, birds and mammals), encompass areas with greater ecosystem complexity defined by their high heterogeneity and high species richness and finally includes the ecosystem singularity defined by their restricted distribution in the Amazon; and,

3. Symptoms and changes:

represents the current state of ecosystems in terms of the transformation that occurred due to deforestation and land-use change, adding degradation measured by fires, carbon loss, deforestation and land-use change between 1985 and 2020 in the first report, and, with the 2020-2024 data, in this report.

This analysis defines degradation as the sum of fires, carbon loss, and deforestation by intensity into five categories: no degradation or intact, low degradation, high degradation, very high degradation, and transformation of natural land cover. It should be noted that for the “Amazonia for Life” Initiative, the tipping point threshold (20-25% loss) also includes degradation, which, as this new report proves, is the path to deforestation. To explain its impact, I turn to the article presented by Wild Heritage,

a member of the 80x 2025-2030 coalition: “Forest degradation is much more widespread than deforestation. In the Amazon, nearly 250 million hectares are degraded, while 10 million hectares of forest are cleared each year. Carbon dioxide emissions from degradation are virtually equal to those from deforestation.”

The face of Amazonia today, in 2025, is very different, and the structure of this report reflects this reality. Our data, following the fires and drought of 2023-2024, show the loss of an area equivalent to Italy across the Amazon and high levels of degradation. Between 2020 and 2024, the spiral of fires, degradation, and deforestation has already reached 30%. Carlos Nobre, who leads the Science Panel for the Amazon (SPA) and his numerous analyses reaffirm that the tipping point occurs when deforestation reaches 20-25% or global warming increases to 2.0-2.5 °C [above pre-industrial levels]. Our methodology vindicates the role of fires and degradation as defining variables in measurements of Amazonia. This report, however, encompasses the collective efforts of the 80x2025 coalition and beyond. This year, the coalition expanded to include SPA, AQOCI in Canada, FOSPA, and additional organizations aligned with the same objective. We cannot do it alone. It is both necessary and urgent to establish a unified front, as decisions with the potential to significantly impact the core of Amazonia are leaking through the cracks.

The findings in this report reveal that the Amazon region has experienced a significant level of destruction due to multiple contributing factors. These include agribusiness activities connected to fires, il-

legal land tenure and land invasions; illegal mining that leaves rivers dead or in a state of decay due to mercury spills and oil spills. Such environmental hazards create a breeding ground for chronic illnesses and congenital deformities in riverside communities of the entire basin. Additionally, mining, logging, and agriculture are linked to the expansion of drug trafficking and transnational criminal organizations operating throughout the region, thereby undermining the very foundations of Amazonian states. According to Nobre, more than 98% of forest fires were caused by arson², highlighting the substantial influence of organized crime on deforestation rates, and how degradation caused by fires and unregulated logging ultimately leads to the complete clearing of the forest.

All contributing factors are intersecting at local, national, and regional levels, where the issue continues to escalate. The occurrence and severity of extreme droughts in Amazonia are rising, accompanied by increasing challenges for national governments in addressing these situations.

The Report “Endangered Amazonia” is structured into three sections. The first part provides an overview of the “Science behind the tipping point”, a rapidly developing field in recent years that has exploded that encompasses the analysis of deforestation and degradation, ecosystem integrity, the phenomenon of flying rivers, evidence emanating from the territories, and, in this edition, we include the critical role of water, a crucial aspect in forming

a comprehensive understanding of the basin. The interconnections are evident: increased deforestation and degradation result in fewer flying rivers, reduced rainfall, heightened drought, and less food, water and energy security. Perhaps one of the most compelling conclusions is that the aftermath of deforestation is not necessarily felt or confined to the immediate area affected. MAAP offers a unique perspective that highlights the necessity of adopting a pan-Amazonian approach. What happens in Brazil does not stay in Brazil; it can and is already precipitating tipping points in Bolivia and Peru. The testimony of Gregorio Mirabal from the Venezuelan Amazon complements academic data by illustrating how life cycles are disrupted in the territories as forests disappear, and as the ravages of climate change erase traditional practices and ways of recognizing themselves as a nation. The team of the Science Panel for the Amazon further contextualizes the data, emphasizing the historical significance of COP30 as a pivotal opportunity to address the Amazonian crisis. The SPA reminds us that as the first COP to take place in the Amazon, it presents an unprecedented setting for advancing binding political decisions that can alter the current trajectory.

The second section presents the drivers contributing to destruction: the World Wide Fund for Nature (WWF) reminds us that the expansion of agricultural land use—pastures and croplands—remains as the main driver of deforestation. Through detailed analysis, WWF demonstrates that

2 Watts, J. (2025, June 26). ‘We are perilously close to the point of no return’: climate scientist on amazon rainforest’s future. *The Guardian*. Retrieved November 2, 2025, from <https://www.theguardian.com/environment/ng-interactive/2025/jun/26/tipping-points-amazon-rainforest-climate-scientist-carlos-nobre>.

this commodity production in the Amazon is a major driver behind this trend. This research further disaggregates the drivers of deforestation by subregion, enabling policymakers to address issues with highly targeted local and national policies. Consequently, this article emphasizes that solutions are inherently complex; there is no “one size fits all” formula capable of resolving the array of challenges plaguing these territories.

This perspective is further informed by Earth Insight’s examination of state-owned mining and oil concessions, as well as Amazon Watch’s assessment of the impact of illicit economies and criminal governance in the Amazon. These analyses highlight significant risks to the territories, the environment, and the global climate. An illegal economy has become entrenched across almost the entire Amazon, increasingly displacing the state authority and drawn transnational investor networks, who have gradually positioned illicit activities as the primary drivers of deforestation, river pollution, and biodiversity loss. Moreover, links between these activities and global legal markets allow local damage to have global repercussions.

The articles and testimonies of Julio Cusurichi, a Shipibo leader from Peru and member of the Board of Directors of the Interethnic Association for the Development of the Peruvian Rainforest (AIDES-EP), address the impact of extractivism on Indigenous Peoples in Isolation and Initial Contact (PIACI) in Peru. Eligio Dacosta, president of the Regional Organization of Indigenous Peoples of Amazonas (ORPIA) -Venezuela, and of Jamner Manihuari, Vice-Coordinator of COICA, further dis-

cuss how extractivism place both Indigenous and non-Indigenous defenders on the front lines. These articles aim at communicating that we are engaged in a direct, physical defense of territory and life. In this sense, a significant contribution to this report is the article by the coalition of nearly 70 Canadian organizations, which draws connections between issues in the Global South and the Global North. AQOCI speaks of the shared responsibility of states in the Global North states to regulate Canadian extractive corporations whose operations have been associated with environmental damage, human rights abuses, and violations of Indigenous Peoples’ rights. The article specifically highlights non-compliance with free, prior, and informed consent in 26 projects and notes incidents of violent conflict at 16 sites operated by Canadian companies.

The third and final section is a collection of disruptive contributions with the potential to radically alter the trajectory “Toward a new paradigm” of coexistence in Amazonia. It is not philosophy nor theoretical concepts; rather, they are realities currently being implemented, which can be replicated, scaled, disseminated, re-invented, or adapted for training purposes to influence public policy through alternative perspectives, notably those emerging from the periphery. In this context, the article by IRD and COICA: “Dialogue of Knowledge systems to protect and restore Amazonia” is key to understanding the need for a new knowledge architecture —one that transcends viewing the Amazon as a “green void” managed exclusively by external experts. It underscores the significance of acknowledging Indigenous Peoples’ longstanding systems of knowledge, which

possess the capacity to guide efforts to protect and restore the Amazon. Indigenous ancestral knowledge systems are intrinsically linked to life, governance, health, spirituality, and land stewardship.

Thus, it is crucial to recognize the interdependence between development models and knowledge systems. An extractivist model relies on supporting knowledge frameworks that supply its machinery. Therefore, the future of the Amazon is contingent upon the effective integration of indigenous knowledge systems and an openness to the scientific insights embedded within local territories, to facilitate paradigm change. This is an act of resistance. Understanding that conservation should be viewed not merely as legislative action or the establishment of protected areas, but as the outcome of distinct worldviews and another way of life will force us to rethink the colonial consumerism that fuels devastation. Meaningful change requires integrating conservation into every aspect of our actions, ensuring that preservation of life—both human and non-human—becomes central to our collective mission.

In this sense, the proposal developed by the Kichwa Sarayaku people of Ecuador “From Kawsak Sacha to Chaska Kausay: policies from the territory for the Amazon and the planet” by Sarayaku leader Patricia Gualinga, represents an important outcome of decades of struggle against the extractivism entrenched in their territory. The text reveals that extractivism is frequently accompanied by persistent violations of indigenous and human rights. Additionally, it notes the absence of binding enforcement mechanisms for national and international decisions and rulings, which has become a

modus operandi that enables forums such as the COPs, the decisions of the Inter-American Court of Human Rights, the judgments in national courts to consolidate an extractivist model. This model is only accountable in international courts where transnational corporations normally win millionaire arbitrations against our States, who are required to compensate them despite the environmental damage left as a legacy in the territory. The Sarayaku people propose another way of life, the Kawsak Sacha, and in that dialogue, advocate to for elevating this model to a global scale as Chaska Kausay or living planet.

The article “Economic accounts beyond the tyranny of GDP: a mechanism to save megadiversity” provides insights into developing national public accounting systems that more accurately reflect reality by addressing limitations inherent in conventional national accounts. Gross Domestic Product (GDP) fails to account for the environmental costs of economic growth, which can result in misguided public policy decisions. In contrast, the Net Ecological Domestic Product (NEPI) incorporates environmental costs, presenting a more comprehensive and sustainable assessment of national income for megadiverse countries. GDP is a tyrannical measure since it is a partial indicator that is presented as if it were the whole, it offers an incomplete perspective on economic history and encourages extractivism by focusing solely on growth grow, without recognizing that natural resources are finite.

Mexico, identified as a megadiverse country alongside Brazil, Venezuela, Colombia, Ecuador, and Peru, has taken a pioneering role in implementing NEPI, which signifi-

cantly diverges from traditional GDP measures. The article underscores the importance of public accounting for evaluating public policy effectiveness and coherence. Despite ongoing implementation of NEPI—which may yield marginal or even negative GDP—public spending on environmental protection in Mexico has remained below 0.7%. Actual climate-related expenditures range only between 0.15% and 0.18% of Mexican GDP, highlighting a gap between climate commitments and resource allocation. Additionally, the article emphasizes the necessity for multi-level policy approaches.

At the national level therefore, the contribution of Latindadd in the article “A regional look at debt, the climate crisis and extractivism in Amazonian countries” intertwines the financing policies of Amazonian countries with the Paris Agreement and addresses the differentiated responsibilities between the north and the south. These analyses demonstrate that the Amazon region is caught in a cycle involving debt, climate challenges, and resource extraction. Latindadd highlights that those who hold outstanding debts are also among the most historically responsible for ecological degradation. From a climate justice perspective, the article advocates that indebted Amazonian countries should be recognized as creditors regarding climate and ecological debts. COP30 is undoubtedly the political moment to include this conversation in an agenda that is characterized by its secrecy and rigidity.

Within this framework, the “Amazonia for Life” Fund, —jointly established by COICA and the Inter-American Development

Bank (IDB), a multilateral organization—, a multilateral entity, is undoubtedly one of the most audacious initiatives to address the direct financing gap faced by Indigenous Peoples. This pioneering fund is part of an ongoing dialogue to tackle the climate crisis with equitable solutions. Currently, less than 1% of international climate finance is allocated to land tenure and forest management of indigenous communities worldwide. The core principles of this proposal include co-creation and autonomy, as essential elements for ensuring sustainability through cultural relevance and alignment with local priorities. This article examines the significance of such novel mechanisms in preventing an irreversible tipping point.

Susana Muhammad, former Minister of Environment of Colombia, puts in black and white a central challenge, how to move Amazonian politics “from paper to action”? For Susana, this implies rebuilding state capacities, strengthening intercultural research and education systems, reconnecting diplomacy with territorial realities, —ultimately fostering a renewed framework for environmental cooperation and a shared Latin American sovereignty. Susana proposes a pact, a continental and global alliance for the Amazon to avert a tipping point. This proposal also requires the ability to communicate with each other, with governments, with Indigenous Peoples and civil society.

While communication is often regarded as a fundamental element, it remains one of the least thoroughly addressed challenges in efforts to avert a tipping point. Articles authored by Rhett Butler, CEO of Mongabay, along with contributions from

the teams at COICA and COIAB, highlight the critical importance of developing effective multilevel, intercultural, and global communication strategies to save the Amazon. Furthermore, they provide key practical guidelines for effectively communicating, influencing, and safeguarding the Amazon.

Rhett reminds us that pessimism demobilizes, paralyzes us, and therefore, leaves us disarmed and otherwise apathetic in the face of Dantesque realities. He reminds us that the task of communication is to keep the whole truth visible, reducing part of the problem to a human scale where action feels plausible. Rhett also emphasizes the role of indigenous leaders as essential stewards and credible narrators of what works in their territories; they must be present at the editorial board, with budgets, authorship and languages of their choice. Free, Prior and Informed Consent (FPIC) should be an element of the timeline, not a footnote. Safety, credit, and compensation are part of the plan, not afterthoughts. This article which includes a set of recommendations on “How to communicate to save the Amazon” serves as a central element in political strategies in the region, especially when it comes to communicating from and with Indigenous Peoples.

Indigenous Peoples in our countries experience disproportionately high rates of poverty, as well as high rates of murders of defenders in the world, accounting for more than half of the total worldwide. The communicators of COICA and COIAB emphasize that communication is not simply procedural or strategic; it also represents resistance and self-governance by decolonizing narratives, reshaping perspectives, and reaffirming Indigenous worldviews. In this context, communication in the Amazon is both a political and epistemological practice that defends life, territories and ancestral knowledge in the face of the climate crisis and the colonality of knowledge. Networks of indigenous communicators are territories of thought that articulate climate justice, collective healing, and the restoration of relationships with nature. Thus, establishing collaborative communication with various stakeholders in the Amazon should be regarded not merely as a goal, but as a continual and principled effort, guided by protocols that ensure equity and respect. Indigenous Peoples are active participants in environmental governance, contributing substantive proposals and leveraging historical practices to preserve the Amazon biome (COIAB 2024). Engaging with Indigenous Peoples through networks fosters collective growth and supports shared stewardship of something bigger than all of us: Amazonia.

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protejamos 80% al 2025”



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Recognized as one of the 100 Latinos most committed to climate action in 2025, I emphasize that bridging local realities with policy frameworks is essential for meaningful progress. As an environmental diplomat and senior researcher, I am dedicated to addressing the climate crisis through collaboration with Indigenous Peoples, traditional communities, governments, and other critical stakeholders. As a member of the Science Panel for the Amazon and Technical Coordinator of COICA's global initiative "Amazonia for Life: protect and restore 80% 2025-2030", I have built a close relationship between research, communication, negotiation and policymaking. Recent accomplishments include advancing IUCN Resolution 068 (Sept 2025), the inclusion of Indigenous Territories as an independent conservation category in the Global Biodiversity Framework (2022), securing two UNPFII Resolutions to protect 80% of the Amazon by 2025 (2023), advocating for the recognition of the tipping point as the most urgent threat to the Amazon (2023), and contributing to the adoption of Resolution 129 at IUCN (2021), among other achievements.

A fisherman wearing a hat and a light-colored shirt is bent over the side of a small boat, pulling a large fishing net. The boat is on a calm body of water, and the background shows a distant shoreline with trees. The entire image is overlaid with a dark teal color.

SECTION I

**THE SCIENCE
BEHIND THE
TIPPING POINT**



ENDANGERED AMAZONIA

PROTECTING AND RESTORING KEY AREAS OF THE AMAZON 2025 – 2030



AMAZONIA ALIVE:
PROTECT +
RESTORE
**80% 2025
2030**
AVERTING THE TIPPING POINT



RAISG



Technical report: Key Takeaways

1. In total, during the 40 years analysed (1985–2024), the Amazon has lost 136 million hectares of forest, an area equivalent to almost three times the territory of Spain.
2. Between 2021 and 2024, the region experienced an unprecedented acceleration in the loss of its natural cover, with a rate of transformation and degradation of around 8 million hectares per year, equivalent to more than 33 million hectares disturbed in just four years.
3. As a result, while the 2020 data showed a loss of 26% due to deforestation (20%) and high degradation (6%), by 2024, transformed and degraded areas will cover 30% of the Amazon, reducing areas with high ecological functionality to 70%. This trend warns of a real and imminent risk of irreversible loss of resilience in Amazonian ecosystems, threatening the region's climate stability, water availability, and biodiversity.
4. The analysis of the situation of priority conservation areas by country reveals that the regional trend once again positions Bolivia and Brazil as the countries with the highest level of transformation and degradation of Amazonian ecosystems and landscapes, as already evidenced in the 2022 report 'Amazonia Against the Clock'.
5. Bolivia and Brazil lead the way in terms of the extent of fires in the Amazon, and 2024 is taking shape as one of the most catastrophic years, with more than 21 million hectares affected by fire.
6. By 2024, indicators show a moderate increase: 13% in Indigenous Territories (IT) and Protected Areas (PA), and 25% in Ramsar Sites, in contrast to a worrying 47% transformation and degradation outside these areas. The results confirm the fundamental role of Indigenous Territories as effective conservation mechanisms, comparable to protected areas.

7. By 2024, the Amazon has more than 538 million hectares of stable forest, meaning that 70% is still standing. Of this total, Indigenous Territories protect 202 million hectares, Protected Areas 174 million, and Ramsar Sites 25 million.

In contrast, forests outside these protected areas are the most vulnerable to loss and fragmentation and urgently require effective conservation and restoration strategies (194 million hectares of forest).

Summary

Conducted since 2021 by Red Amazónica de Información Socioambiental Georreferenciada (RAISG) as part of the “Amazon for Life: Protect and Restore 80% 2025-2030” initiative, using its own methodology based on data from 1985 to 2024, this research presents a set of findings aimed at informing and guiding global and national policy to prevent the advance of the tipping-point scenarios that are already occurring in certain Amazonian regions. This report first presents an update of the results included in the 2022 ‘Amazonia Against the Clock’ report, which was conducted using RAISG data from 2020. The aim is to account for the trajectory of deforestation, degradation, and fires and their impact at the re-

gional level at two points in time, 2020 and 2024. Secondly, the data is disaggregated at country level to provide inputs that will enable emergency action to be taken in response to tipping points already present in some territories. Finally, the report analyses the penetration of degradation, deforestation, and fires in Indigenous Territories, protected areas and, on this occasion, Ramsar Sites. The data confirm an accelerated trajectory towards a tipping point in several regions if emergency measures are not taken. However, the final conclusion is that 70% of the Amazon is still standing and that priority areas have been found using 12 variables that can guide immediate regional and national public policies.

PROTECTING AND RESTORING KEY AREAS OF THE AMAZON 2025 – 2030

2. THE AMAZON TODAY: A COMPREHENSIVE SOCIO- ENVIRONMENTAL OVERVIEW

The Amazon covers 40% of the South American continent and extends over 847 million hectares across nine countries (Brazil, Bolivia, Colombia, Ecuador, Peru, Venezuela, Guyana, French Guiana, and Suriname). Although its role in global climate stability has been highlighted for many years, today it is at a tipping point due to high rates of deforestation and degradation, which are modifying and diminishing its ecosystems and, with them, the Priority Areas for sustaining its ecological functionality, both regionally and globally.

A tipping point is a moment that is reached when the function changes trend. The IPCC (2019) defines it as the moment when ‘irreversibility’ is reached – such as, for example, the degradation of an ecosystem to such an extent that it cannot be restored to its baseline. The tipping point (Lovejoy and Nobre, 2019), developed in the southeastern Amazon region of Brazil, occurs when deforestation and degradation cross the 20-25 per cent threshold. In the Amazon region comprising nine countries, environmental symptoms and changes are caused by pressures such as deforestation, land use change, fires, degradation, and carbon loss, which are altering ecological functions and responses. It is therefore ur-



Smoke from burning affects the Yawalapiti village, Xingu Indigenous Park, Mato Grosso, Brazil. **Credit:** Lalo de Almeida, 2016.

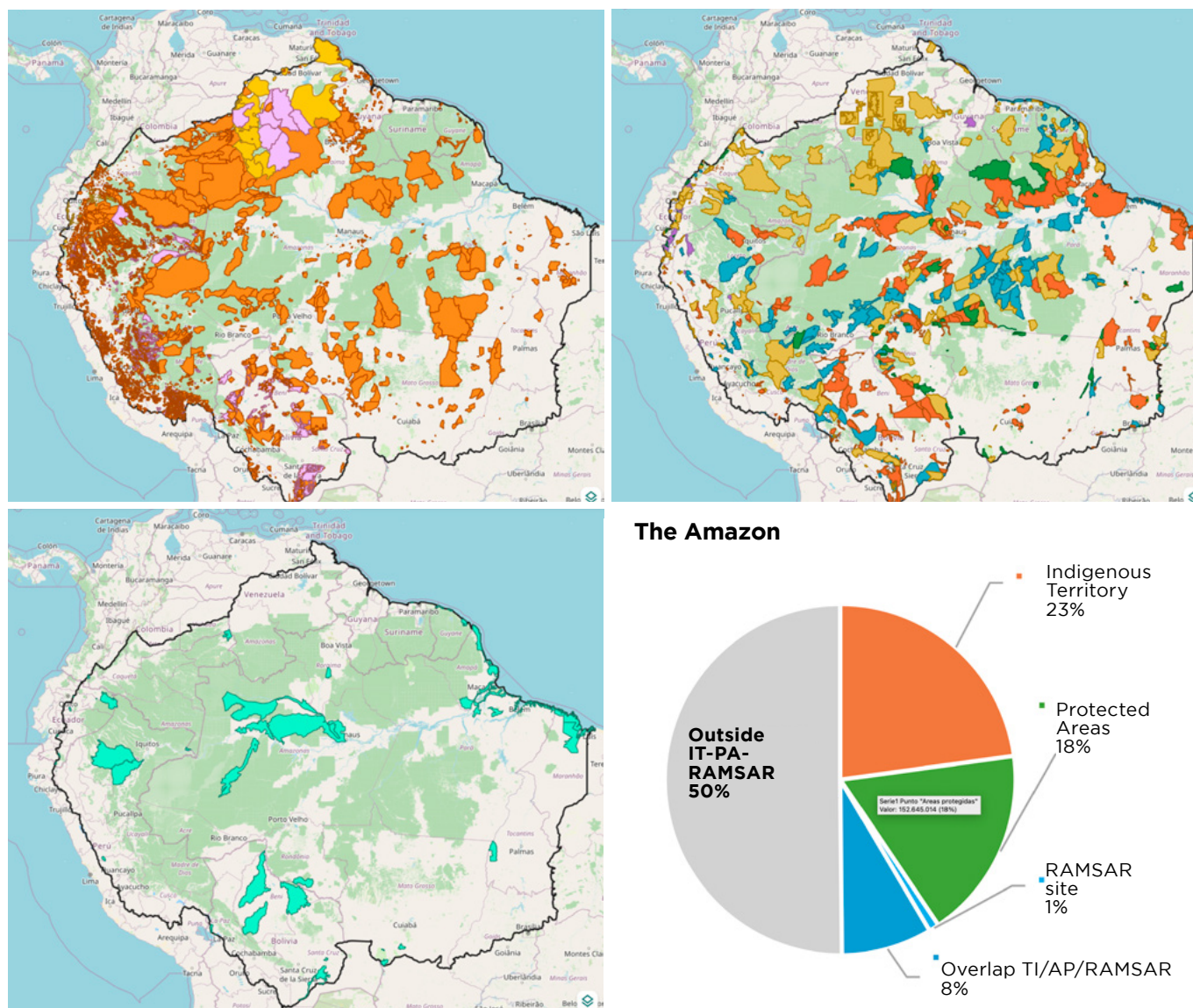


Figure 1. Location of Indigenous Territories (top left), Protected Areas (top right), Ramsar Sites (bottom left) and percentage distribution in the Amazon (bottom right, percentages in IT, PA, Ramsar Sites exclude overlaps and are added together with Overlap).

Source: RAISG, RAISG AMA Platform 2025.

gent to assess the state of conservation of the Amazon by defining Key Priority Areas that are vital for keeping its functionality and ecological representativeness.

More than 70% of the Amazon is forest (more than 600 million hectares in 2024)¹, making it the largest tropical forest in the world. The carbon stored in them, in con-

cert with the multiple ecosystem functions and services they provide, defines the ecological stability of the planet and the climate, making the Amazon 'the great lung of the Earth'.

In addition to its valuable diversity of plant and animal species, the functions and ecological uniqueness of its ecosystems have

¹ According to data from MapBiomass Amazonia Collection 6 (2024).

supported a great diversity of cultures throughout the history of our planet. It is home to more than 400 Indigenous peoples, of which an estimated 82 are in voluntary isolation (RAISG 2020)².

Half of the Amazon is covered by Indigenous Territories (249 million hectares, 29%), Protected Areas (326 million hectares, 38%), and Ramsar Sites (249 million hectares, 3%). There is an 8% overlap (26 million hectares) between these territorial spaces, where two or three of them converge.

3. WHAT IS THE SOCIO-ENVIRONMENTAL STATUS OF THE AMAZON?

Since 2021, the initiative ‘Amazonía por la Vida: protejamos 80% al 2025’ (Amazon for Life: let us protect 80% by 2025), promoted by COICA together with other organisations and of which RAISG is a founding member of the coalition, we have made an urgent call to protect and restore 80% of the Amazon by 2025, as a horizon where the global and national agenda prioritises the Amazon to prevent its collapse and tipping point. To highlight the current state of the Amazon, a specific method has been developed to rigorously evaluate, from a technical and scientific perspective, its ‘ecological functionality and relevance’ and the ‘symptoms and changes in its ecosystems.’

This method was designed with a focus on assessing where and how to achieve the goal of protecting 80% of the Amazon. Therefore, the analysis consists of figuring out ‘Key Areas for Conservation and Restoration in the Amazon,’ which involves

assessing and categorising 12 variables at a spatial resolution of 90 metres using a multi-criteria approach to classify and combine two dimensions:

- 1. Functionality and ecological relevance:** assessing conservation priority based on criteria of functionality, ecosystem services, and ecological representativeness.
- 2. Symptoms and changes:** assessing the degree of alteration or degradation of ecosystems as a result of deforestation, land-use change, fires, and carbon loss.

Although much of the input comes from information sources available in RAISG and MapBiomás Amazonía, during the analysis process new layers of information were designed to support the identification and assessment of ‘Functionality and ecological relevance,’ where it was crucial to define the ecosystems’ heterogeneity, complexity, and uniqueness.

Bolivia and Brazil lead the way in terms of the extent of fires in the Amazon, and 2024 is taking shape as one of the most catastrophic years, with more than 21 million hectares affected by fire.

² Atlas Amazonía bajo presión (RAISG 2020).

3.1. Methodological framework for defining priority conservation areas

The conceptual framework shows that **Key Areas** integrate two analytical axes:

- **Ecological value** (how vital the area is for conservation), and
- **Level of alteration** (how degraded it is).

The intersection of these two axes gives rise to categories that guide **differentiated conservation, restoration or sustainable management actions**.

In this understanding, the **Key Areas of the Amazon** are strategic spaces that combine high ecological and functional value with different levels of transformation or degradation, and whose management is a priority to ensure the conser-

vation of biodiversity, connectivity and ecosystem services.

The two dimensions of the analysis are mentioned below:

1. Functionality and ecological relevance

Assesses the ecological value and capacity of ecosystems and landscapes to keep natural processes.

- **Very high priority:** ecosystems with high integrity, biodiversity, and critical ecosystem services.
- **Medium priority:** functional areas that contribute to hydro-ecological connectivity and the maintenance of the natural mosaic.

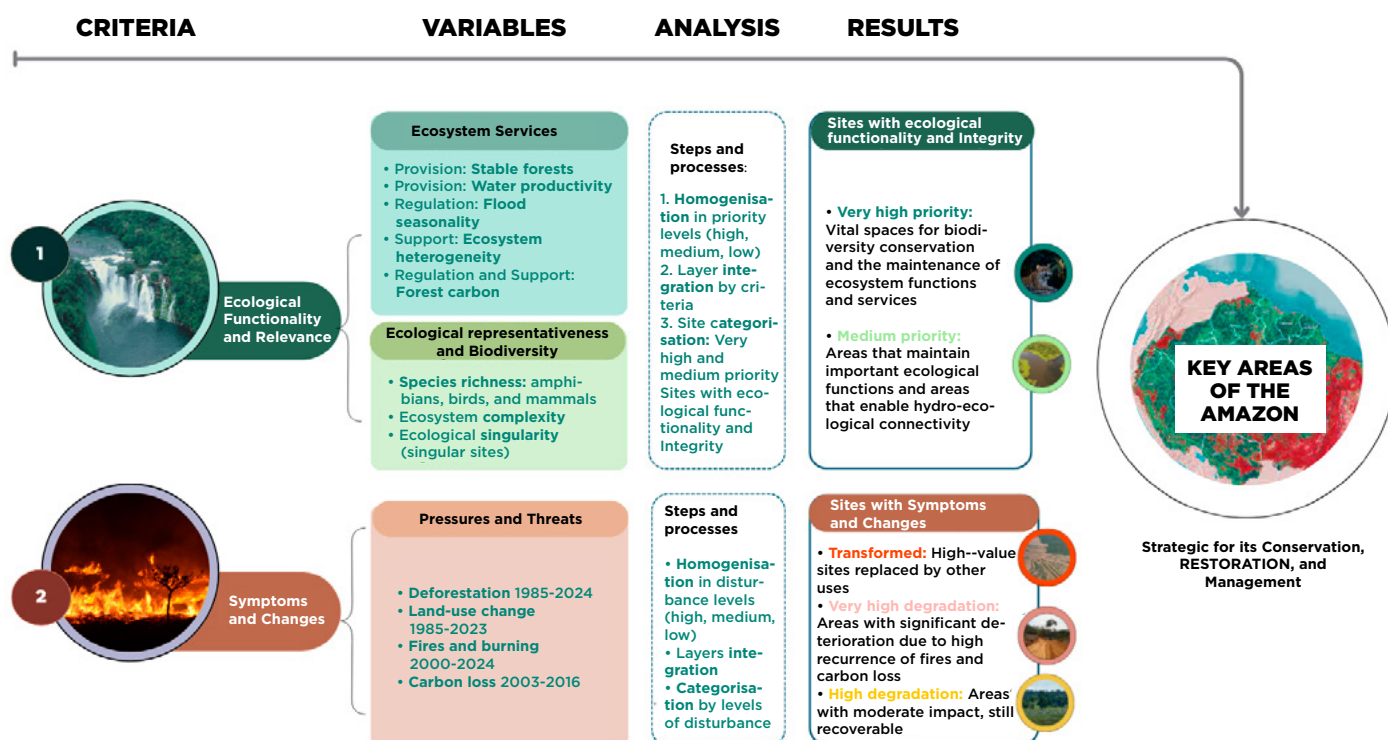


Figure 2. Methodological framework implemented to define Key Areas for the Amazon. *Source:* own elaboration (2021, 2025)

2. Symptoms and changes

Reflects the degree of transformation and degradation of Amazonian ecosystems.

- **Transformed:** replacement of forest or natural ecosystems by agricultural or other uses.
- **Very high degradation:** severe loss of ecological structure and function due to recurrent fires and carbon loss.
- **High degradation:** significant impacts, but with potential for ecological recovery.

3.2. The Amazon and its main ecological benefits and values

To better understand the scope of the method and analyses conducted, it is essential to understand the criteria and definitions that are briefly explained below.

The Amazon: from a more integrative approach RAISG defines and delimits the Amazon by integrating biogeographical,

hydrographic, and political-administrative criteria, following and respecting the particularities of each country in the Amazon region. The total area of the Amazon using these criteria is 8,470,209 km², equivalent to more than 847 million hectares distributed among nine countries (Table 1).

Ecological functionality is the capacity of ecosystems to keep their structures, processes, and integrity, ensuring their **self-organisation and resilience** (De Groot, 1992). Through biophysical processes such as primary production, the water cycle, and nutrient cycling, ecosystems generate **ecosystem services**, understood as the **benefits that people obtain from nature** (Leemans & De Groot, 2003; Millennium Ecosystem Assessment, 2005). **Biodiversity**, in interaction with the physical environment, underpins this functionality and enables ecosystems to provide essential services for human well-being.

Ecological representativeness seeks to ensure that the full diversity of ecosystems, species and natural processes is reflect-

Country	Area in the Amazon (km ²)	% Amazon region in the country
Bolivia	714,834	65.1%
Brazil	5,238,589	61.5%
Colombia	506,181	44.3%
Ecuador	132,292	53.0%
Guyana	211,157	100%
French Guyana	84,226	100%
Peru	966,190	75.2%
Suriname	146,523	100%
Venezuela	470,219	51.3%
Amazon	8,470,209	

Table 1. Extent of the Amazon in the nine countries that comprise it.

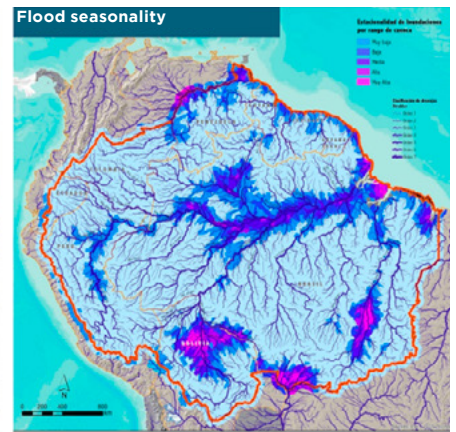
Provision: Forest



Provision: Water



Regulation: Floods



Support: diversity/ heterogeneity



Regulation & Support: biomass/ carbon



Figure 3. Ecological variables and resulting map of Amazonian functionality. **Source:** RAISG, Initiative Amazonia for Life: protect 80% by 8025. 2022.

ed within priority conservation areas. This approach, aligned with the **2030 Agenda** and the **SDGs**, recognises the importance of protecting biodiversity as the basis for ecosystem functionality. However, species loss rates show that this global commitment has not yet been fulfilled. **Rep-**

resentativeness analysis is a key tool for defining **conservation priorities**, offering scientific guidance on where and how to achieve the goal of **protecting and restoring 80% of the Amazon** by finding areas with high concentrations of biodiversity and unique ecosystems.

Species richness



Ecosystem complexity



Ecosystem singularity



Figure 4. Variables and resulting map of Amazonian ecosystem representativeness.
Source: RAISG, Initiative Amazonia for Life: protect 80% by 8025. 2022.

3.3. The Amazon with symptoms and changes

The Symptoms and Changes analysis finds the ecological impacts resulting from human pressures and threats in the Amazon, highlighting its fragmentation and deterioration. To assess the current status, information on deforestation, land use change, carbon loss, and burned areas was integrated and updated to the year 2024. The study was conducted pixel by pixel at a spatial resolution of 90 metres.

Amazonian forests have suffered accelerated loss over the last two and a half decades. According to the sources used to

Deforestation in the Amazon Annual deforestation: 1985 to 2024

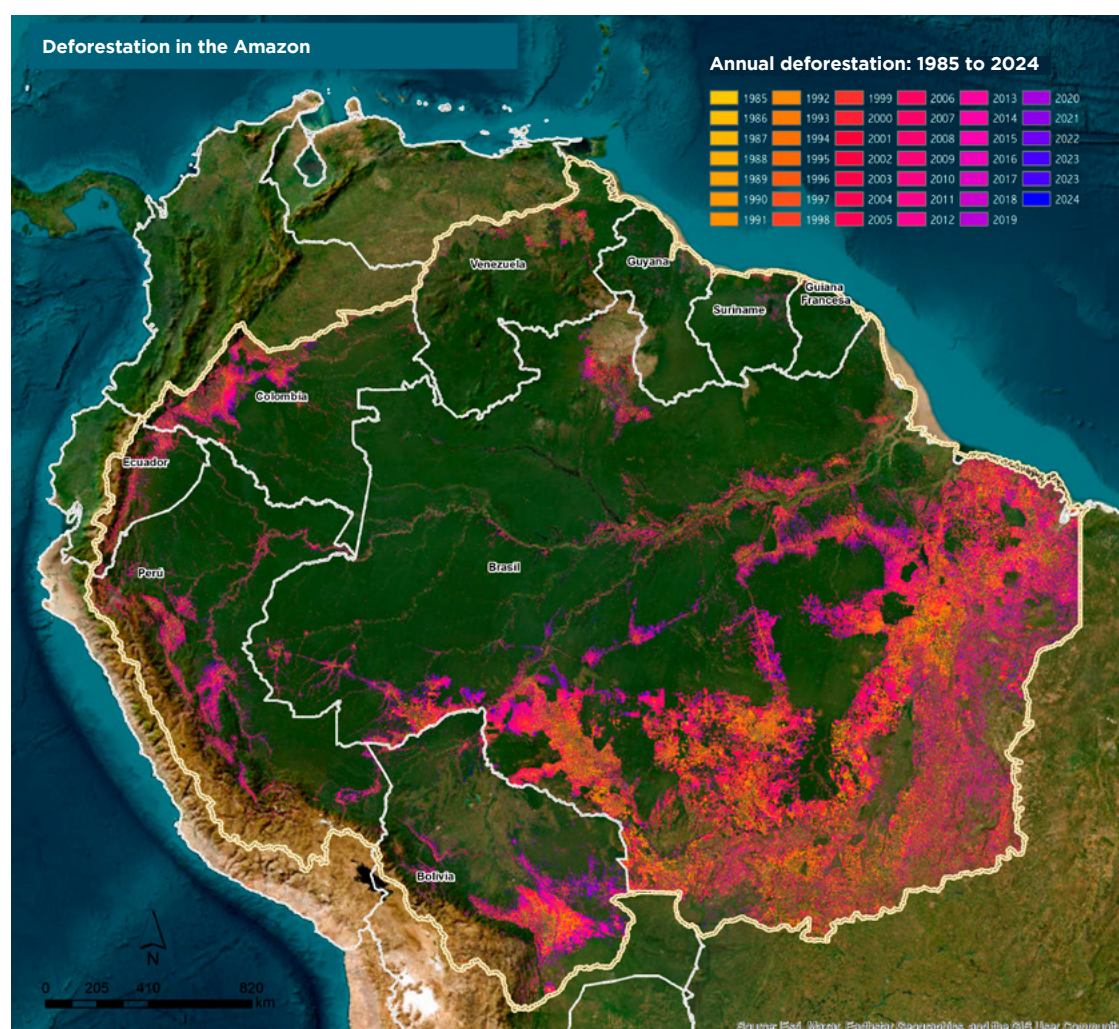
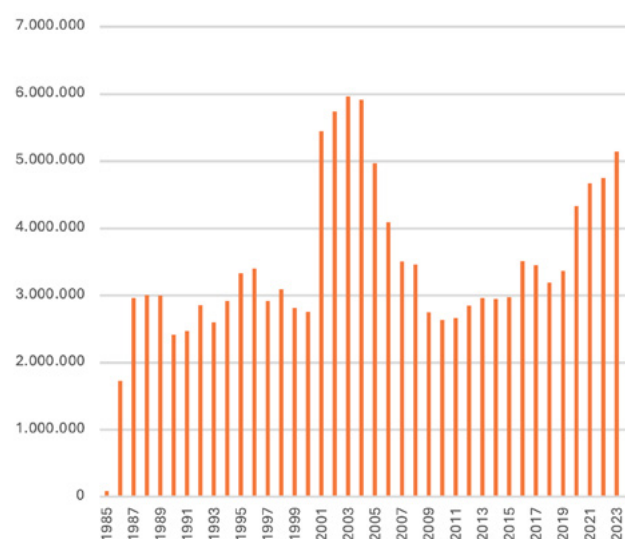


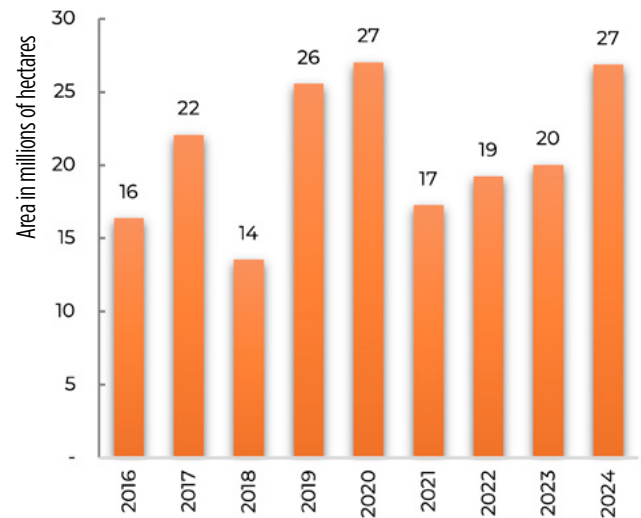
Figure 5. Annual dynamics of deforestation in the Amazon between 1985 and 2024. **Source:** own elaboration, based on data from RAISG (2021), MapBiomass Amazonia (2024), Global Forest Watch (2025) and FAN (2025 unpublished)

produce historical and current deforestation maps, the rate of forest loss in the Amazon increased by 60% compared to pre-2000 levels (an average of 2.5 million hectares per year), reaching around 4 million hectares per year in the period 2001-2024.

The trend of the last four years remains at this average, with deforestation exceeding 16.5 million hectares between 2021 and 2024. In total, during the 40 years analysed (1985-2024), the Amazon has lost 136 million hectares of forest, an area equivalent to almost three times the territory of Spain.

However, the figures for 2024 show an apparent reduction, which could be explained

Fires in the Amazon 2016 - 2024



by limitations in satellite detection due to the extent of burn scars, which overlap and merge with deforested areas.

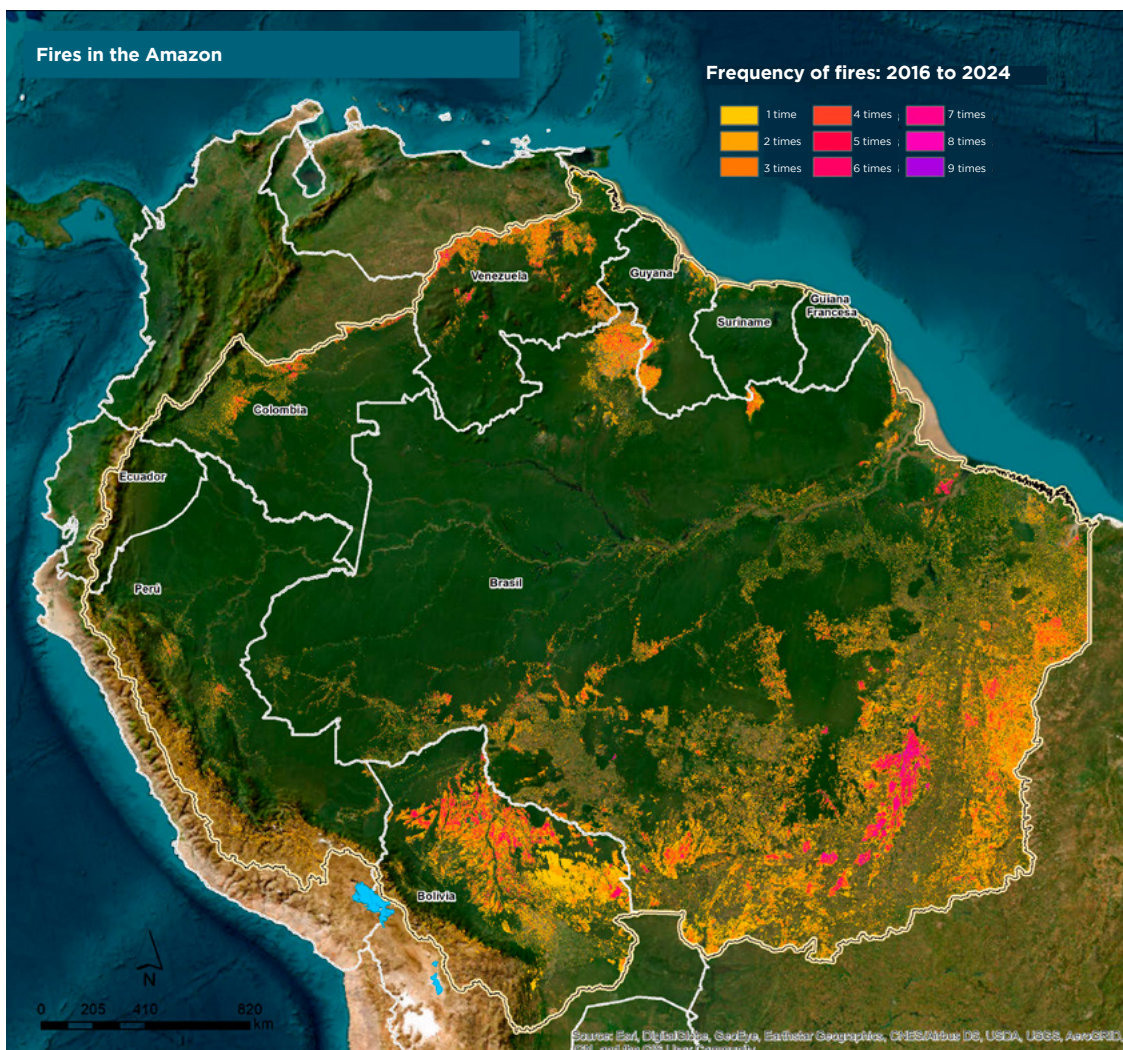


Figure 6. Areas affected by burning and fires in the Amazon: 2016–2024.
Source: RAISG (2025), based on FAN (2021) methodology

In the Amazon, fires are one of the main pressures on its ecosystems and they do not recognise borders. Between 2001 and 2020, they affected an average of 17 million hectares per year, equivalent to 14% of the Amazon region. During the period 2016–2021, the areas affected exceeded that average, reaching between 17 and 27 million hectares, according to RAISG data. In that same period, 59% of the fires occurred in new areas, i.e., in areas that had not previously recorded fires.

Fire behaviour has changed in recent years and shows a trend towards greater intensity and frequency, influenced by prolonged droughts associated with the El Niño phenomenon and climate change; these factors alter the usual dynamics of fire and hasten its advance into previously resistant rainforests. Since Amazonian forests are not adapted to fire, this causes an accelerated loss of biomass, carbon, and biodiversity.

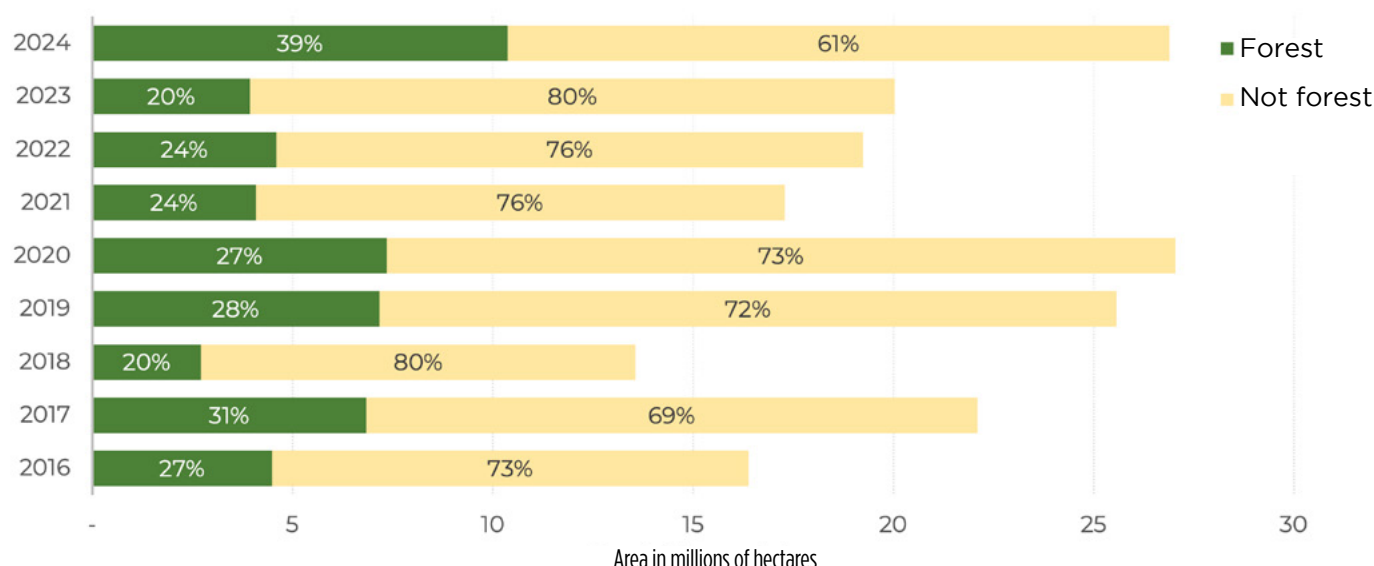
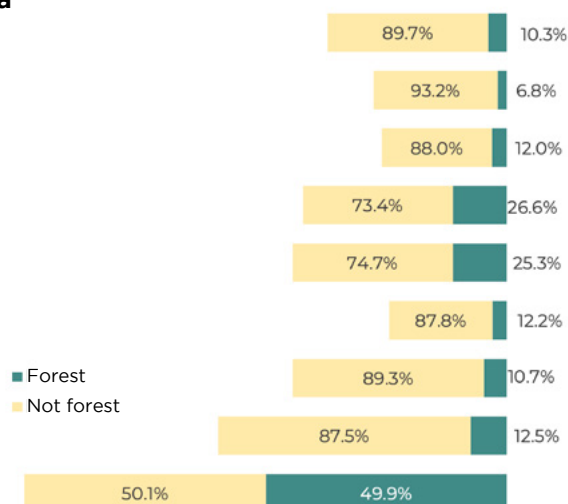


Figure 7. Fire behaviour in forests and other formations between 2016 and 2024

Bolivia



Brazil

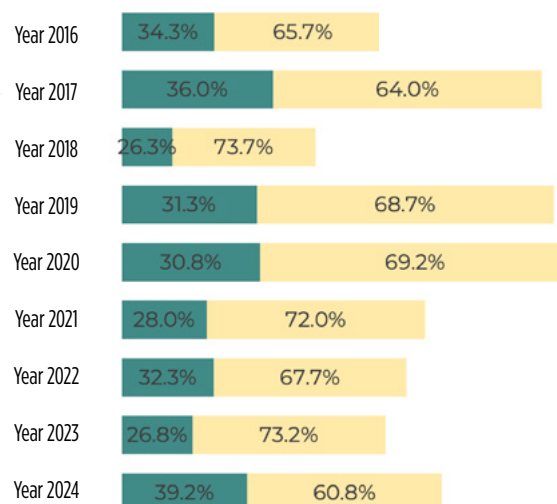


Figure 8. Fires in forests and other formations in Bolivia and Brazil

These fires are also gradually spreading to Protected Areas (PAs) and Indigenous Territories (ITs): In PAs, nearly 60% of the affected areas are new sectors. In ITs, approximately 45% of the fires were recorded in areas that had not been previously struck.

Bolivia and Brazil lead the spread of fires in the Amazon, and 2024 is shaping up to be one of the most catastrophic years, with more than 21 million hectares damaged by fire. The situation is particularly alarming in the Bolivian Amazon, where 50% of the total area disturbed was forest, generating an unprecedented chain of impacts.

The persistent smoke in the atmosphere even drifted as far as Argentina for weeks, while dozens of Amazonian communities were forced to evacuate due to high levels of air toxicity. The damage was even more severe for biodiversity, with countless species trapped by the flames and irreversible ecological losses.

According to reports from Global Atmosphere Watch (Oct. 2025), in 2024, CO₂ emissions in the Amazon reached record levels, driven by extreme drought and high temperatures linked to El Niño and the warming of the North Atlantic. That year saw the highest emissions from fires in 15

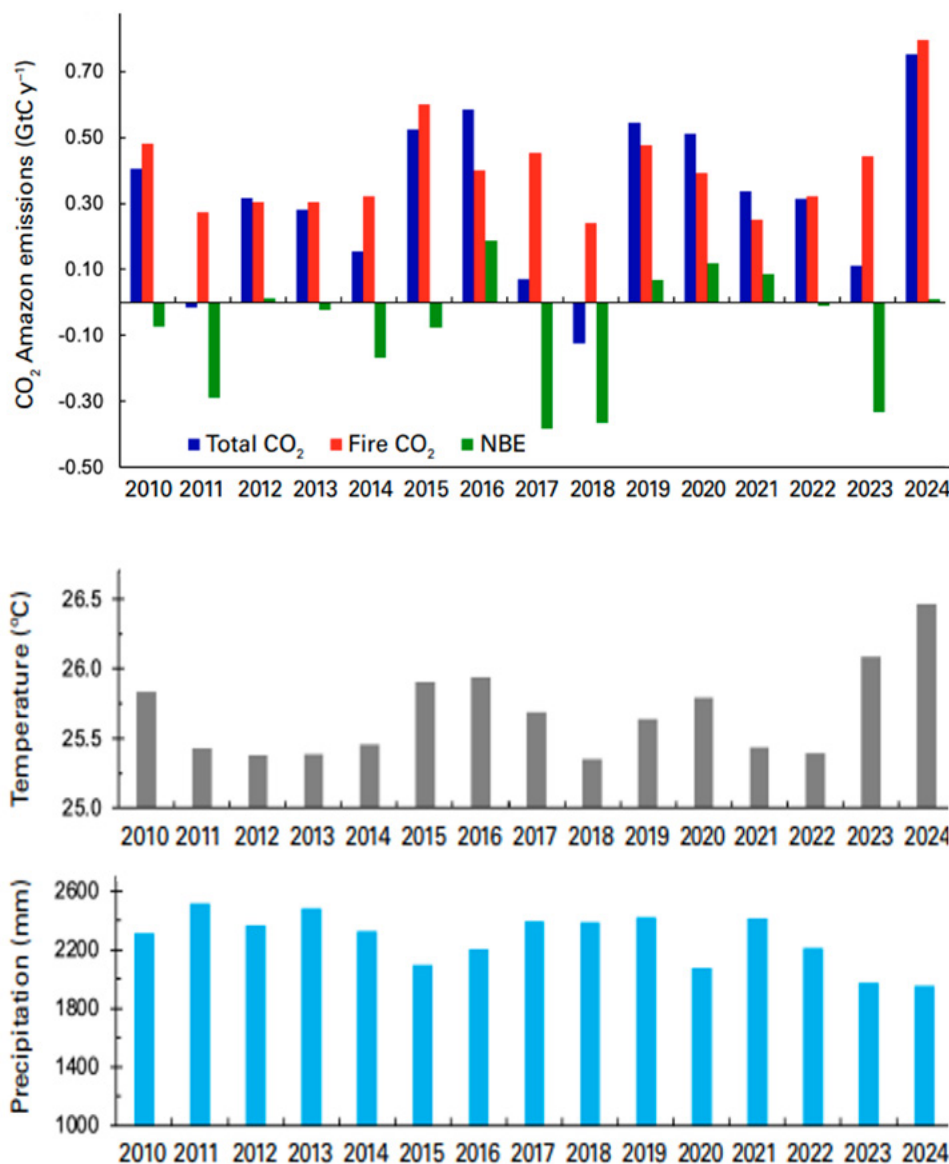


Figure 9. Changes in CO₂ emissions and weather anomalies in the Amazon between 2010 and 2024. **Source:** WMO Greenhouse Gas Bulletin - Global Atmosphere Watch (2025)

years, with a massive release of carbon that intensified regional and global air pollution. At the same time, methane (CH₄) concentrations continued their steady increase since 2007, reaching 266% above pre-industrial levels, due to increased emissions from tropical wetlands and agricultural and waste sources. These processes reinforce the role of Amazonian fires as one of the main drivers of climate imbalance and air quality degradation in South America.

3.4. Water and climate emergency in the Amazon

Water vulnerability in the Amazon has intensified in recent years, as shown by significant variations in water availability. In 2023, monthly rainfall recorded significant fluctuations, with differences ranging from -6% to +7% compared to historical values. Currently, it is estimated that only 13% of the region's surface water is used for human consumption, of which approximately 82% is concentrated in hydroelectric plants

(MapBiomias Agua, 2024). Added to this is the progressive loss of 184,000 hectares of glacier surface area (56% of the total) between 1985 and 2022, which compromises the availability of essential water resources for cities with high urban populations, as well as for ecosystems, communities, and biodiversity.

The concept of tipping point reflects that the Amazon is at a critical stage, where deforestation and degradation exceed the thresholds estimated by Nobre and Lovejoy (20–25% combined loss). This pressure is coupled with extreme climate change: rainfall has shown an annual decline of 17%, reaching peaks of 64% in August and September, while the average monthly temperature has already increased by more than 2°C (Spickenbom, 2021), leading to more intense and prolonged droughts. These interrelated factors jeopardise the Amazon's water and ecological resilience, increasing the urgency of conservation and sustainable water management strategies.

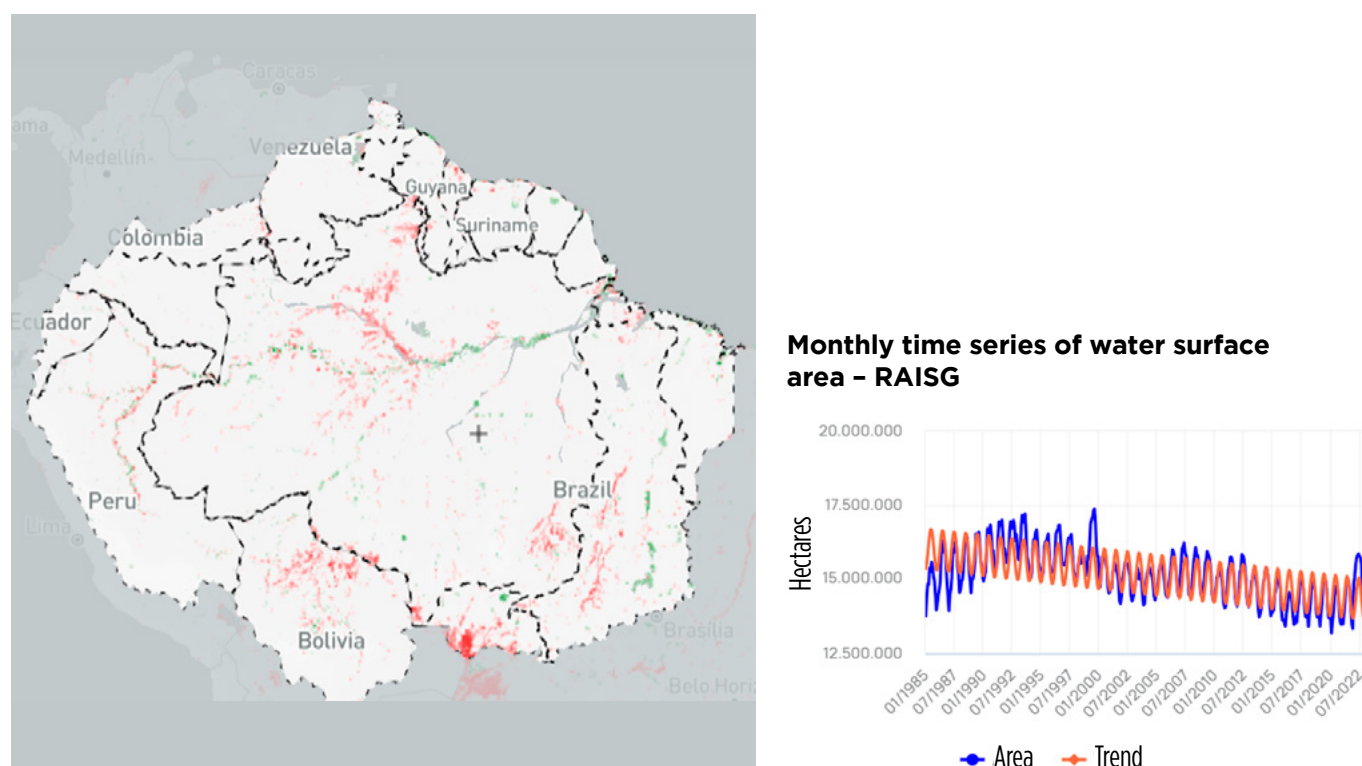


Figure 10. Historical trend in the surface area of water bodies in the Amazon. *Source:* MapBiomias Agua (2024)

4. OPPORTUNITIES AND CHALLENGES

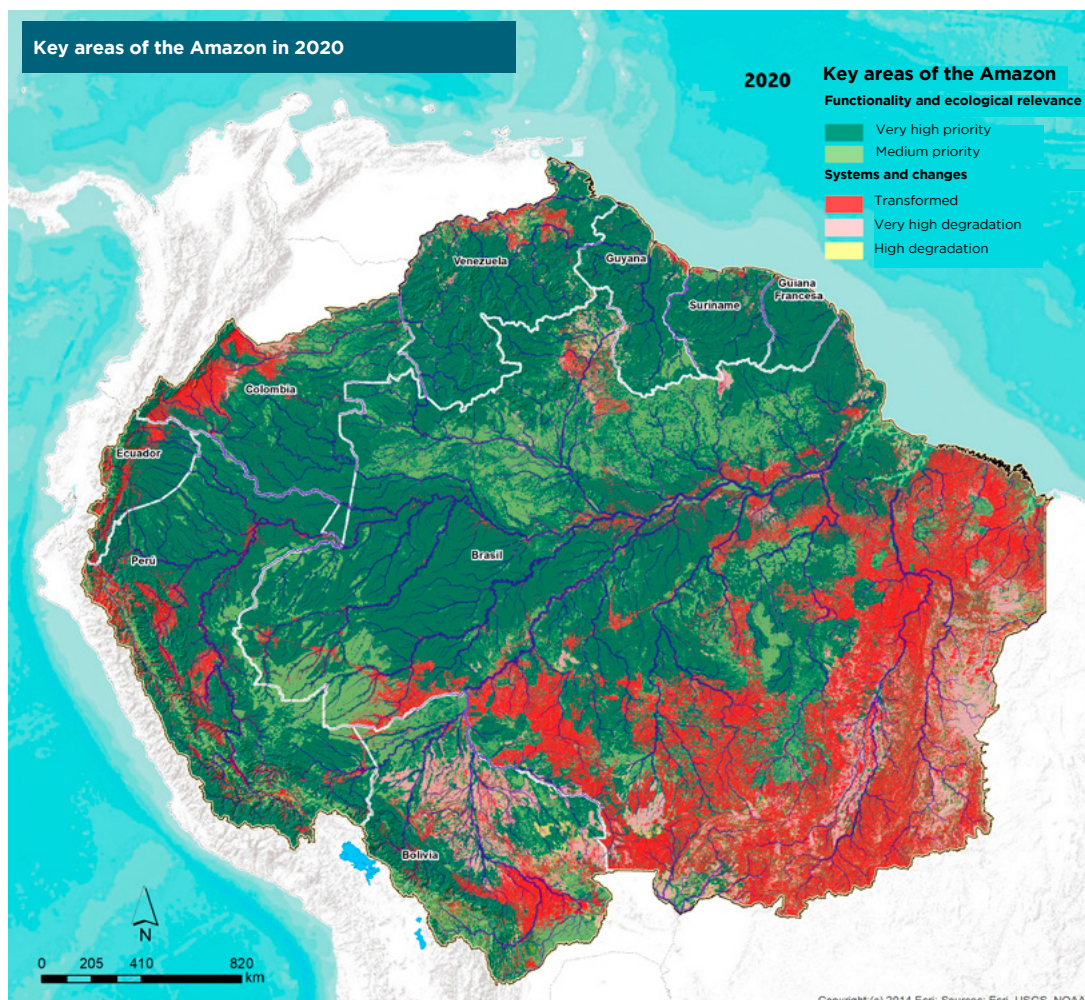
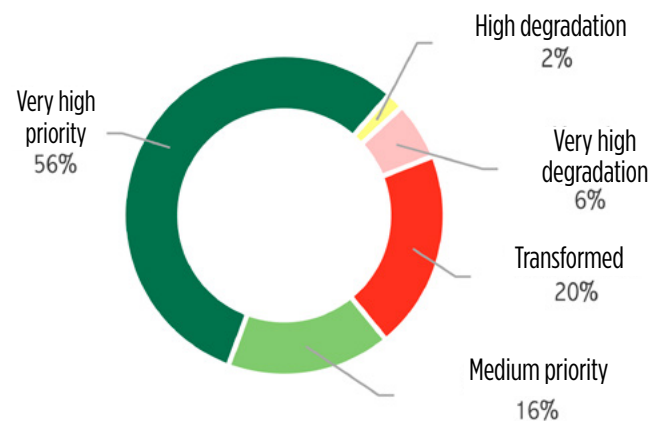
4.1. The Amazon on the threshold of the tipping point

The results of the analysis of Key Areas in the Amazon show that the region is in a critical state of transition towards its tipping point, although conditions still exist that could reverse this trend. Protecting at least 80% of the Amazon region is still a possible and essential goal for keeping its ecological functionality and the ecosystem services that sustain the climate, water, and biodiversity on a continental scale.

By 2020, approximately 26% of the Amazon had already been transformed (20%) or showed signs of very high degradation (6%), while 74% kept high ecological integ-

riety. However, between 2021 and 2024, the region experienced an unprecedented acceleration in the loss of its natural cover, with a rate of transformation and degradation of around 8 million hectares per year, equivalent to more than 33 million hectares disturbed in just four years.

Key areas of the Amazon in 2020



This deterioration is mainly attributed to the expansion of deforestation, land use change, and the intensification of forest fires. These factors have had a concentrated impact on Amazonian forests; as a result, by 2024, transformed and degraded areas will cover 30% of the Amazon, reducing areas with high ecological functionality to 70%. This trend warns of a real and imminent risk of irreversible loss of resilience in Amazonian ecosystems, threatening the region's climate stability, water availability, and biodiversity.

Key areas of the Amazon in 2024

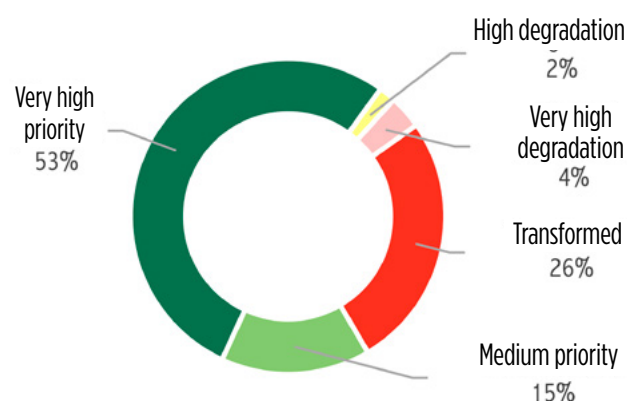
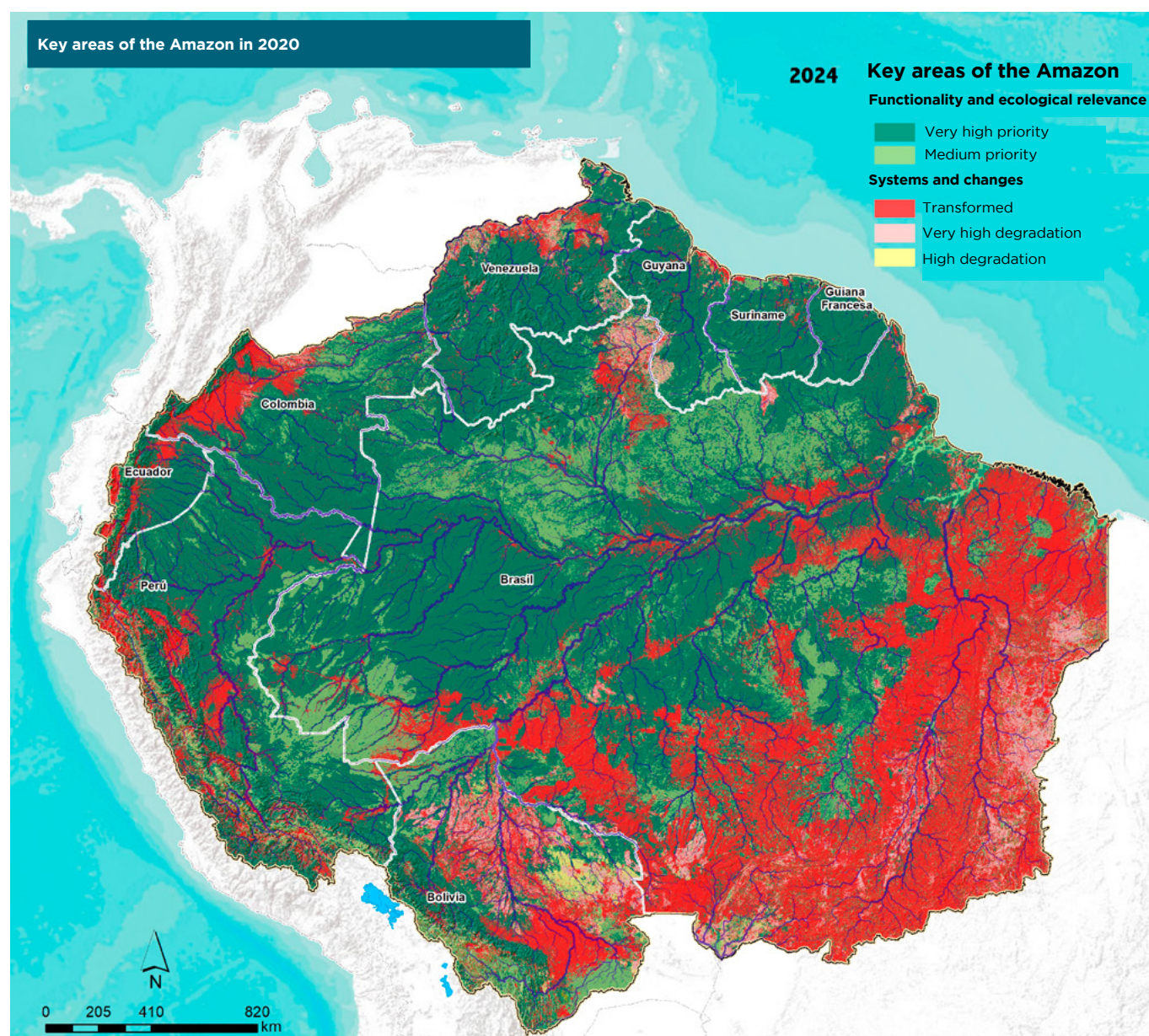


Figure 11. Comparison of Key Areas of the Amazon in the years 2020 and 2024



4.2. STATUS OF PRIORITY CONSERVATION AREAS BY COUNTRY

The regional trend once again positions Bolivia and Brazil as the countries with the highest levels of transformation and degradation of Amazonian ecosystems and landscapes. In the case of Bolivia, whose Amazon region accounts for 65% of its national territory, 28% of its Amazonian area has been transformed and 10% degraded since 2024. Brazil, which has 61% of its territory within the Amazon region, has seen 32% transformation and 4% degradation. In both cases, the expansion of the agricultural frontier, deforestation, and forest fires have had a significant impact on the reduction of key areas for the ecological functionality and integrity of the Amazon as a whole.

Likewise, comparative results between 2020 and 2024 reveal worrying trends in

Ecuador and Colombia. In Ecuador, 23% of Amazonian areas are already undergoing transformation, while in Colombia, transformation and degradation have reached 19%. These figures reflect that a sustained expansion of anthropogenic pressures has taken places, as well as the accelerated loss of ecological connectivity in sectors critical to regional conservation.

The regional trend once again positions Bolivia and Brazil as the countries with the highest levels of transformation and degradation of Amazonian ecosystems and landscapes.

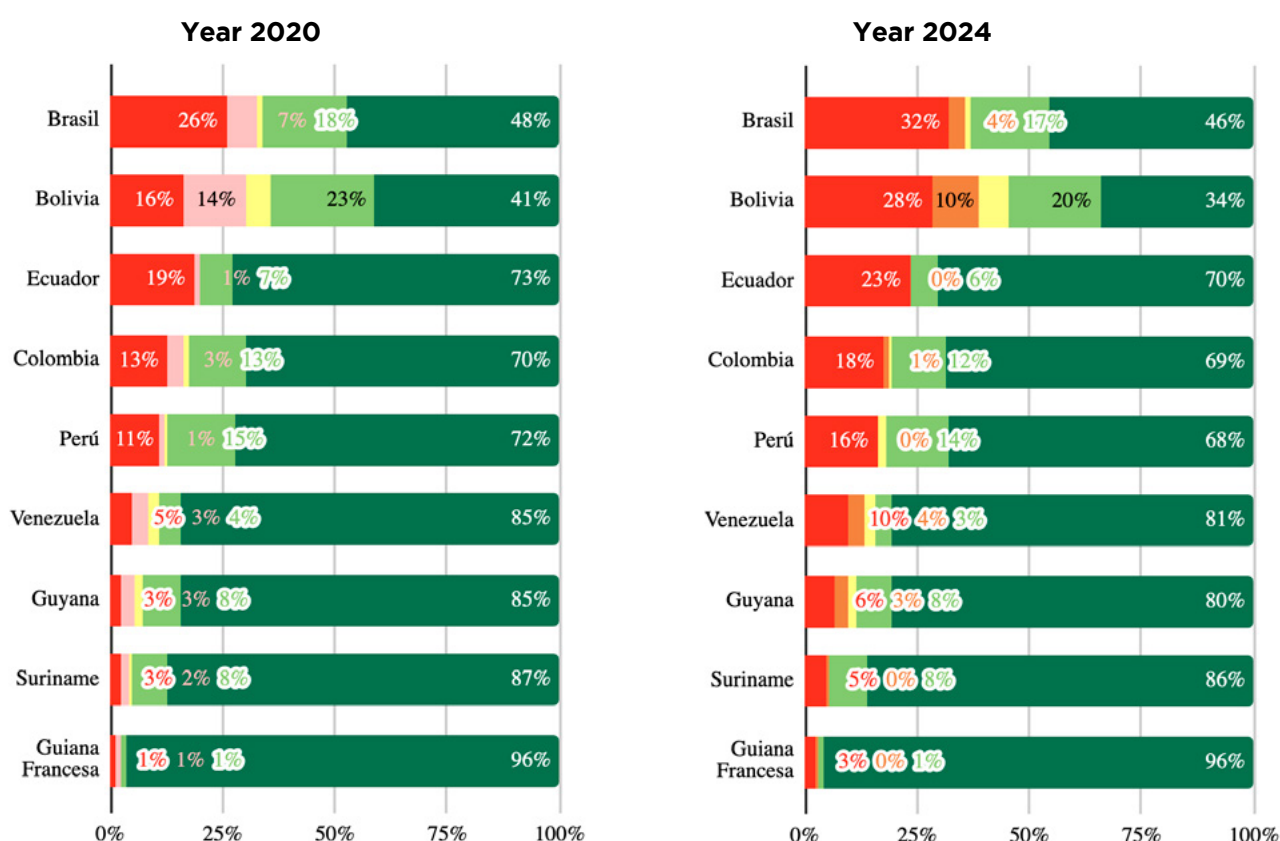


Figure 12. Key areas in Amazonian countries between 2020 and 2024

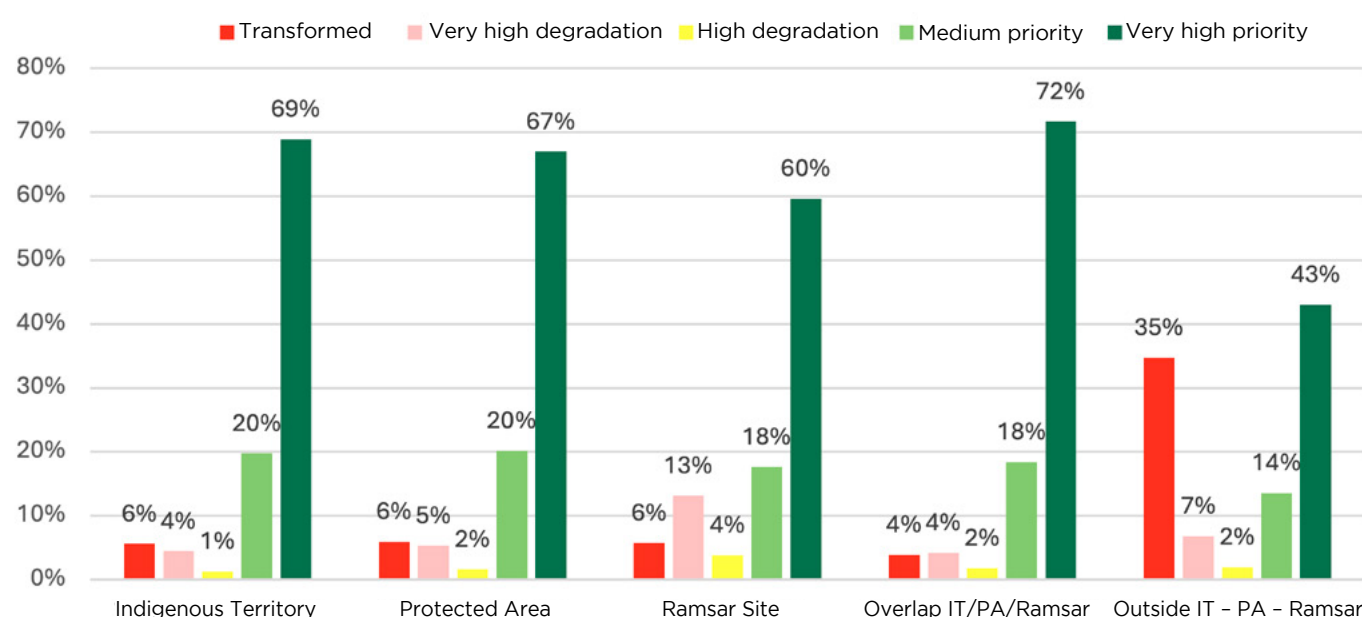
4.3 INDIGENOUS TERRITORIES, PROTECTED AREAS, AND RAMSAR SITES: THE SHIELDS OF THE AMAZON

Approximately half of the Amazon is made up of Indigenous Territories (IT), Protected Areas (PA), and Ramsar Sites, which have proved themselves as true shields against

deforestation and degradation. These territories are an essential part of the promising solutions for Amazon conservation and resilience.

While the transformation and degradation of Amazonian ecosystems have continued relentlessly since 2020 – driven mainly by the expansion of the agricultur-

Year 2020



Year 2024

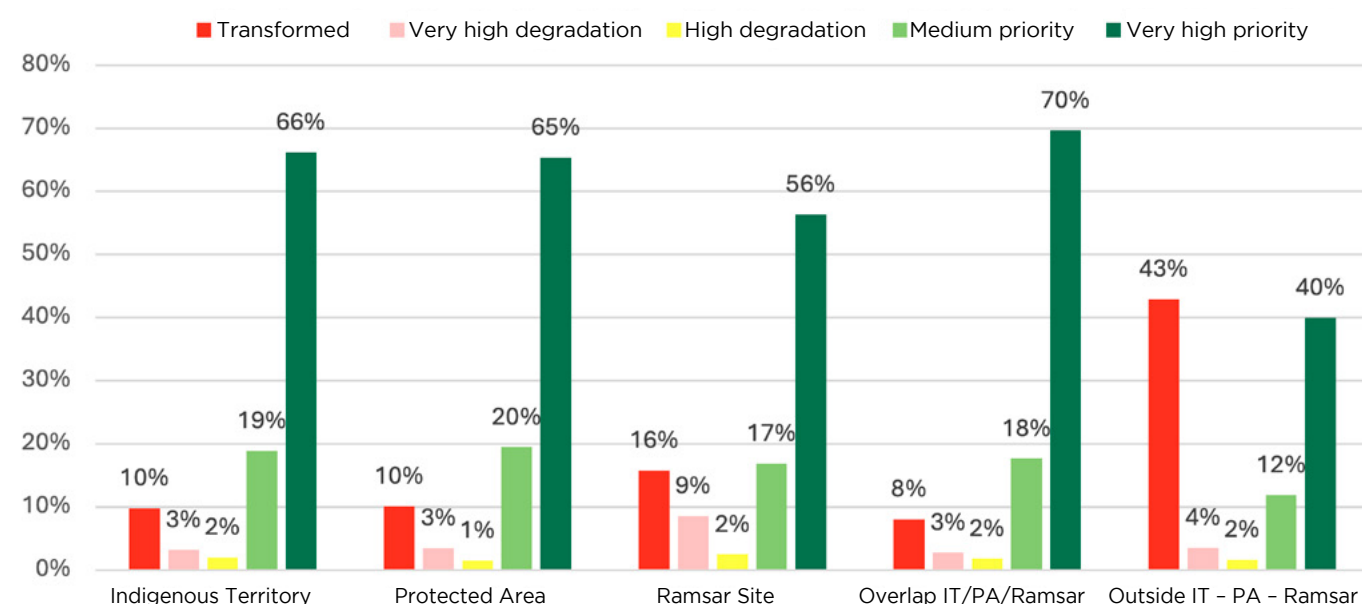


Figure 13. Key areas in IT, PA, and Ramsar sites between 2020 and 2024

al frontier and the increasing recurrence of forest fires – the rates of deterioration within ITs, PAs, and Ramsar Sites remain significantly below those recorded outside these areas, confirming their role as effective barriers against ecological collapse.

In 2020, these three territorial figures recorded levels of transformation and degradation of 10% in Indigenous Territories, 11% in Protected Areas and 19% in Ramsar Sites, while outside these areas, transformation exceeded 42%.

By 2024, the indicators show a moderate increase: 13% in IT and PA, and 25% in

By 2024, the indicators show a moderate increase: 13% in IT and PA, and 25% in Ramsar Sites, in contrast to a worrying 47% transformation and degradation outside these areas.



Smoke in the Amazon forest in the department of Santa Cruz Bolivia. *Credit: Pedro Pablo Ribera, 2020.*

Ramsar Sites, in contrast to a worrying 47% transformation and degradation outside these areas.

The results corroborate the fundamental role of Indigenous Territories as effective conservation mechanisms, comparable to protected areas. In many cases, a titled Indigenous territory translates, in fact, into a guarantee of protection and maintenance of ecological functionality,

even when conservation is not its explicit goal.

Similarly, comparative statistics from 2020 and 2024 show that areas where an Indigenous Territory, a Protected Area, and a Ramsar Site coincide or overlap have the highest levels of ecological integrity and the lowest rates of degradation, consolidating a key territorial model for sustaining Amazonian resilience.

Conclusions

The Amazon is at a critical crossroads. Data shows that degradation and transformation are advancing at an alarming rate, threatening to reach a point of ecological no return. However, it also reveals that there is still a real opportunity to reverse this trend: nearly 70% of the Amazon keeps its ecological functionality and essential ecosystem services, due mainly to the protective role of Indigenous Territories, Protected Areas, and Ramsar Sites.

The future of the Amazon and, with it, the climate balance and water stability of the continent will depend on the collective ability to strengthen the management of these territories, curb deforestation, restore degraded areas, and recognise the leadership of Indigenous Peoples as guardians of this great system that is essential for all humanity.

By 2024, the Amazon will conserve more than 538 million hectares of stable forest in key areas of the Amazon. Of this total, Indigenous Territories protect 202 million hectares, Protected Areas 174 million, and Ramsar Sites 25 million. In contrast, forests outside these protected areas are the most vulnerable to loss and fragmentation, urgently requiring effective con-

servation and restoration strategies (194 million hectares of forest).

Protecting the Amazon is not just about preserving a source of life, water, and diversity: it is about ensuring humanity's ability to adapt and be resilient to climate change in an era of planetary crisis. Keeping the forest standing is, now more than ever, a fundamental condition for our shared future.

In many cases, a titled Indigenous territory translates, in fact, into a guarantee of protection and maintenance of ecological functionality, even when conservation is not its explicit goal.

Stable forest in the Amazon

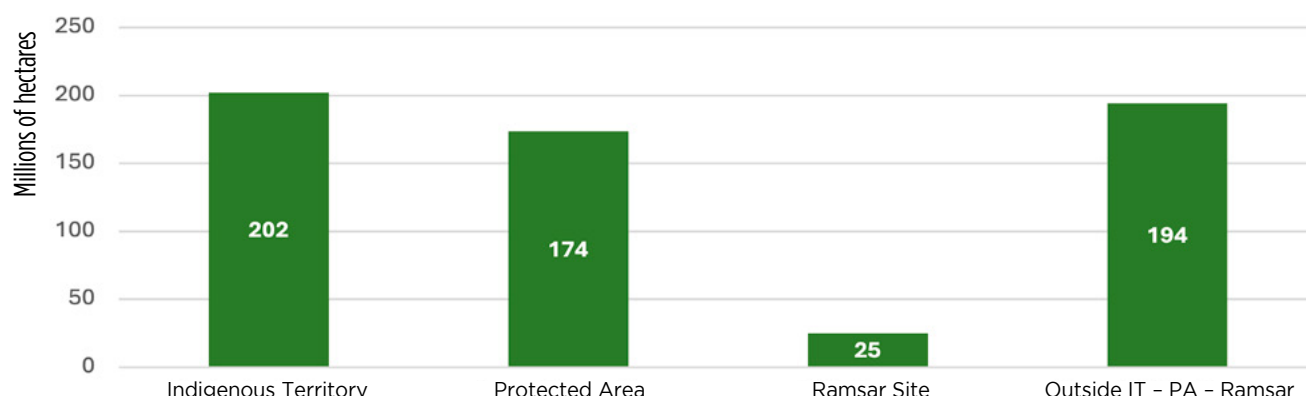


Figure 14. Stable forest in the Amazon in 2023. *Source: RAISG, 2024*

About the author

Marlene Quintanilla. A forestry engineer by profession, with a master's degree in water resource assessment, Marlene has more than fifteen years of experience in planning and sustainable use of natural resources. She is currently Director of Research and Knowledge Management at Fundación Amigos de la Naturaleza (FAN), where she analyses and researches pressures on ecosystems and the impacts of climate change. She has led projects and research related to water and forest management in United Nations programmes, and forestry and land management projects at CIDOB and CEPAC. She is the main researcher for the initiative 'Amazonia Viva: Protect and Restore 80% 2025-2030' and developed the method for the reports 'Amazonia Against the Clock' (2022) and 'Amazonia in Danger of Extinction' (2025).

Fundación Amigos de la Naturaleza (FAN). Fundación Amigos de la Naturaleza is a Bolivian civil society organisation made up of women and men who, recognising the importance and value of nature, are committed to working to promote positive changes so that Bolivia values, protects, and conserves its natural heritage and the environmental functions that sustain the livelihoods and well-being of its population for sustainable development and climate resilience. FAN is a member of RAISG, which in turn is a member of the 80%x 2025-2030 Initiative.

Red Amazónica de Información Socioambiental Georreferenciada (RAISG). Red Amazónica de Información Socioambiental Georreferenciada (The Amazonian Network for Georeferenced Socio-Environmental Information) is a consortium of civil society organisations from Amazonian countries focused on the socio-environmental sustainability of the Amazon, with support from international cooperation. RAISG is a founding member of the 'Amazonia Viva: Protect and Restore 80% 2025-2030' initiative and was instrumental in developing the 2022 report 'Amazonia Against the Clock' and the 2025 report 'Amazonia in Danger of Extinction'.

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ENDANGERED AMAZONIA

A CONFERENCE OF THE PARTIES AT THE GATES OF THE AMAZON TIPPING POINT



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025 2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



Science Panel
for the Amazon
THE AMAZON WE WANT

Technical Briefing: Key Takeaways

1. The Amazon is on the verge of a tipping point. If deforestation exceeds 20% and global warming exceeds 2°C by 2050, about 70% of the forest could self-degrade between 2080 and 2100, releasing more than 250 billion tons of CO₂. Currently, 17% of the forest has already been deforested and global warming is close to 1.5°C (Nobre et al., 2016).
2. The Amazon hydrological cycle sustains rainfall in South America. The “flying rivers” generated by the forest contribute about 50% of the local rainfall and up to 30% of the precipitation in the Plata River Basin (Zemp et al., 2014). This ability of the forest to pump and redistribute moisture maintains South America’s climate stability. However, the loss of forest cover weakens this cycle, reduces biodiversity, and threatens the livelihoods of Amazonian populations who depend on forests and rivers for their food, health, and local economy.
3. The frequency and intensity of extreme droughts in the Amazon are increasing. The extreme drought of 2023–2024 caused the temperature of Lake Tefé to exceed 40°C and dissolved oxygen to drop to critical levels. These droughts — also recorded in 2005, 2010 and 2015–2016 — being recurrent, can cause local extinctions of species, alter the availability of food and water, increase thermal discomfort and health risks for Amazonian communities.
4. Wildfires exacerbate the climate crisis. Most fires in the Amazon are caused by deforestation, the use of fire in agricultural practices, and the advance of organized crime aimed at degrading and deforesting the forest. Climate change intensifies the problem by drying out vegetation and soil, making them more flammable. In addition to ecological and economic losses, fires destroy crops and agroforestry systems, and their toxic smoke affects about 140,000 people per year in the Brazilian Amazon (Prist et al., 2023).

5. The 30th Convention of the Parties (COP30) represents a critical opportunity to reverse the Amazon crisis. COP30, which will be held in Belém, Brazil — the first city in the Amazon to host a COP — seeks to reorient global climate policy. The event has a debate agenda focused

on nature-based solutions, renewable energy, forest restoration, and climate justice. The integration of Indigenous and Local Knowledge will be fundamental for a regenerative socio-bioeconomy in the Amazon.

Summary

The 30th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP30 - UNFCCC), scheduled to take place in Belém in November 2025, represents a historic meeting: either we advance on real solutions to achieve zero deforestation and regenerate the Amazon — integrating science, technology, local knowledge and political will — or we will witness the breaking of the thresholds that sustain the environmental stability of the largest biological reserve and supplier of rainfall in the Earth's surface. The world

cannot fail the Amazon. Protecting the forest and local communities is a global duty and keeping it alive and connected is crucial to the future of humanity. In this chapter, we present the impacts of climate change on Amazonian communities, analyze the risk of the forest reaching a tipping point, and discuss how the main themes on the COP30 agenda can contribute to reducing greenhouse gases, restoring Amazonian ecosystems, and supporting Indigenous Peoples and Local Communities in the conservation of their territories.

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A CONFERENCE OF THE PARTIES AT THE GATES OF THE AMAZON TIPPING POINT

INTRODUCTION

The Amazon is the largest continuous tropical forest on the planet. Its geological and biological evolution has given rise to more than 50 different types of aquatic and terrestrial ecosystems, which host the greatest biological diversity on planet Earth. In addition to being rich in biodiversity, human and cultural diversity is remarkable, currently with more than 2 million people of Indigenous origin (Science Panel for the Amazon, 2021).

In the healthy forests of the Amazon, life constantly renews itself. It is estimated that there are 390 billion trees and palms distributed in 16.000 species (Ter Steege et al., 2013). This immense volume of life produces leaves, branches, and fruits that fall to the ground. In the soil, they feed the fauna and become part of the land. Some seeds germinate, giving rise to new plants, maintaining the cycle of life.



Figure 1. Lake Tefé, Tefé municipality, Amazonas, Brazil, during extreme drought in October 2023. **Photography:** Débora Hymans. Mamirauá Institute.

More than sustaining itself, the Amazon works as a great source of water, pumping moisture that guarantees rain inside and outside the forest. Several species of trees have deep roots (up to 18 m) that extract water even in periods of drought, while helping to generate humidity all year round. This moisture, produced by the forest itself, accounts for almost half of the local rainfall and transported by the so-called “flying rivers”, travels through the Amazon from east to west, reaches the Andes Mountains and heads towards various areas of South America. It is estimated that flying rivers contribute about 10% of South America’s total precipitation, up to

Indigenous Peoples and Local Communities living in the Amazon are highly dependent on the biological resources provided by forests and rivers, such as fruits, seeds, and fish. Climate change impacts the functioning of the forest and the dynamics of planting, harvesting, and fruiting associated with the ways of life of Amazonian populations.

30% of rainfall in the Plata River Basin, located in parts of Brazil, Argentina, Bolivia, Paraguay, and Uruguay, and 50% of precipitation in the tropical Andes (Zemp et al., 2014).

Despite its importance, the Amazon has been affected by intense and accelerated environmental impacts. Deforestation and forest degradation are the main causes of habitat loss, the risk of species extinction, and reduced rainfall, making the forest hotter, drier, more flammable, and vulnerable to global climate change (Science Panel for the Amazon, 2021). This chapter presents the impacts of climate change on Amazonian communities, analyzes the risk of the forest reaching a tipping point, and discusses how the main topics on the agenda of the 30th Conference of the Parties (COP30) to the United Nations Framework Convention on Climate Change (UNFCCC) can contribute to reducing greenhouse gases, restore Amazonian ecosystems, and support Indigenous Peoples and Local Communities in the conservation of their territory.

HOW AMAZONIAN COMMUNITIES ARE IMPACTED BY CLIMATE CHANGE

Indigenous Peoples and Local Communities living in the Amazon are highly dependent on the biological resources provided by forests and rivers, such as fruits, seeds, and fish (Brandão et al. 2024). Climate change impacts the functioning of the forest and the dynamics of planting, harvesting, and fruiting associated with the ways of life of Amazonian populations. There is already evidence that the production of fruits and seeds of açai (*Euterpe precatoria*), andiroba (*Carapa guianensis*), Amazon nut (*Bertholletia excelsa*), and cumaru (*Dipteryx odorata*) has reduced due to de-

forestation and increased regional temperatures (Brandão et al., 2021).

The warming of river and lake waters compromises the survival of aquatic fauna, exceeding the thresholds for reproduction in many species. Indeed, the extreme droughts of 2023 and 2024 were devastating (Figure 1). For instance, in Lake Tefé, in the Solimões River Basin, Tefé municipality, Amazonas, Brazil, water temperatures exceeded 40°C in October 2023, and dissolved oxygen levels dropped sharply. The combination of high-water temperatures and low dissolved oxygen has led to the deaths of hundreds of pink dolphins, tucuxis, and alligators, as well as tens of thousands of fish.

If these droughts become recurrent, as happened in 2005, 2010, 2015-2016 and this most recent one in 2023-2024, they could lead to the local and regional extinction of aquatic and terrestrial species, especially those with a geographic distribution restricted to specific ecosystems. Changes in species populations also alter the dietary patterns of Amazonian populations, influencing the consumption of fats, carbohydrates, and proteins. In addition, the heatwaves and water scarcity observed during years of extreme droughts directly affect rural and urban populations by widening the distance between navigable riverbeds and houses built on *terra-firme*, reducing their access to drinking water, increasing thermal discomfort, and intensifying smoke from forest fires.

The intensification of climate variability has made droughts and floods more intense and frequent in the Amazon. Droughts reduce the flow of water that transports chemical elements from the soil into the plant (Fontes et al., 2018). In turn, floods reduce root respiration due to low oxygen

The extreme droughts of 2023 and 2024 were devastating. For instance, in Lake Tefé, in the Solimões River Basin, Tefé municipality, Amazonas, Brazil, water temperatures exceeded 40°C in October 2023, and dissolved oxygen levels dropped sharply.

availability in flooded soils, as happened in the Madeira River Basin in 2014 (Herraiz et al., 2017). Thus, droughts and floods can increase plant mortality, both in natural forests and in agricultural and agroforestry systems, because they affect plant metabolism.

Most forest fires in the Amazon are caused by human activities, such as deforestation, the use of fire in agriculture, and, increasingly, organized crime aimed at degrading and even deforesting the forest. Climate change also contributes to the increase in these fires, reducing the moisture content of the atmosphere and soil, making vegetation drier and more vulnerable to fires. In addition to ecological losses, fires cause economic damage: they burn seeds and fruits that could be consumed or sold, destroy plantations, agroforestry systems,

and infrastructures (Costa; Marengo; et al., 2024). The smoke generated, with a high concentration of microparticles, causes respiratory and heart diseases in about 140.000 people in the Brazilian Amazon per year (Prist et al., 2023).

AMAZON CLOSE TO THE TIPPING POINT

Since the 1970s, deforestation and, more recently, degradation, forest fires, and global warming have been putting pressure on the forest to unprecedented levels (Nobre et al., 2016). The cumulative im-

pacts are clear: the dry season in the Amazon has increased by about five weeks since 1979, extending approximately one week longer every decade. Regions in the south and southwest of the forest, from the Atlantic Ocean to Bolivia, Peru and Colombia, are already facing dry periods of four to five months – when before they lasted three to four months. If the drought exceeds six months, it is possible that the dense forest, with a closed canopy and always humid, will not be maintained. This can generate a change in the composition of species adapted to the climatic seasonality characteristic of the tropical savannah (Cerrado biome in Brazil and Bolivia),



Figure 2. Degraded Amazon rainforest in southern Amazonas state, Brazil, where forest fires are frequent. **Photography:** Diego Oliveira Brandão (2012).

where the dry season is well marked and precipitation varies between 1200 mm and 1800 mm per year.

Signs of collapse have multiplied in recent decades. Heavily deforested areas recycle less water, make the air drier, and reduce the formation of rainfall. In several parts of the Amazon — west, center, east, and northeast — there is already an increase in tree mortality. In the southeast of the forest, especially in the south of Pará and north of Mato Grosso, the vegetation ceased to be a carbon sink and started to emit carbon. In these regions, the average temperature of the dry season is already up to 3°C above normal. Models indicate that, if the trend continues, much of the Amazon could become a degraded region by 2050, with no possibility of dense forest regeneration (Figure 2).

The consequences go far beyond the forest. The loss of climate balance in the Amazon compromises the control of greenhouse gas emissions, affects agriculture inside and outside the region by altering the capacity of flying rivers to distribute rainfall across South America, reduces biodiversity, and threatens the livelihoods of forest-dependent Amazonian populations.

There are also direct impacts on health. In the southwestern Amazon Basin, pollution caused by wildfire smoke has reduced life expectancy by two to four years (University of Chicago, 2023). Another growing risk is that of zoonoses. Forest degradation increases the contact of viruses from wildlife species with humans. Institutions such as Fiocruz and the Evandro Chagas Institute have already identified 48 viruses with epidemic or pandemic potential. Two of them — the Mayaro fever and

The capacity of flying rivers to distribute rainfall across South America, reduces biodiversity, and threatens the livelihoods of forest-dependent Amazonian populations.

Oropouche fever viruses — became epidemics in 2024. For example, Oropouche fever infected 11.600 people in Brazil in 2024 (Fiocruz, 2024). Once the tipping point is passed, the probability of new epidemics and even pandemics will increase significantly.

The Amazon is therefore undergoing a near-irreversible transition. If deforestation exceeds 20% and global warming exceeds 2°C, the tipping point will be reached (Nobre et al., 2016). Currently, 17% of the Amazon rainforest has been deforested and global warming is close to reaching 1.5°C. There is a huge risk that these limits that maintain the climate stability of the Amazon will be reached by 2050. If this occurs, up to 70% of the forest will self-degrade between 2080 and 2100, over a period of 30 to 50 years, releasing more than 250 billion tons of CO₂, affecting biodiversity, the volume of flying rivers, the biomes south of the Amazon, and the Amazonian populations that inhabit the continent. Passing a tipping point for the Amazon will mean enormous climate, ecological, social, and

The Amazon is therefore undergoing a near-irreversible transition. If deforestation exceeds 20% and global warming exceeds 2°C, the tipping point will be reached.

public health impacts for all South America and the planet.

THE CONFERENCE OF THE PARTIES: A CHANCE TO ADDRESS THE CLIMATE CRISIS

The Conference of the Parties (COP) is an annual meeting of the signatory countries of the UNFCCC with one of the main objectives of debating measures to reduce greenhouse gas (GHG) emissions. Started in 1995, the COP in Belém will be the 30th edition, the first COP held in Brazil and the Amazon.

According to the President of COP30 (Brazil, 2024), the main topics to be discussed at the Conference in Belém include: (1) reduction of GHG emissions; (2) adaptation to climate change; (3) climate finance for developing countries; (4) renewable energy technologies and low-carbon solutions; (5) preservation of forests and biodiversity; and (6) climate justice and social impacts. In this section, we describe each of these topics consid-

ering the Amazonian reality, based on scientific data and arguments from the article “*Amazônia em risco e a COP30 como uma oportunidade crítica para evitar o ponto de não retorno*”, published in the journal *Advanced Studies* of the University of São Paulo (Nobre et al., 2025).

The Amazon is at the center of reducing GHG emissions in Brazil. For example, deforestation in the Amazon is the largest source of emissions in the country, and its reduction is the main strategy to reduce these gases. Therefore, Brazil needs to achieve the goal of zero deforestation by 2030, according to the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), a commitment made by Brazil during COP26 in Glasgow. In addition, agriculture, with an estimated 100 million head of cattle in the region, is a significant source of methane and nitrous oxide, requiring improvements in efficiency through regenerative farming and livestock practices without deforestation, fire, and degradation.

Nature-based solutions are essential for climate change adaptation in the Amazon. They help reduce GHG emissions and reduce the vulnerability of natural and human systems to climate change. These solutions include eliminating deforestation, fire, and degradation, restoring large-scale forests, strengthening regional governance, and incorporating the knowledge of Indigenous Peoples and Local Communities into national development strategies. In addition, it is essential to promote renewable energy technologies, including transportation, and to invest in the bioindustrialization of regional biodiversity products to scale up the socio-bioeconomy.

Climate finance for Amazon must occur through international, regional, and na-

tional multi-level cooperation. The Tropical Forests Forever Fund (TFFF) has been considered by the Amazon Cooperation Treaty Organization as an innovative long-term financial mechanism for the conservation of the Amazon (ACTO, 2025). In Brazil, the National Bank for Economic and Social Development (BNDES) launched the “Arc of Restoration” initiative at COP28 in Dubai in 2023. The initiative aims to restore 24 million hectares in the Brazilian Amazon by 2050, 6 million by 2030 and another 18 million by 2050, with a required investment of about US\$ 40 billion. It is essential that the other Amazonian countries, especially the most deforested ones, such as Colombia, Peru, and Bolivia, also endorse and implement the Arcs of Restoration initiative in their territories. While forest restoration in the region may be economically viable (Gasparinetti et al., 2022), the available funding is still insufficient to achieve meaningful results in removing carbon dioxide from the atmosphere.

Renewable energy technologies and low-carbon solutions have great potential in the Amazon. For example, in a riverine community in the municipality of Carauri, Amazonas, in the Juruá River Basin, solar energy supplies a photovoltaic system that produces 43 kWh per day, with storage of up to 55 kWh. The cost of solar energy varies between R\$ 0.42 and R\$ 0.53 per kWh and the price of batteries fell 400% between 2010 and 2020. Biomass is also promising, such as açaí and nut residues, with calorific value between 17 and 19 MJ/kg, and wood residues of some native species, with calorific value of 19.1 to 20.9 MJ/kg, higher than eucalyptus wood. Amplifying the transformation of solar energy into electricity and taking advantage of biomass residues, including restoring degraded areas with

Currently, 17% of the Amazon rainforest has been deforested and global warming is close to reaching 1.5°C. There is a huge risk that these limits that maintain the climate stability of the Amazon will be reached by 2050.

native species for energy production, are viable alternatives to generate renewable energy in the region.

Preserving the forests and biodiversity of the Amazon requires, in addition to zero deforestation, the implementation of forest restoration projects with a high diversity of species. Biomimicry applied to forest restoration aims to replicate the structure and diversity of remaining forests, promoting landscapes with high ecological resilience. In some cases, this approach can exceed 300 species of trees and palms per hectare — a diversity comparable to the region’s conserved forests. Thus, achieving the goal of zero deforestation, degradation and restoring such areas with maximum biodiversity is essential to preserve the forests and biodiversity of the Amazon.

Climate justice and the social impacts of climate change are central themes at COP30. A study on the socio-bioeconomy of the Amazon highlighted how Indige-

nous Peoples and Local Communities are affected by climate change (Brandão et al., 2024). Rising global temperatures, extreme events such as droughts and heatwaves, deforestation, degradation, and fires directly harm these populations, affecting fishing, hunting, transportation, diet, and other livelihoods. Therefore, it is essential to ensure and expand the participation of Indigenous Peoples and Local Communities in political and decision-making spaces so that they can claim rewards for the losses caused by the impacts of climate change.

Therefore, COP30 represents a crucial opportunity to debate and forward solutions capable of reducing global GHG emissions and protecting all ecosystems on the planet, especially regarding the preservation of the ecological limits that sustain the integrity of the Amazon rainforest and the good living of its peoples (Nobre et al., 2025). The mobilization of all sectors of society — governments, scientists, Indigenous Peoples, Local Communities, private sector and, citizens — and dialogue anchored in both science and local knowledge will be fundamental in this historic Conference.

About the authors

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About the Science Panel for the Amazon (SPA)

The Science Panel for the Amazon (SPA), established on September 23, 2019, is the world's first regional high-level scientific initiative dedicated to the Amazon at the United Nations in New York. Composed of more than 300 scientists, 72% of whom are from Amazonian countries, 14 are Indigenous, and 2 are of African descent, the SPA connects Indigenous and local knowledge with Western science to develop nature-based and evidence-based solutions for sustainable development. Its mission is to synthesize and communicate scientific knowledge about the Amazon, integrated with Indigenous and local knowledge, to accelerate solutions for sustainable and equitable development. Website: <https://www.sp-amazon.org/es>

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ENDANGERED AMAZONIA

A LIVING AMAZON: PROTECTING 80% BY 2025: CLIMATE DIPLOMACY WITH IDENTITY



AMAZONIA VIVA:
PROTEGER +
RESTAURAR
80%
2025
2030
EVITANDO EL PUNTO DE NO RETORNO



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA

Technical Briefing: Key Takeaways

1. The Amazon is showing signs of imminent ecological collapse, and its peoples are living with the consequences. With 28% of the Amazon already deforested or degraded—at the very tipping point estimated to be between 20% and 25%—certain parts of the Amazon are already undergoing irreversible transformation. This collapse is not a future projection: it is already manifesting itself in extreme droughts, off-season flooding, and disruptions to the ancestral ecological calendar, affecting the production, spirituality, and survival of the Amazonian Indigenous Peoples.
2. The climate crisis is also a cultural crisis. Environmental degradation erodes the spiritual, linguistic, and social foundations of Indigenous Peoples, threatening their collective identity. Deforestation and climate change are perceived not only as ecological phenomena, but as processes of cultural and spiritual uprooting.
3. COICA has succeeded in positioning evidence-based Amazonian Indigenous diplomacy. Since its creation in 1984, COICA has transformed its role in the COPs from a marginal actor to a leading advocate, combining ancestral knowledge and science to support the defence of Indigenous territories and rights.
4. COICA promotes indigenous Nationally Determined Contributions (NDCs) as a key climate tool: Indigenous NDCs seek to formally include ancestral territorial climate strategies in national commitments to the Paris Agreement, recognising their proven contribution to mitigation and adaptation.
5. Direct climate finance is the cornerstone of a new, fair governance system.
6. Less than 1% of international climate finance reaches indigenous communities. COICA proposes reforming the global financial architecture and consolidating mechanisms for direct, intercultural,

and unconditional access that recognise indigenous peoples as climate creditors and legitimate financial actors. The Amazon for Life Fund, co-designed and implemented with the Inter-American Development Bank, positions COICA as a pioneer in this financial restructuring. COICA's call for COP30 is clear: the time has come to redesign climate finance governance to move from an extractive and vertical model to shared, intercultural, and direct access governance.

- 7 Environmental loss and cultural identity are intrinsically connected: deforestation and climate change erode language,

es, rituals, biodiversity, and ancestral knowledge. This cultural crisis deepens the social and spiritual vulnerability of Indigenous Peoples.

8. Science and ancestral knowledge must engage in dialogue as equals: COICA promotes an alliance between scientific evidence and traditional knowledge as the basis for climate diplomacy with identity. It proposes co-authorship of reports, cultural indicators, and research networks led by Indigenous Peoples as part of the COP30 agenda.

Summary

This is a strategic and scientific reflection by Amazonian indigenous leader José Gregorio Díaz Mirabal, in his role as COICA Climate Change Coordinator, on the critical state of the Amazon and the central role that Indigenous Peoples play in global climate governance.

Structured as an analytical-diplomatic narrative, the text combines scientific evidence and territorial testimony, constructing a comprehensive reading of the Amazonian collapse as an ecological, cultural, and civilisational crisis.

The document concludes with an urgent call for a Pact for the Amazon, bringing together governments, scientists, civil society, and Indigenous Peoples to protect at least 80% of the biome by 2030, articulating climate justice, human rights, and planetary co-responsibility.

A LIVING AMAZON: PROTECTING 80% BY 2025: CLIMATE DIPLOMACY WITH IDENTITY

INTRODUCTION

My name is José Gregorio Díaz Mirabal, Wakuenai Kurripako indigenous leader from the Venezuelan Amazon and current Climate Change Coordinator for the Coordinating Body of Indigenous Organisations of the Amazon Basin (COICA). From the Amazon rainforest, my ancestral home, I observe with deep concern how this tropical forest – the largest on the planet – is dangerously approaching **an ecological tipping point**. This scientific concept refers to the threshold beyond which the Amazon would lose its resilience, triggering an irreversible transition from rainforest to degraded savannah. Scientists place this threshold at around **20-25% deforestation** (Nobre and Lovejoy, 2019). Today, around

30% of the Amazon has already been deforested or degraded, an alarming figure that hints at the real possibility that, ‘in a few years, the Amazon basin as we know it today will cease to exist’ (COICA 2021).

As an indigenous leader and spokesperson for more than 500 Amazonian indigenous peoples, I attend international climate summits with an urgent message: **we are entering a new chapter in history: the tipping point**. The impacts are already being felt in our communities and ecosystems. In this article, narrated from my experience and supported by scientific and technical evidence, I share testimony of these impacts – extreme droughts, alterations to the ecologi-



Gregorio Mirabal, COICA's former General Coordinator and Tabea Cacique, IUCN 2021. *Credit: COICA*

cal calendar, loss of biodiversity, and cultural crisis – and analyse the scientific and political context that has brought us to this brink of the abyss. I also present proposals that we have defended in these global forums: the strategic role of COICA in climate negotiations, the innovative vision of **indigenous NDCs**, the need for direct climate financing for Indigenous Peoples, and the global implications of exceeding the Amazonian resilience threshold.

THE AMAZON AT THE TIPPING POINT: SCIENCE AND REALITY

Talking about the Amazon's tipping point is no longer theory or alarmism; it is our daily reality. Pioneering studies by scien-

tists such as Carlos Nobre and Thomas Lovejoy warned that if more than a fifth of the Amazon is deforested, the regional water cycle will collapse, initiating a '**re-gressive death**' of the ecosystem (COICA 2025). This means that the forest would lose its ability to generate sufficient rainfall, prolonging dry seasons, and promoting fires, until large areas of forest are transformed into arid savannahs. The consequences would be **catastrophic on a global scale**: billions of tonnes of CO₂ would be released into the atmosphere, accelerating global warming and altering planetary climate patterns. In fact, scientists fear that a degraded Amazon could trigger cascading effects on other crucial Earth systems, such as the stability of Antarctic ice and monsoons. (Lovejoy and Nobre 2019).



Fany Kuiru, COICA's General Coordinator, Gregorio Mirabal, Climate Change Coordinator at COICA, Indigenous Caucus, Dubai 2023. **Credit:** COICA

From an indigenous outlook, these scientific projections resonate with what we are already observing. In my travels through communities in Venezuela, Brazil, Colombia, and Peru, I collect stories from elders who describe drastic changes in climate behaviour. **Extreme droughts** are hitting regions that were once humid, and **historic floods** are inundating others at unusual times. In 2023, we suffered the **worst drought in the Amazon River in 120 years**, with rivers so low that communities were cut off and thousands of fish and dolphins died from the heat (Cullel 2023). At the same time, increasingly extensive forest fires have ravaged 120 million hectares of rainforest between 2001 and 2020, releasing smoke and destruction (Idem). These extreme events – droughts in 2005, 2010, 2015/16, or the current crisis in 2023 – **‘could be the first flashes of this ecological tipping point,’** Nobre and Lovejoy warned in 2018. Natural climate variability has become dangerous volatility: **dry seasons last longer**, rains arrive late or concentrated, and the entire system seems to be oscillating outside its historical patterns.

An intense indicator of this imbalance is the **disruption to the ecological calendar** of our peoples. For generations, the Indigenous Peoples of the Amazon have guided our lives by the regular cycles of nature: we know when the winter rains arrive to sow, when summer dries up the rivers to harvest on the beaches, or when the **‘fria-aje’** (seasonal drop in temperature) marks rituals of purification and spiritual preparation. However, ‘for several years now, the indigenous peoples of the Amazon have witnessed changes in the ecological calendar... the biggest frosts [*fria-ajes*] used to last five days in their season; now they occur in other months and are shorter,’ as corroborated by FDS in its publication ‘The climate calendar in the Amazon rainforest’. I have

Breaking the ecological calendar is not just an agricultural problem, it is a cultural and spiritual wound: rituals linked to the seasons can no longer be performed at the expected time.

confirmed this distortion through my own experience: in my territory (on the border between Venezuela, Colombia and Brazil), in recent years we have had torrential rains out of season and, conversely, **droughts when it used to rain**, to the point that our ecological calendars have been distorted... Before, there was a natural balance – we knew when to harvest, when to prepare for summer or winter – now that is impossible. Breaking the ecological calendar is not just an agricultural problem, **it is a cultural and spiritual wound**: rituals linked to the seasons can no longer be performed at the expected time, traditional hunting and fishing cycles are frustrated, and the ancestral synchrony with the pulse of the jungle is lost.

We are also witnessing an accelerated **loss of biodiversity**. The Amazon is home to approximately **one-third of the planet’s plant and animal species** and an astonishing biocultural diversity – 511 Indigenous Peoples, including more than 60 in voluntary isolation, live here intertwined with this wildlife (COICA 2025). But deforestation is pushing countless species to the brink of extinction. Every tree felled, every river polluted by mercury from mining,

means less food and traditional medicines, and the possible local extinction of species sacred to our cultures. Scientists estimate that **between 17 and 18% of the original Amazon rainforest** has already been lost, with another 17% degraded (Cutipa and Caballero, 2024). We see the consequences: fragmented forests that can no longer sustain populations of large animals, scarce fish in streams decimated by drought, medicinal plants that are becoming difficult to find. Ecological resilience is eroded along with biological diversity, reducing the forest's ability to recover from disturbances. And as biodiversity declines, **so does cultural diversity**: each loss of an emblematic species affects the myths, festivities, and knowledge associated with it.

INDIGENOUS TESTIMONY AND CULTURAL CRISIS IN THE AMAZON

For Amazonian peoples, **the climate crisis is also a cultural crisis**. Our identity is woven from the threads of the forest: the territory is 'the place where culture is formed and developed... where the relationship between indigenous peoples and nature is realised' (Parra 2023). That is why, when the forest becomes ill, so does our society. The

Many young indigenous people see their grandparents' territories being turned into pastures or mining concessions, thereby losing their connection to their history.

massive deforestation ravaging the Amazon – driven by timber extraction, extensive agribusiness, illegal mining, and other megaprojects – not only destroys trees; it also **tears apart the social fabric** of our communities. When a forest is cut down, it is not only greenhouse gases that are emitted: spiritual ties to sacred sites are broken, entire communities are displaced from their ancestral lands, and the transmission of traditional knowledge from parents to children is undermined.

Many young indigenous people see their grandparents' territories being turned into pastures or mining concessions, thereby losing their connection to their history. The loss of forests, according to one study, can undermine **the cultural and spiritual identity** of the local population. I have felt this pain first-hand: **seeing a sacred place devastated is like losing part of our collective soul**. Food insecurity increases when there are no longer fish or animals to hunt; previously unknown diseases emerge when ecological balances are disrupted. All of this weakens our societies and makes us more vulnerable, eroding cultural autonomy. Some peoples, faced with the devastation of their territory, end up migrating to cities in search of survival, which leads to the **loss of language, practices, and community cohesion**. Every indigenous community that disappears or fragments for

Seeing a sacred place devastated is like losing part of our collective soul.

these reasons represents an irreplaceable wealth of knowledge and worldview that the world loses.

In the contemporary Amazon region, this **cultural crisis** also manifests itself in a painfully literal dimension: violence against defenders of the forest. As we fight to protect our forests and rivers, many indigenous brothers and sisters face threats, criminalisation, and even death. In 2020, more than 200 environmental leaders were killed in Amazonian countries for opposing the destruction of nature (COICA 2022). This silent war against those who care for the forest is part of the crisis, as it instils fear and breaks down the fabric of communities. However, despite these risks, we continue to raise our voices in every possible space to denounce the situation and propose solutions based on our vision.

COICA'S HISTORICAL ROLE IN CLIMATE NEGOTIATIONS

COICA, founded in 1984, represents indigenous organisations from the nine countries of the Amazon basin. Through COICA, the Amazonian peoples have brought our demands and proposals to major international forums, including the Conferences of the Parties (COP) to the UN Convention on Climate Change. Our historic participation in the COPs has been a struggle to be heard in a space traditionally dominated by States. We have gone from marginalisation to strategically influencing the global climate agenda, but the road has not been an easy one.

I remember past COPs where only a handful of indigenous representatives were able to attend, compared to thousands of gov-



Approval of Motion 129 at IUCN Congress in Martseille, 2021. **Credit:** COICA

Without Indigenous Peoples there is no conservation, and without the Amazon there will be no life on the planet.

ernment delegates. At COP26 in Glasgow (2021), despite the logistical difficulties caused by the pandemic, we managed to mobilise a large and united COICA delegation. There, we alerted the world that the Amazon *'is threatened with turning from a carbon sink into a source of greenhouse gases,'* as **26% of the forest is already degraded and more than 66% is under threat.** We strongly proclaimed that, in or-

der to prevent it from becoming a source of carbon, it is necessary to protect 80% of the Amazon by 2025. This goal – **Amazon for Life: protect 80% by 2025** – was taken to Glasgow as one of our main proposals, and it resonated: it was supported in IUCN Resolution 129 and was reflected in emerging alliances and commitments.

COICA has also led the establishment of the Platform of Local Communities and Indigenous Peoples within the UNFCCC, achieving formal recognition of the need to include us in climate decisions. In Glasgow we obtained a three-year extension of the mandate of the Facilitative Working Group of that Platform, a small diplomatic success that lays the groundwork for more permanent participation. Likewise, our voices contributed to the Glasgow Pact (COP26) mentioning the protection of nature and the rights of Indigenous Peoples, even if insufficiently.



Peruvian Leader Tabea Casique (AIDESEP) and former COICA Coordinator, Gregorio Mirabal, at the moment Motion 129 is approved at the IUCN Congress in Marseille. 2021. **Credit: COICA**

We have made it clear that **without Indigenous Peoples there is no conservation**, and without the Amazon there will be no life on the planet. This slogan, which we repeat at side events, press conferences and bilateral meetings, seeks to change the mindset of decision-makers: we are not mere observers at the COPs, we are essential actors with solutions at hand.

Our advocacy has borne fruit in certain recent international commitments. For example, at COP26, several countries and financiers announced with great fanfare a £1.7 billion fund for indigenous territories, recognising our role in forest protection. However, at COICA we had to temper our optimism: how can we ensure that these funds reach the communities in a direct manner? Historically, climate aid has remained stuck in bureaucratic structures or poorly designed projects. In our post-Glasgow statement, we pointed out that there are no guaranteed financing mechanisms for funds to reach territories directly. Indigenous Peoples have witnessed that climate commitments have remained nothing more than rhetoric and words on paper. This scepticism is based on decades of broken promises.

Despite everything, COICA has maintained a strategic presence at each COP, forging alliances with other Indigenous Peoples around the world and with allies in civil society. We were instrumental in ensuring that, for the first time, COP27 (Egypt 2022) and COP28 (UAE 2023) gave greater prominence to traditional knowledge and discussed specific financing for Indigenous Peoples. We now look forward to COP30 in Belém, Brazil, in 2025 – in the heart of the Amazon – as an unprecedented opportunity for the voice of the forest to resonate at the centre of climate negotiations. A COP in the Amazon is symbolic

The enormous carbon reserves in indigenous forests are not the result of state public policies, but rather of our collective management of the territory based on ancestral wisdom.

and strategic: it means bringing decision-makers to the stage where the tipping point is being played out. At COICA, we advocate for COP30 to be more than just empty rhetoric, but rather a moment to take concrete, binding action to save our common home.

INDIGENOUS NDCS: INNOVATION FROM THE GRASSROOTS

In recent years, one of the most innovative approaches we have promoted is that of **‘Indigenous Nationally Determined Contributions,’** or Indigenous NDCs. Let us remember that NDCs are the emission reduction and adaptation commitments that each country presents under the Paris Agreement. The problem is that almost all Amazonian countries have formulated their NDCs without the effective participation of Indigenous Peoples and without even mentioning the role of our territories in meeting these goals. This is despite ample evidence that **titled and managed Indigenous territory mean much lower deforestation and associated emissions.** In other words, Amazonian states owe much

Moving from seeing ourselves as ‘victims’ of climate change to seeing ourselves as active agents of solution.

of their emissions reductions to the historic conservation work that we, the indigenous peoples, have done, even though this has not been accounted for or rewarded.

Therefore, COICA proposed that indigenous NDCs be recognised as an official strategy in the fight against climate change. The COICA Declaration following COP26 urged the governments of the Amazon basin to recognise the climate contributions of Indigenous Peoples within their NDCs. This implies two things: first, that specific goals for the protection of indigenous territories and the strengthening of our environmental management capacity be incorporated as part of national NDCs; and second, that the peoples themselves be allowed to present their climate plans and actions – for example, maintaining the forest, restoring degraded areas, managing fire with traditional knowledge – as contributions with equal validity to state efforts. We argued in that statement that the *enormous carbon reserves* in indigenous forests **are not the result of state public policies, but rather of our collective management of the territory based on ancestral wisdom**. Indeed, UN-backed research has indicated that lands managed by Indigenous Peoples tend to have comparable or superior conservation outcomes, contributing significantly to climate change mitigation.

Indigenous NDCs, therefore, seek to *formalise* this reality and leverage it as a climate solution. Imagine, for example, if the hectares of forest conserved by indigenous communities were counted in countries’ carbon inventories, or if traditional resilient agricultural practices were recognised in national adaptation plans. It would be a paradigm shift: **moving from seeing ourselves as ‘victims’ of climate change to seeing ourselves as active agents of solution**. Steps have already been taken in this direction. In 2021, within the framework of COP26, we presented the document ‘Amazonia 80x25’, backed by an extensive scientific study (RAISG 2021) that supports protecting 80% of the Amazon by 2025. In it, we outline minimum commitments, such as granting 100% ownership of indigenous territories, restoring at least half of degraded areas, and halting all extractive activities in the forest. This roadmap, developed by the peoples themselves, is essentially a **pan-Amazonian indigenous NDC** that complements (and in some cases exceeds) the promises made by governments.

Our proposal has been echoed in forums such as the **Scientific Panel for the Amazon (SPA)** – of which I am a member – which in recent reports also recommends guaranteeing indigenous territorial rights as a climate strategy. Some countries have begun to listen: in its NDC updates, Peru mentioned indigenous management for the first time; Bolivia included ‘Living Well’ of indigenous nations as a pillar; and Colombia launched a strategy of roundtables with Indigenous Peoples to align its climate plans. However, there is still a long way to go before **indigenous NDCs** are fully accepted. We will continue to advocate for an international mechanism that allows direct technical and financial support to be channelled to the climate initiatives of indigenous communities, validating our Life Plans as contributions to the Paris Agree-

ment. This is an innovative way of linking climate justice with the recognition of indigenous peoples: **there will be no solution to climate change without us at the table and on the ground.**

DIRECT CLIMATE FINANCE: THE OUTSTANDING DEBT

Our initiatives and commitments, however ambitious, face a recurring obstacle: the lack of adequate and direct funding. It is a **painful paradox** that, as Indigenous Peoples who defend forests that provide invaluable environmental services to the world, we receive only crumbs from global climate funds. International negotiations talk about mobilising \$100 billion annually for climate action in developing countries, but **how much of that actually reaches Indigenous territories?** The reality is out-

rageous: less than 1% of climate finance reaches Indigenous communities.

This figure, backed by specialist reports, means that for every £100 pledged to combat deforestation or mitigate emissions, **less than \$1 reaches those of us who live in and care for the forests.** The rest is diluted among government agencies, international NGOs, consultancies, and administrative costs. A study by Rainforest Foundation Norway quantified that between 2011 and 2020, direct support for indigenous land tenure and forest management accounted for only 0.74% of official climate aid; and if we consider the funds actually managed by indigenous organisations, it was a paltry 0.13%. In practice, this means that many communities still lack the resources for local forest ranger patrols, funding for sustainable productive projects, and support to adapt to climate impacts.



For every \$100 announced to combat deforestation or mitigate emissions, less than \$1 reaches the hands of those of us who live and care for the forests.

We have repeatedly condemned this situation at COP meetings. As COICA, we have proposed concrete solutions: for example, the creation of a directly managed **Amazon Indigenous Fund**, where indigenous peoples, through our organisations, decide how to use climate resources to maximise their impact. We also propose that global financial mechanisms (Green Climate Fund, Adaptation Fund, etc.) establish **special windows for Indigenous Peoples**, with fewer bureaucratic obstacles and culturally appropriate criteria. Some promises are moving in this direction – such as the commitment to facilitate direct access by Indigenous Peoples to a percentage of the new Loss and Damage Fund – but implementation remains pending.

Financing is not just a matter of justice; it is climate effectiveness. **Every dollar invested in strengthening indigenous land management has a very high environmental return:** studies show that deforestation rates are significantly lower in most recognised indigenous lands than in neighbouring state-protected areas. In other words, supporting Indigenous Peoples is one of the most cost-effective strategies for reducing emissions from deforestation. That

is why we insist: include in climate budgets allocations for indigenous land titling, intercultural education, sustainable forestry in communities, indigenous women environmental leaders, etc. Otherwise, grand announcements will continue to fail to translate into standing forests.

During my travels through the Amazon, I have seen inspiring examples of what we can achieve with adequate support. In Peru, small international funds were used to implement **community forest monitoring projects using drone technology and ancestral knowledge**, successfully curbing logging invasions. In Bolivia, targeted funding enabled the establishment of **indigenous forest fire brigades** that significantly reduced burning in autonomous territories. These cases should be replicated. However, as long as the bulk of the money continues to go to consultants in distant capitals and not to the indigenous park rangers who venture into the jungle, we will be failing. **The shortage of direct climate financing for Indigenous Peoples** is part of the problem that is pushing us to the tipping point, because without resources it is more difficult to continue protecting forests in the face of growing threats.

SYNERGY BETWEEN SCIENCE AND ANCESTRAL KNOWLEDGE: TOWARDS CLIMATE DIPLOMACY WITH IDENTITY

One of the pillars of our international advocacy as COICA has been the support of **rigorous scientific evidence**. From reports by the Scientific Panel for the Amazon to studies by RAISG and FAN Bolivia, our proposals are not only based on territorial testimony, but are also anchored in verifiable data, satellite maps, climate projections, and hydrological analyses. This strategy has given legitimacy and technical weight to our demands in forums such as the UNFCCC, the IUCN, and the Con-

vention on Biological Diversity. However, this scientific basis does not replace, but rather **complements, our ancestral knowledge systems**. For centuries, Indigenous Peoples have monitored the climate, water cycles, wildlife behaviour, and forest health using our own cultural tools: ecological calendars, astronomical signs, oral narratives, and spirituality linked to ecosystems. When this traditional knowledge is combined with modern scientific methods, the results are powerful.

Specific examples include community early warning systems that combine drones and sensors with the reading of natural signs, or ancestral fire management strategies adapted to recent climatic conditions. **This synergy between science and traditional knowledge** has already proven effective for climate change adaptation, biodiversity conservation, and water management.

Still, there is still progress to be made towards true complementarity based on mutual respect between equals. Western science often still subordinates or instrumentalises indigenous knowledge, rather than engaging in dialogue on terms of epistemic equality. We need to move towards models of knowledge governance where both worldviews – scientific and ancestral – are recognised as valid and as co-creators of solutions. This respectful complementarity is fundamental to an authentic and effective ecological transition.

In spaces such as COP30, deepening this synergy can be achieved through concrete strategies: co-authorship between scientists and indigenous researchers in reference reports for negotiations; formal inclusion of socio-cultural indicators based on traditional knowledge in climate monitoring frameworks; integration of indigenous spokespersons as experts in scientific and public policy evaluation panels, and fund-

ing for intercultural research. Likewise, establishing regional participatory research networks led by Indigenous Peoples would allow for the generation of data with dual legitimacy: scientific and territorial. This alliance, woven from mutual recognition, can strengthen the political influence of Indigenous Peoples at COPs, ensuring that our proposals are not only heard, but also considered an essential part of the global scientific consensus on the Amazon.

DIRECT CLIMATE FINANCE: TOWARDS A NEW GOVERNANCE OF CLIMATE JUSTICE

Deforestation in the Amazon and global climate change are not merely environmental phenomena; they are inherently linked to the **loss of cultural identity** among our peoples. The Indigenous worldview sees territory, biodiversity, and culture as inseparable elements of a whole. Therefore, **when the forest disappears, a part of us disappears with it**. Each Indigenous language of the Amazon contains dozens of words to name rivers, medicinal plants, and lunar and rain cycles. What happens to these words and this knowledge when these physical realities no longer exist or become unrecognizable? We are facing this painful question.

In many communities, elders point out that children will no longer learn certain traditions because the natural context that originated them has been altered. For example, the dances and songs dedicated to giving thanks for the first harvest of the year lose their meaning if there is no longer a clear harvest season due to erratic rains. Or the myths that warned about not overfishing a certain lagoon because it was the home of the *pink dolphin* lose validity when those dolphins have died due to drought and pollution. Thus, **climate change and defores-**

That is why we say that protecting the Amazon is not only about saving trees or species, but also about saving entire peoples and cultures.

tation are undermining intergenerational cultural transmission. In addition to this, the aggressive penetration of extractive activities brings external influences (easy money from gold, presence of mafias, alcohol, violence) that fracture community harmony and traditional ways of life. Many indigenous families are cornered: if they stay on their degraded lands, they face poverty; If they migrate to the city, they face discrimination and loss of their culture. It is a **silent ethnocide** that advances to the rhythm of ecological destruction.

The links between deforestation, climate, and identity are also observed in collective mental health. Our wise men describe a phenomenon of “sadness of the earth” that invades us when we see sick nature: young people who fall into despair when they can no longer hunt or cultivate like their ancestors; elders who feel that they have failed the ancestors because the sacred rivers dry up in their custody. Environmental devastation erodes communities’ sense of belonging and purpose, making them more vulnerable to social problems (addictions, domestic violence, family breakdown). That is why we say that protecting the Amazon is not only about saving trees or species, but also about saving entire peoples and cultures.

However, we also assert that indigenous culture is resilient and can adapt if given space and recognition. Many peoples are reinventing our practices to survive: recovering native seeds that are more resistant to heat, mixing traditional calendars with modern weather information, creating bilingual schools that teach both science and worldview. This cultural dynamism needs the support of the world, because if the climate battle in the Amazon is lost, not only will species on the red list become extinct, but also rituals, songs, and unwritten millenary knowledge. Humanity will lose a part of its intangible heritage. After all, the Amazon is not just a lung or a carbon sink: it is a living library, whose flames would have incalculable consequences for human cultural diversity.

For decades, the architecture of global climate finance has been built under a vertical and statist logic: international funds are channelled through governments, multilateral banks, and large accredited agencies, under the principle of “national ownership”. But that structure fails to recognise that much of the actual climate action happens outside the state, in indigenous territories where 36% of the planet’s intact tropical forests are preserved. Of every \$100 announced for climate and biodiversity, less than \$1 reaches indigenous communities, and when it does, it is often conditioned by intermediaries who absorb most of the political and financial control.

This is not just a failure of an operational nature: it is a crisis of legitimacy of the global climate financial system. Projects and consultancies are financed, but not the territorial governance that keeps the forest standing. We invest in discourses of mitigation, but not in those who, with their lives, make it possible. For this reason, the call that we make from COICA towards COP30 is clear: the time has come to rede-

sign climate financial governance to move from an extractive and vertical model to a shared, intercultural and direct access governance.

The Amazon Fund for Life (FAV) is the concrete response to this urgency. Conceived as a pan-Amazonian mechanism for direct indigenous financing, the FAV channels resources towards lines that are not usually served by multilateral funds: territorial health, food sovereignty, restoration, protection of women defenders, own governments, and regenerative economies. It is a model that breaks with intermediation, where strategic decisions on priorities, safeguards, and investment criteria are defined by the Amazonian indigenous organizations themselves.

Direct financing is not a matter of assistance, but of climate justice. Amazonian Indigenous Peoples are not beneficiaries; we are climate creditors: the world owes us because our territorial resilience sustains global climate stability. That is why indigenous windows within the Green Climate Fund, the Loss and Damage Fund, and other global mechanisms must be established as a structural principle, not as a temporary concession. This implies recognising the indigenous government of the territory as a legitimate financial actor, capable of receiving, executing, and auditing climate resources under its own governance systems.

Redesigning financial governance is not just a technical issue; it is a change of ethical and political paradigm. It means ac-



COICA and civil society organizations at the Science Panel Meeting in Quito, April 2025. **Credit:** COICA

If the Amazon exceeds its threshold of resilience, the blow will be felt by the entire planet.

cepting that Indigenous Peoples are not only protecting forests: they are already implementing mitigation, adaptation, and fair transition without debt. COP30 in Belém offers a historic opportunity to materialise this change. If we want to avoid the collapse of the planet, financial flows must be aligned with the reality of those who are saving it.

The direct financing for Indigenous Peoples is not charity: it is paying a historic climate and ecological debt, and it is also the most effective and transparent way to guarantee results. Only shared financial governance between science, State, and Indigenous Peoples will be able to sustain life in the Amazon and ensure that every dollar invested translates into standing forests, living communities and a liveable planet for all.

GLOBAL IMPLICATIONS AND URGENT CALL TO ACTION

The stakes in the Amazon far transcend South American borders. If the Amazon exceeds its threshold of resilience, the blow will be felt by the entire planet. The collapse of the forest would mean, in the first place, an immense setback in the global climate fight. Currently, the Amazon stores between 150 and 200 billion tonnes of carbon in its biomass. Turning large areas into savannah would release

that carbon into the atmosphere, making it almost inexorably difficult to limit global warming to 1.5°. A planet without the functional Amazon would likely be heading for +2°C or more of temperature rise, with all the associated disasters: higher sea levels, extreme weather, global food insecurity, etc. In addition, the Amazon plays a role in global atmospheric circulation; its moisture contributes to rainfall as far away as in the Southern Cone of America and possibly influences weather patterns in other regions (Nobre and Lovejoy 2018). Their collapse could alter monsoons in Africa or Asia through climate teleconnections, amplifying droughts and storms in unexpected places. In short, to lose the Amazon would be to lose the planet's climatic heart.

It would also have repercussions on global biodiversity. Many of the medicines and even foods used by the world come from Amazonian species; their genetic erosion limits options for agriculture and pharmacology everywhere. And in ethical terms, allowing the destruction of the Amazon would be betraying global commitments such as the Paris Agreement and the Kunming-Montreal Global Biodiversity Framework, which promise to preserve critical ecosystems and respect the rights of Indigenous Peoples. It would be accepting defeat in the goal of living in harmony with nature.

We still have time to avoid that fate, **but the clock almost strikes midnight**. From our Amazonian vision, the window of action closes in the coming years. That is why we have made **a global call for a Pact for the Amazon**: an unprecedented agreement where governments, scientists, civil society, and indigenous people join forces to permanently protect at least **80% of the Amazon at this COP30, a decision that will allow ecosystem integrity to be restored**

by 2030, but the political decision cannot wait for another COP.

From the international community, especially the industrialised nations and the large emerging economies, we demand coherence and co-responsibility. They cannot on the one hand finance conservation projects and on the other be the main consumers of the raw materials (*meat, soy, gold, oil*) that drive the destruction of the Amazon. **A systemic change in consumption and production models is urgent:** deforestation-free supply chains, investment in sustainable forest economies, and decisive support for clean energy that keeps fossil fuels in the ground. Developed countries, for climate justice, must **contribute financially** to a global fund that supports the just transition in the Amazon – for example, by exchanging debt for conservation or paying for ecosystem services. Every dollar invested in saving the Amazon is an investment in the climate security of the entire world.

There is still hope because the Amazon lives in us, in our daily struggle. We have resisted colonial and extractivist attacks

for more than 500 years. Today we resist this new climate pandemic, with the conviction that defending the forest is defending life. I speak to decision-makers: *listen to the science and listen to Indigenous Peoples*. Combining both types of knowledge is the route to avoid the tipping point. We do not come only with regrets, we come with proposals, with the determination to conserve this **biological heart of the planet** for future generations. Every COP is an opportunity to correct course, and this upcoming COP – *a COP already with severe symptoms of the tipping point* – may be the last effective call. If we act now, with the ambition and commitment that the crisis demands, we will be able to say that humanity was in time to save the Amazon. Otherwise, history will judge us for having known what was at stake and still failing. **Living Amazon, safe humanity** is not just a slogan, it is a scientific and spiritual truth that we must honour with immediate actions, because for that to be possible, the answer is us, the Indigenous Peoples.

Living Amazon, safe humanity. We don't have time left!

About the author



José Gregorio Díaz Mirabal is a Wakuenai Kurripako indigenous leader originally from the Venezuelan Amazon, with more than three decades of experience in the defence of the collective rights, territories, and self-determination of Amazonian Indigenous Peoples. He was General Coordinator of the Coordinator of Indigenous Organizations of the Amazon Basin (COICA) between 2018 and 2023 and is currently the Coordinator of Climate Change and Biodiversity of the organization, from where he leads the pan-Amazonian agenda towards COP30 (Belém, 2025). Under his leadership, COICA consolidated the “Living Amazon: 80% by 2025” initiative, promoted the inclusion of indigenous NDCs within the frameworks of the Paris Agreement, positioning Amazonian peoples as global political and climate actors. Recognised for his role in international spaces such as the UN, OAS, IUCN, World Bank, and the Green Climate Fund, he has articulated a vision of climate diplomacy with identity, which integrates scientific evidence with ancestral knowledge systems. His thinking and leadership reflect the conviction that “without Indigenous Peoples there is no conservation, and without the Amazon there is no life.”

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ENDANGERED AMAZONIA: AVOIDING A TIPPING POINT IN AMAZONIA MEANS ENDING DEFORESTATION AND DEGRADATION



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



WILDHERITAGE

Technical Briefing: Key Takeaways

1. Forest degradation has a major impact on tropical forests. Tropical forests are highly sensitive to edge effects. Sunlight penetrating a primary forest can cause tree loss up to a kilometer into the forest and cause impacts to vegetation several kilometers from the forest edge.
2. Forest degradation is far more widespread than deforestation. In Amazonia, almost 250 million hectares are being degraded, whereas 10 million hectares of forest are cleared annually around the world. Carbon dioxide emissions from degradation are about the same as from deforestation.
3. Primary forests and forests with high ecosystem integrity maximize ecosystem services, including biodiversity protection and climate mitigation and adaptation, and are much more stable, including being more resistant to fire, than degraded forests.
4. Avoiding tipping points in Amazonia means ending both deforestation and forest degradation.

Summary

Forest degradation has received less attention than deforestation because degradation is difficult to measure, and images of forests being burned or cleared by bulldozers are visually powerful and easier to understand than forests being degraded. However, degradation from industrial activities such as commercial logging, mining, or roads is nonetheless a pervasive threat to forests. Almost 40% of Amazonia's forests are subject to degradation, leading to roughly equal carbon dioxide emissions from deforestation.

Forest degradation also leads to significant losses of biodiversity, and by extension, of forest ecosystem integrity, resulting in decreased ecosystem services and forest stability, and increased vulnerability to climate change. Fortunately, breakthroughs in satellite imagery are now making it possible to measure and map forest degradation with precision. Preventing large areas of Amazonian forests from reaching tipping points will require addressing both deforestation and forest degradation by 2030.

AVOIDING A TIPPING POINT IN AMAZONIA MEANS ENDING DEFORESTATION AND DEGRADATION

INTRODUCTION

It has been well documented that Amazonian forests recycle water through processes of transpiration and condensation, which propel rainfall across the continent from east to west. Thus, roughly 30-50% of the precipitation in western Amazonian forests is water that initially fell in eastern Amazonia and gradually made its way across the basin as it was absorbed and transpired by trees multiple times. This means that the forest is critical to Amazonia's hydrological cycle: without the forest, there is no mechanism for driving the large amounts of precipitation across the Amazon Basin, which are necessary to sustain a moist tropical rainforest. Indeed, researchers have found that it is critical to protect eighty percent of Amazonia's forests to ensure sufficient precipitation recycling.

While climate change alone is unlikely to lead to a large-scale collapse in the Amazon, deforestation and degradation trigger feedbacks, such as decreased rainfall, that reduce forest resilience, leading to forest dieback, and increased likelihood of forests giving way to open forest or even savanna ecosystems (Brando et al. 2025). This would bring catastrophic consequences throughout the region as well as at global scales, for people, biodiversity, and in terms of climate change.

But this begs the question: what does it mean to “protect” eighty percent of Amazonian forest? Clearly, “protect” must include avoiding any further deforestation. Ending deforestation is critically important and has been a global goal for all for-



Photo: Xingu River in Brazil. **Credit:** Cristina Mittermeier.

ests, not just Amazonia or even all tropical forests, since (at least) the Rio Summit in 1992. But in Amazonia and elsewhere, deforestation is only one aspect of the forest crisis. Forest degradation affects a much larger area than deforestation and also causes very serious impacts, including major losses of biodiversity, while generating approximately the same carbon dioxide emissions as deforestation (Lapola et al. 2023, Longo et al. 2020, Qin et al. 2021). Thus, while deforestation affects about ten million hectares of forest per year globally (FAO 2024), degradation affects 250,000 million hectares, or 38% of the entire Amazon. (Lapola et al. 2023).

Degradation and Ecosystem Integrity

Broadly speaking, degradation refers to human disturbances, usually related to industrial activity, that cause a rapid and long-term decrease in a forest's ecological integrity (Rogers et al. 2022; Mackey et al. 2024). Ecosystem integrity is in essence a measure of the vital signs of the ecosystem: its ability to maintain key ecological processes, recover from disturbance, and adapt to new conditions, which is measured by its native species composition, vegetation structure (e.g., large, old trees, snags, down wood, native understories), and ecological functioning (e.g., natural disturbances, food web complexities, pollinators, soil integrity) (Rogers et al. 2022). Retaining a high degree of ecosystem integrity is fundamental because it allows an ecosystem to self-organize and regenerate naturally and, over time, to achieve and maintain its optimum operating state in the face of environmental drivers and anthropogenic threats (Mackey et al. 2024). Achieving an optimum operating state is particularly important for two reasons.

The first is that ecosystems with a high degree of ecosystem integrity *maximize* ecosystem services. For example, a primary forest not only contains many more species than a degraded forest or plantation, but often is also home to more rare, endangered or endemic species, as well as unique species assemblages. Likewise, a primary forest also stores much more carbon, and stores it more securely, than a degraded forest or plantation, it also provides the highest quality fresh water and often maintains more water in the ecosystem, as well as providing more resources for Indigenous Peoples and local communities who depend on forests for their livelihoods.

The second reason why protecting ecosystems with high ecosystem integrity should be a priority is that they are much more stable, i.e., they are better able to resist stressors such as disease, drought, or fire, and they can also recover from disturbance more effectively. This means that these ecosystems are far more likely to persist in the long term, continuing to maximize a broad range of benefits, than degraded forests or plantations. Indeed, primary forest can persist for millennia – or even millions of years – whereas degraded

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forests or plantations are much more vulnerable. This is particularly true in Amazonia and in other moist tropical forests, because moist tropical forests are usually too wet to burn in absence of human disturbances and prolonged drought. Thus, fire, which is a major threat in the Amazon, is usually only possible after degradation. Because fires in the Amazon are usually caused by humans – fires ignited by lightning strikes in moist tropical forests are very rare and only account for about 2% of fires in the Amazon – avoiding degradation is a critical part of the solution for fire prevention.

Thus, the quantity and quality of ecosystem services, including biodiversity, freshwater quality and provisioning, climate change mitigation, and the stability of primary forests, particularly including their resistance to fire, are fundamentally underpinned by their ecosystem integrity and biodiversity. Preventing degradation is therefore a critical goal and should be a key component of the eighty percent protection target for Amazonia. The following sections review some of the key activities that cause degradation and threaten ecosystem integrity in Amazonia.

COMMERCIAL LOGGING

Sustainable Forest Management (SFM) is a broad term that has been widely promoted following the United Nations Conference on Environment and Sustainable Development in Rio in 1992. The SFM concept was intended to help guide management approaches that would maintain a forest's ecological values while generating a sustained yield of timber (Putz and Thompson 2020) at the same time and providing economic returns. In Amazonia and throughout the tropics, SFM involves two central components: (a) selective logging, i.e., removing a few commercially valuable large trees per hectare, and (b) using a range of reduced-impact logging techniques combined with post-logging silvicultural treatments to encourage and accelerate regeneration of commercially valuable tree species (Putz and Thompson 2020). However, a number of ecological factors have prevented SFM from becoming truly ecologically sustainable.

First, logging focuses on primary forests with large old trees, which are especially valuable because they contain a high volume of timber. However, these trees are also important for wildlife, especially host-specific pollinators, and are important for long-term carbon storage and nutrient cycling (Zimmerman and Kormos 2011). They are also critical for carbon storage. While large trees generally represent a small percentage of the forest's total trees (<5 %), they store up to 50 % of the above-ground carbon (Stephenson et al. 2014; Fauset et al. 2015; Lutz et al. 2018). As a result, logged tropical forests store 35 % less carbon than primary forests after only one logging rotation, and this amount decreases with successive logging operations (Mackey et al. 2020). Most tropical forests are also very sensi-

tive to having their canopies opened up. Removing just a few large trees per hectare can allow secondary forest species to displace primary species, trigger an invasion of vines and lianas that kill even more trees, and increase vegetation desiccation, flammability, and fire proneness (Zimmerman and Kormos 2011, Gatti et al. 2015). Logging in tropical forests therefore has significant cascading effects on ecosystem integrity, especially when it scales up cumulatively across large landscapes, and even more so after multiple logging rotations. Indeed, Putz and Thompson (2020) found that the stocks of carbon and biodiversity in large primary tropical rainforests exceeded those in forests subjected to uses other than forest protection. Furthermore, because large trees tend to be slow-growing hardwood species, they require >100 years to recover from logging, if they recover at all (Mackey et al. 2020; Putz and Thompson 2020, Gatti et al. 2015), illustrating problems with adaptive potential and ecosystem stability.

Lowering logging intensity in tropical forests by removing only a small volume of timber, extending timber rotations, and following extensive pre- and post-logging best practices can help reduce degradation impacts, but it is typically not commercially viable to do so because these added measures require added training and are expensive to implement and therefore reduce profits (Zimmerman and Kormos 2011, Romero et al. 2024, Putz and Thompson 2020, Vidal et al. 2020). This is why logging operations often fell trees illegally, exceeding their allowable cuts to boost their profits, and why clear-felling is often used to go after high-value, large trees (Zimmerman and Kormos 2011, Vidal et al. 2020).

ROADS

One of the most pervasive drivers of degradation globally is the vast increase in the number of roads around the world (Laurance et al. 2014; Ibisch et al. 2016). Up to 25 million km of new paved roads are expected to be constructed globally by midcentury (Dulac 2013), enough to encircle the Earth more than 600 times. The large majority (about 90 %) of new roads will be in developing countries, often in tropical and subtropical regions (Laurance et al. 2009) and many new roads are opening up primary forests—giving new access to illegal loggers, land grabbers, illegal miners, poachers, and illegal-drug producers, (Alamgir et al. 2017; Engert et al. 2024). The rapid expansion of roads is clearly one of the most urgent degradation issues. In Latin America, an ambitious suite of road and other infrastructure projects is advancing, penetrating remote regions and key ecosystems (Laurance et al. 2001; Fearnside et al. 2012, 2013).

FIRE

There are large-scale edge effects on primary forests from borders with logged and degraded forests, and along logging and other roads, which result in drier and more fire-prone forests (Barni et al. 2021, Laurance 2000). While most fires originate outside primary forests, they can penetrate considerable distances into forest interiors due to these edge effects, which cause desiccation and increased fuel loads (Cochrane and Laurance 2002). The synergistic interactions of forest fragmentation, logging, and human-ignited fires pose critical threats to Amazonian forests. (Barni et al. 2021). Reducing degradation and edge effects and preventing this fire conduit should therefore be a high priority in Amazonia.

THE GLOBAL POLICY MANDATE TO END DEGRADATION AND PROTECT ECOSYSTEM INTEGRITY

Degradation is exerting major pressure on forests. For example, the United Nations Food and Agriculture Organization (FAO 2009) estimated that there were 800 million hectares of degraded forests in the tropics alone. Haddad et al. (2015) reported that 70 % of forests globally were within 1 km of a forest edge, while Ibisch et al. (2016) found that the world's forests were fragmented into ~600,000 forest patches, more than half of which were less than 1 km², and only 7 % of which were greater than 100 km². The recent State of the World's Forests report (FAO 2024) found that nearly 75 % of the world's total land area, particularly forests, rangelands, and wetlands, had been degraded and transformed, and those losses would likely increase to over

90 % within 30 years. Degraded forests are at a much higher risk of emitting carbon and reaching tipping points that increase with climate change effects, such as severe drought and wildfire, compared to forests undisturbed by industrial impacts (Lindenmayer et al. 2011, Lindenmayer et al. 2016). The most extreme impacts to biodiversity occur in heavily degraded areas where more than two-thirds of the biomass has been removed (>68 % biomass removed; Ewers et al. 2024).

As noted, ending deforestation has been a global goal for many decades. Ending forest degradation, on the other hand, is a slightly more recent multilateral policy objective, gaining greater prominence with the formation of the United Nations Forum on Forests in 2000, after which it has become an increasingly visible policy goal. Ending degradation was noted as a prior-



Photo: Voltzberg, Suriname. **Credit:** Cristina Mittermeier.

ity in the United Nations Forest Instrument in 2007 (UN 2007), and then in the Global Forest Goals and Targets of the UN Strategic Plan for Forests 2030 in 2015 (UNFCCC 2015). Then in 2021, 145 nations signed the Glasgow Leaders' Declaration on Forests and Land Use ("Glasgow Leaders' Declaration") (UN 2021) at the United Nations Climate Change Conference, which seeks to "facilitate the alignment of financial flows with international goals to reverse forest loss and degradation" by 2030 and commits signatories to halting and reversing deforestation and land degradation by 2030. The Kunming-Montreal Global Biodiversity Framework subsequently proposed 23 action-oriented global targets in 2022, including ensuring that at least 30 % of lands and waters are protected and degraded areas are under effective restoration by 2030 (CBD 2022). In addition, Goal A of this framework emphasized the need to ensure that "integrity, connectivity and resilience of all ecosystems are maintained, enhanced, or restored, substantially increasing the area of natural ecosystems by 2050" (CBD 2022). Target 1 of this framework also seeks "to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030" (CBD 2022).

In December 2023, at United Nations Framework Convention on Climate Change (UNFCCC) COP 28, 193 countries signed a decision on the outcome of the first global stocktake, emphasizing the importance of "enhanced efforts to halt and reverse deforestation and forest degradation by 2030" to meet global climate targets, as well as the need for synergistic climate and biodiversity actions (UNFCCC 2023). This decision reflects the growing calls for integrated solutions since the Conferences of the Parties (COP) 25, and that escalating biodiversity loss and greenhouse

gas emissions are intertwined, existential threats to humanity. Following the UNFCCC's decisions at COP 28, the Declaration of the High-Level Segment of the 19th session of the United Nations Forum on Forests (2024) also reaffirmed the United Nations (UN 2021) Strategic Plan for Forests, issuing a call for halting and reversing forest degradation.

Thus, there is now a clear and strong mandate to retain ecosystem integrity and end both deforestation and forest degradation by 2030. This is profoundly significant for Amazonia, where the need to avoid catastrophic tipping points is urgent – and also for Amazonia's Indigenous Peoples on whose territories much of the remaining primary tropical forests are found. What is now needed is a concerted and accelerated effort to recognize the rights and territories of In-

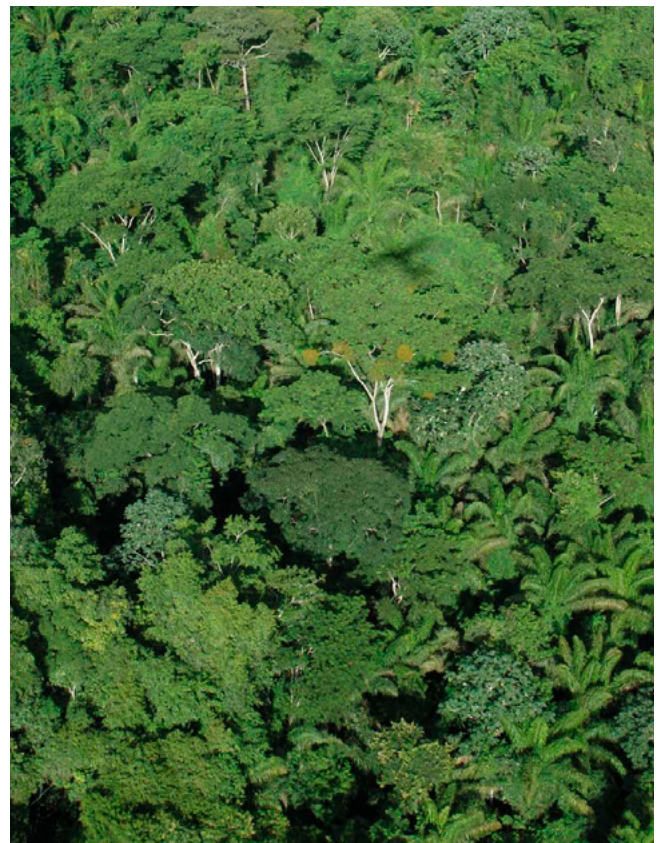


Photo: Amazon forest of Brazil. **Credit:** Cristina Mittermeier.

Indigenous Peoples throughout the region, and to accelerate direct funding to them. Given the very high degree of synergies between Indigenous Territories, biodiversity, climate change mitigation, and ecosystem integrity/primary forests, Indigenous Peoples should not only receive direct compensation for the ecosystem

services they are providing to the planet. They should also receive a premium for providing not only more ecosystem services, but also higher quality and more stable ecosystem services through the extensive primary forests and other lands and waters with high ecosystem integrity that they have sustained for millennia.

Policy Recommendations

- Provide direct funding, with a premium, to Indigenous Peoples for protecting primary forests and other forests and ecosystems with high ecosystem integrity.
- Provide direct funding to Indigenous Peoples for ecological restoration of forests and other ecosystems, with incentives for achieving progressively higher levels of ecological integrity.
- Create new protected areas for forests and other ecosystems with high ecosystem integrity, and ensure existing protected areas are not degraded by industrial activity.
- Encourage countries to develop the capacity to monitor primary forests and ecosystem integrity, and forest degradation to assess whether they are meeting UN Forest Goals, CBD Kunming-Montreal Global Biodiversity Framework Goals and Targets, and UN Framework Convention on Climate Change objectives.
- Encourage countries to develop the capacity to apply the UN System of Environmental Accounting – Ecosystem Accounts to incorporate the ecological condition of ecosystems in national balance sheets.

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ENDANGERED AMAZONIA

WATER AND ITS AQUATIC ECOSYSTEMS: THE FOUNDATION OF THE ECOLOGICAL INTEGRITY OF THE AMAZON



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

- 1. Aquatic connectivity** sustains life, biodiversity, and the Amazonian climate. Maintaining the natural flow of water and the connection between rivers, wetlands, forests, and communities is essential for ecological cycles, fisheries, climate regulation, and human well-being.
- 2. The Amazon is facing accelerated degradation of its freshwater ecosystems:** dams, deforestation, pollution, and climate change are fragmenting rivers and reducing the ecological integrity of the basin, threatening the water, food, and cultural security of millions of people.
- 3. Conserving and ensuring the sustainable management of Indigenous Territories, conservation areas, Andean-Amazonian riverscapes, and floodplains is a high priority and urgent.** These ecosystems are sources of biodiversity, water, food, fertility, and carbon storage; their conservation maintains the productivity and resilience of the entire basin.
- 4. Indigenous territorial management, community monitoring, and participatory science contribute to exercising sovereignty over territories, lands, and water.** Indigenous and traditional knowledge, community monitoring, and participatory science are essential for better management of territories, aquatic ecosystems, and natural resources. Dialogue and collaboration between local knowledge and accredited scientific knowledge generate reliable information, strengthen adaptive management, and promote evidence-based policies and environmental justice.
- 5. Strengthening indigenous and community leadership is key to the governance of territories and water.** Indigenous peoples and local communities play a central role in territorial management, sustainable management of fisheries and other natural resources, and the conservation of free-flowing rivers, contributing essential knowledge for decision-making.

Photo: Artisanal fisher making a catch in Santo Antônio do Içá, Brazil. **Credit:** © Bruno Mello / WCS Brasil

6. Joint regional action is essential to preserving the integrity of the Amazon basin. This requires cooperation among Amazonian countries and between states and civil society, a tran-

sition to low-impact energy, pollution prevention, and nature-based solutions that contribute to climate resilience and integrate equity, justice, and sustainability.

Summary

The Amazon basin is the largest and most diverse freshwater system in the planet. Its rivers, lakes, and wetlands regulate the regional and global climate, support the world's greatest freshwater biodiversity, and are an essential source of food, culture, and well-being for millions of people. However, these ecosystems face increasing pressures: dams, deforestation, pollution, and climate change threaten their ecological integrity and jeopardize their resilience. Maintaining the functionality and connectivity of Amazonian aquatic ecosystems is not only an environmental priority but also an indispensable condition for the region's water, food, and cultural security.

In this article, ecological integrity is defined through an index that integrates information on biodiversity, connectivity, and environmental quality to identify the state of ecosystems and determine whether they are healthy or require urgent conservation, management, or restoration actions. Preliminary analysis of ecological integrity offers a strategic tool for identifying low-impact energy, pollution prevention, and nature-based solutions that promote cli-

mate resilience and integrate equity, justice, and sustainability which sub-basins remain healthy, and which require urgent attention. This index reveals significant contrasts: while some areas still retain high biological and productive diversity thanks to river connectivity and forest cover, others show severe deterioration due to fragmentation, habitat loss, and the growing effects of climate change. Complementarily, the proposal for participatory monitoring—with pilot sentinel sites and a dialogue of knowledge between science and communities—will allow for continuous monitoring of the health of ecosystems and guide evidence-based conservation actions.

The recommendations in this chapter are clear: halt new high-impact dams, reduce pollution, restore critical habitats, strengthen shared governance, and recognize the leading role of Indigenous Peoples and local communities. Only through cooperation between countries, sustained support, and the integration of diverse knowledge will it be possible to ensure that Amazonian rivers continue to sustain life, culture, and resilience for future generations.

Keywords

Aquatic ecosystems, Amazonia, Connectivity, Ecological Integrity, Participatory Monitoring

WATER AND ITS AQUATIC ECOSYSTEMS: THE FOUNDATION OF THE ECOLOGICAL INTEGRITY OF THE AMAZON

THE ECOLOGICAL AND BIODIVERSITY IMPORTANCE OF THE AMAZON BASIN

The Amazon River basin, covering nearly 7 million km², is the largest in the world. Its river accounts for approximately 20% of the world's freshwater discharge into the oceans. This region is home to the greatest biodiversity of freshwater fauna on the planet, with more than 2,700 species of fish, of which 1,696 are endemic, and 36 species

of aquatic megafauna, more than any other region in the world. In addition, it discharges an average of 1,122 megatons (Mt) of suspended sediments per year, which are essential for soil fertility and the functioning of Atlantic marine ecosystems, including services such as fishing (Encalada et al. 2024).

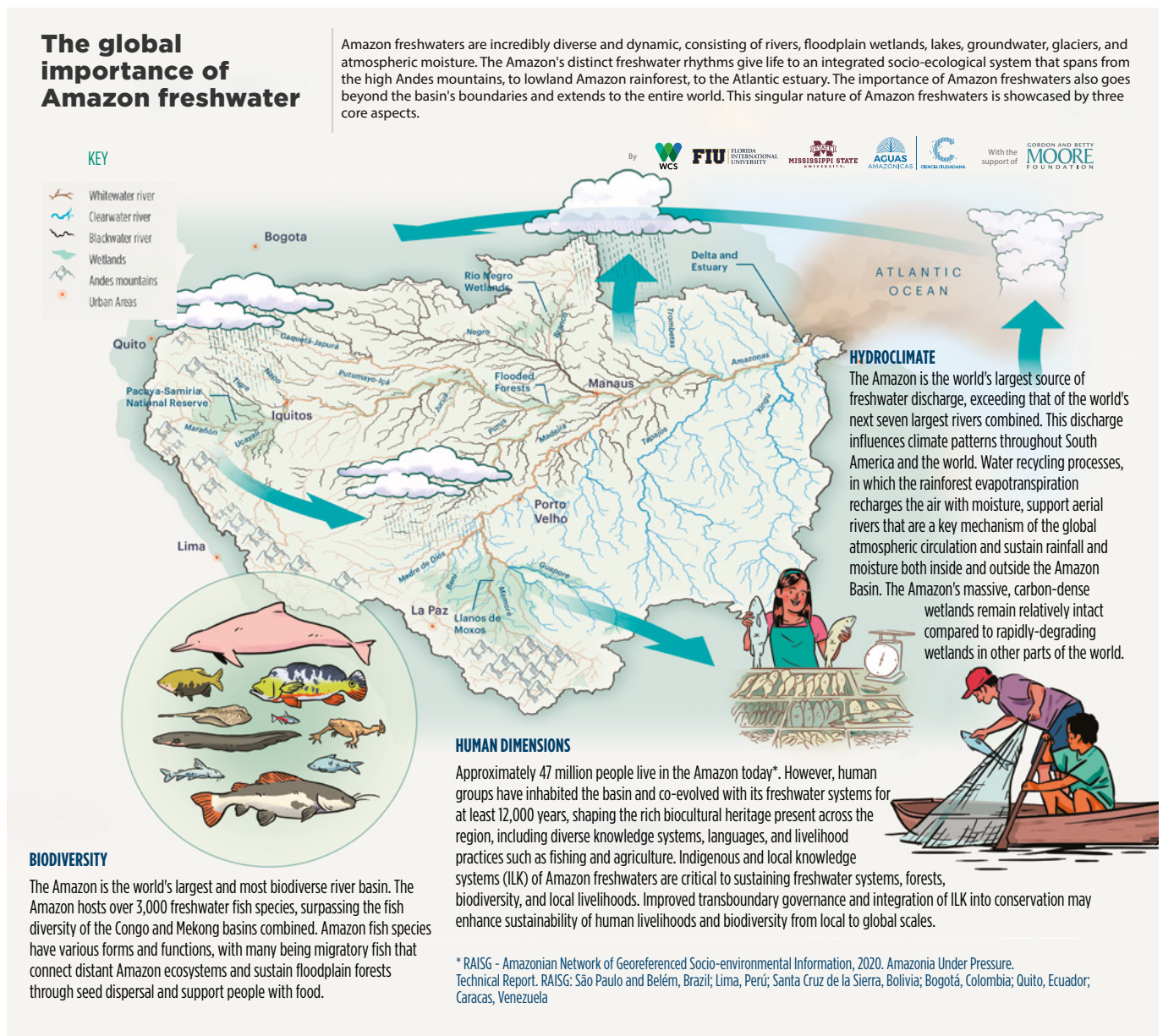


Figure 1: Infographic “The Global Importance of Amazon Freshwaters.” **Source:** Alianza Aguas Amazónicas (2023).

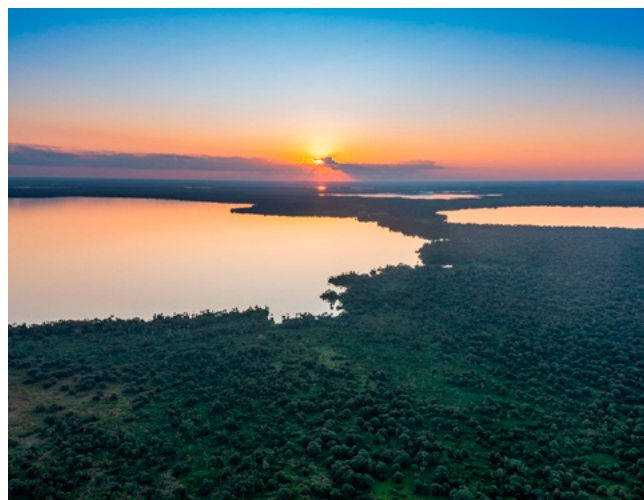


Evapotranspiration in the shores of the Tambopata River, Perú. **Source:** © WCS Peru.

The Amazon basin plays a vital role in regional and global climate stability (Figure 1). It recycles between 24% and 35% of its annual water and contributes significantly to continental precipitation through “flying rivers” that transport 6,400 km³ of water each year (Encalada et al. 2024). Through evapotranspiration, its forests generate up to 50% of the rainfall in the region (Spracklen et al. 2012), regulating rainfall patterns in South America. For example, the Amazon contributes up to 70% of the rainfall in the La Plata River basin (Marengo & Espinoza 2016).

The region is also one of the main centers of atmospheric convection in the intertropical zone, generating intense and persistent rainfall which, together with its vast surface area, feeds the planet’s largest river system. The marked seasonality of the hydrological regime conditions the lives of millions of people, especially riverside communities, whose mobility, agriculture, and fishing depend on the pulses of water (SPA 2021). This dependence makes the region highly vulnerable to climate change.

Approximately 30% of the Amazon region is composed of wetlands, which in-



Amazon Floodplains. **Source:** © Omar Torrico, WCS Bolivia

clude diverse land-water ecosystems. The floodplains of the great rivers cover 750,000 km², equivalent to 11% of the basin, and are essential for the nutrient cycle and biodiversity. Andean rivers form fertile várzeas or whitewater floodplain forests, while shield rivers give rise to igapós or blackwater floodplain forests that are poor in nutrients. In the estuary, the mixture of river and seawater creates unique habitats that function as nurseries and breeding grounds for freshwater, estuarine, and marine fish species. The connectivity between river systems and wetlands is key to the ecological integrity and resilience of the Amazon, regulating hydrological pulses, rainfall distribution, seed dispersal, and food security (Encalada et al. 2024).

Fish are a major source of protein, micronutrients, and income for rural and urban households throughout the basin. Total fish extraction is estimated to range from 422,000 to 473,000 tons per year. Amazonian fisheries, supported by a network of connected aquatic Ecosystems, have high cultural, nutritional, and economic value. Migratory fish account for more than 80% of fish landings in the basin. In addition,

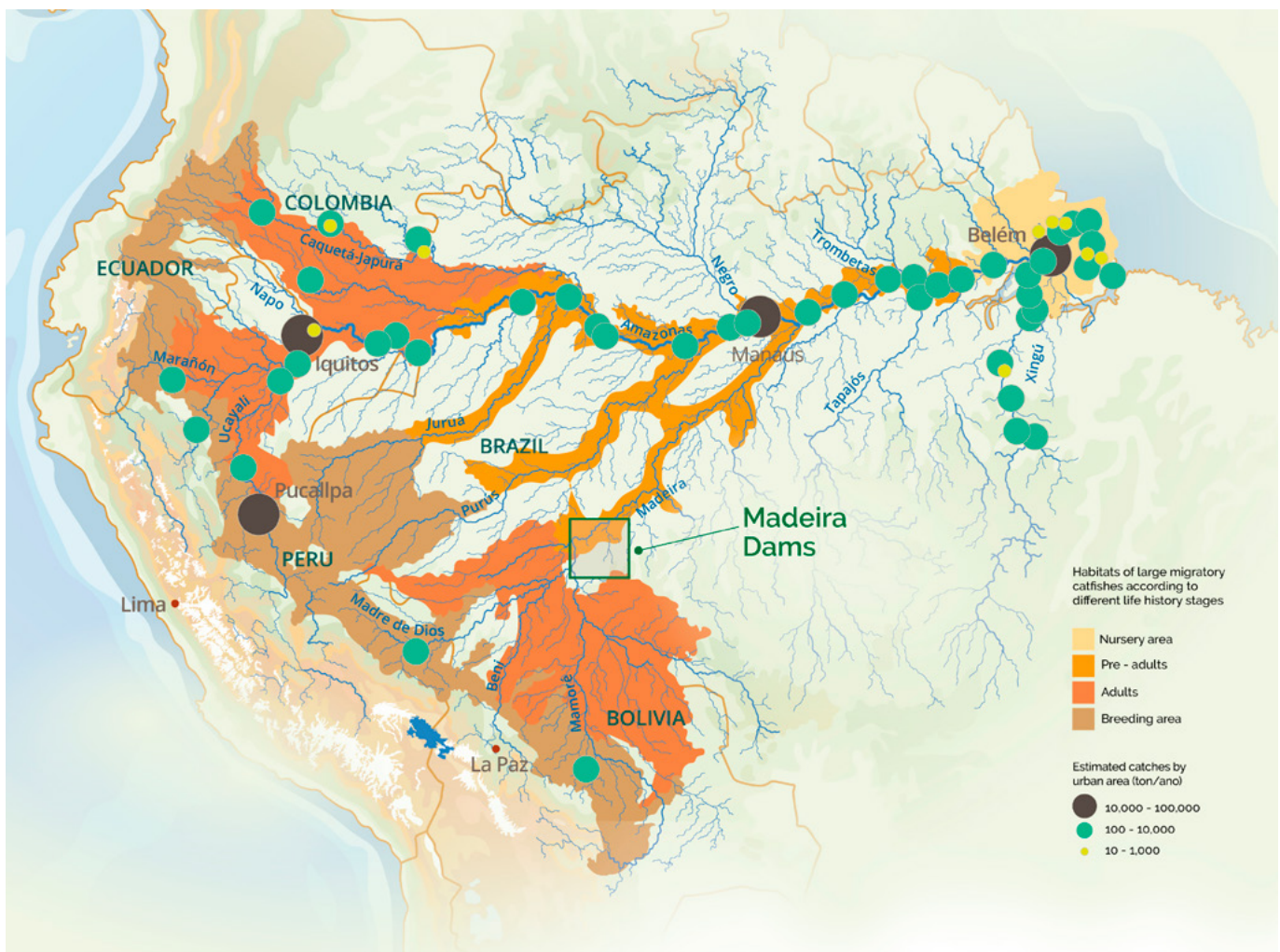


Figure 2: Habitats of large migratory catfish and estimated catches by urban area (T/year). *Source:* Goulding et al. 2019, Prestes et al. 2022. *Prepared by:* WCS, Amazon Waters Alliance.

freshwater ecosystems are essential for crops and agroforestry resources of great economic importance, such as cocoa, açai palm, and many others.

PRESSURES AND DEGRADATION OF FRESHWATER ECOSYSTEMS IN THE AMAZON

Freshwater ecosystems in the Amazon are undergoing rapid degradation, intensified by climate change, which is threatening their resilience. One of the main threats are the fragmentation of these ecosystems, which causes the loss of water surface area, habitats, biodiversity, and ecosystem services essential to

human well-being. This fragmentation is caused by human activities that create physical barriers (such as dams, roads, and water diversions for agriculture and livestock) and chemical barriers that deteriorate water quality (Encalada et al. 2024).

Hydropower development and dam construction impact rivers from the Andes to the Amazonian plains, blocking the movement of migratory species and altering hydrological patterns, sediment discharge, temperature, and nutrient balance. Some dams in the lowland areas also contribute significantly to greenhouse gas emissions per unit of electricity generated.

These disruptions in river connectivity are a cause for great concern, as they affect the migrations of more than 170 species of fish, which are essential for the nutrition and livelihoods of local communities. Additionally, many of these species are contaminated with mercury, posing a serious risk to human health.

Deforestation associated with inadequately planned infrastructure projects and economic activities such as agribusiness also negatively impacts aquatic ecosystems. This loss of vegetation cover reduces evapotranspiration (by 20–41%) and increases temperatures (by 28–45%), decreasing water vapor in the atmosphere and increasing the risk of droughts and fires. Lower precipitation means less surface runoff and fewer sediments exported, affecting the health of forests and rivers (Encalada et al. 2024).

Pollution is another critical cause of degradation. Many Amazon cities lack wastewater treatment plants, leading to the direct discharge of domestic and industrial wastewater into water bodies. Inadequate solid waste management generates tox-

ic leachates, while oil spills affect aquatic fauna and human health, causing physical, mental, genetic, and immune and endocrine system damage. Mining, for its part, introduces pollutants such as mercury, which accumulates in the environment and magnifies in the food chain. All Amazon countries have reported environmental and human exposure to mercury.

Climate change intensifies these impacts. Over the past 15 years, the Amazon has experienced extreme droughts (2005, 2010, 2015–16) and severe flooding (2009, 2012, 2014, 2021), many considered once-in-a-century events (Marengo & Espinoza 2016). The hydrological cycle is becoming more extreme, with heavier rainfall in the wet season and longer droughts in the dry season (SPA 2021).

Climate models project widespread warming in the basin accompanied by a sustained reduction in river flows, which could result in reduced surface water availability, more frequent seasonal droughts, and additional pressures on aquatic ecosystems, human consumption, agriculture, and fisheries (TNC 2025). The spatial redistribution of flow could also affect aquifer recharge, compromising the natural capacity for water regulation. In some areas, streams and rivers could stop flowing for months, causing the local species to become extinct. Even small increases in water temperature can exceed the limits of thermal tolerance of many species, increasing mortality rates among fish and aquatic mammals (Encalada et al. 2023).

Due to climate change and predatory or unsustainable human economic activities, the resilience of the Amazon as a vital system for Amazon Peoples, the countries of the region, and the planet is at stake. Par-

Freshwater ecosystems in the Amazon are experiencing a rapid degradation, intensified by climate change, which puts their resilience.

ticularly at risk are the health and well-being of Amazon Peoples, the water supply for much of South America, and the regulation of the global climate.

Ecological integrity and participatory monitoring of aquatic ecosystems

Faced with multiple pressures threatening Amazonian aquatic ecosystems—river fragmentation, forest loss, pollution, and climate change—it is essential to have tools that enable a comprehensive assessment of the state of the region's rivers and lakes. Ecological integrity analysis address this need by integrating information on biodiversity, connectivity, and environmental quality into an index that identifies where ecosystems are healthy and where urgent conservation, management, or restoration actions are required.

The preliminary ecological integrity map (Figure 3) reveals notable contrasts between sub-basins, represented by a color palette ranging from purple to yellow. This color gradient reflects the ecological status of the Amazonian sub-basins: purple, blue, and turquoise tones indicate high ecological integrity, while green and yellow tones indicate low levels of integrity.

The areas with the highest ecological integrity—those in cool tones—correspond to zones where rivers remain connected and the biophysical system maintains its stability. There, riparian forests continue to protect riverbanks, natural flood pulses continue to regulate water and nutrient flows, and aquatic habitats support a high diversity of migratory fish, turtles, and dolphins. These sub-basins can be considered ecological refuges: they preserve the hydrological and ecological functionality of rivers and sustain fisheries that guarantee

Oil spills affect aquatic fauna and human health, causing damages in terms of physical health, mental health, and genetic, immunological and endocrine systems.

the food and cultural security of millions of people.

In contrast, areas represented by green and yellow tones exhibit lower ecological integrity and concentrate the most severe alterations (Fig. 3). In these areas, fragmentation caused by dams, deforestation of riverbanks, water diversions, and pollution may have reduced connectivity between ecosystems, limiting the movement of species and deteriorating the structure and functioning of aquatic systems. Added to these pressures is climate change, which exacerbates existing effects: rising water temperatures and longer dry periods during the dry season are causing accelerated biodiversity loss and disrupting the ecological processes that sustain the productivity and health of Amazonian rivers and lakes. These conditions have a direct impact on ecosystem services—such as water regulation, food provision, and local climate stability—on which the region's human populations depend.

The preliminary ecological integrity analysis, summarized in this visual representation, is a powerful tool for planning and

decision-making. It provides an understanding of the current state of Amazonian sub-basins and allows for the prioritization of specific restoration actions, management or protection, aimed at restoring the health of aquatic ecosystems and their capacity to sustain life.

To complement and validate these results, we propose the development of a participatory monitoring system jointly designed by scientists, indigenous communities, and residents. This system seeks to establish

pilot sites at strategic points in the basin to continuously observe the health of ecosystems, test innovative methodologies, and generate reliable information. This process will not only provide scientific data but will also integrate local and ancestral knowledge in a true dialogue of knowledge. In this way, long-term monitoring will be able to continually inform and update our understanding of ecological integrity, ensuring that conservation actions respond both to scientific evidence and to the realities of those who live alongside rivers.

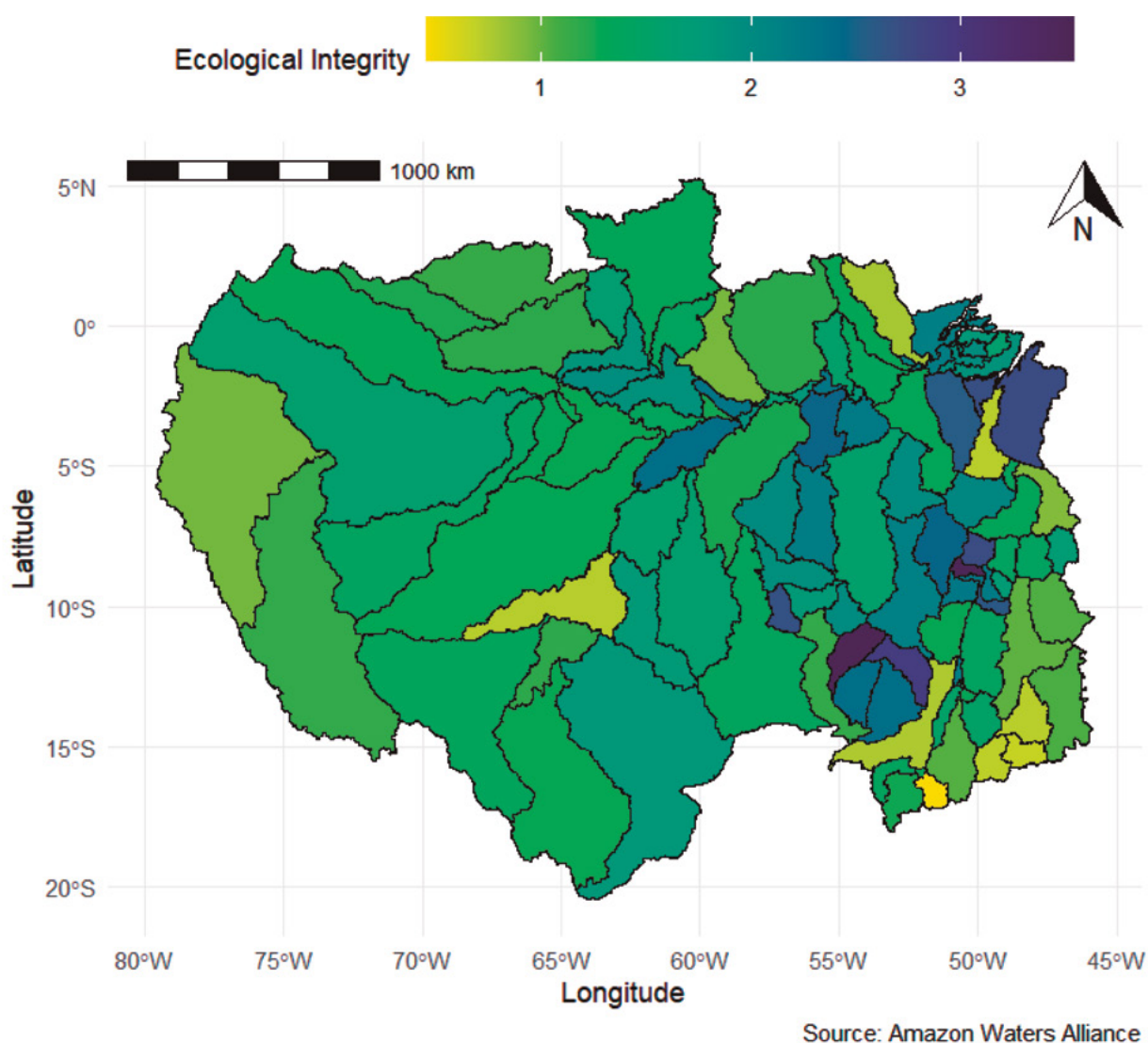


Figure 3: Ecological Integrity Map of Amazonian freshwater ecosystems showing the HydrSheds BL basins. Low integrity values (yellow) are associated with greater disturbances, and high integrity values (blue) are associated with less disturbances. Siddiqui et al., 2025.

Recommendations

Maintaining the multidimensional connectivity of freshwater ecosystems is essential for sustaining ecological processes, water recycling, biological and cultural diversity, and the resilience of the entire Amazon basin. This connectivity includes longitudinal, lateral, vertical, temporal, biocultural, and socio-bioeconomic dimensions, and requires a regional basin vision, backed by agreements and concrete actions.

The connectivity of the Amazon Basin is the backbone that gives life to the entire region, sustaining the natural cycles of water, nutrients, and carbon at local, regional, and global scales. Its conservation is urgent.

To maintain the integrity and connectivity of the basin, it is necessary to:

- 1. Maintain conserved and connected riverscapes of the Western Amazon.** They are centers of biodiversity, endemism, and cultural richness. This region is home to three-quarters of the Amazon basin's nearly 3,000 fish species, including essential migration routes and breeding areas. The Andean-Amazon rivers contribute 40% of the total water and 90% of the sediments discharged into the Atlantic Ocean, making them crucial for the productivity of the Amazon plains and the northern Atlantic coast of South America (Anderson et al. 2025).
- 2. Conserve 80% of the Amazonian floodplains.** They are essential for water regulation, biodiversity, and carbon storage. These floodplains allow for natural water flow, mitigate floods, support a wide variety of aquatic and terrestrial species, and fertilize agricultural land (Correa et al. 2022).

- 3. Sustain well-managed Amazonian fisheries.** The network of connected aquatic ecosystems supports fisheries of high cultural, nutritional, and economic value. Migratory fish account for more than 80% of fish landings in the basin. Well-managed fisheries and regulated fishing areas are key to maintaining the ecological and social resilience of the region (Goulding et al. 2019).

- 4. Maintain healthy and pollution-free aquatic ecosystems.** Water quality directly affects the health of animals and humans due to chemical and microbial contaminants. Preventing water pollution is the simplest and most cost-effective strategy. Once polluted, water treatment requires advanced technologies to eliminate harmful substances. Preventing water pollution is the simplest and most cost-effective strategy. Once polluted, water treatment requires advanced technologies to remove harmful substances and protect public health and biodiversity.

Key proposed actions to maintain healthy freshwater ecosystems

Maintaining the integrity and connectivity of Amazonian aquatic ecosystems requires urgent and concerted action at the local, national, and basin-wide levels. Below, we list eight priority actions:

- 1. Support indigenous and community leadership in territorial management, including aquatic ecosystems.** Recognize and strengthen the leadership role and rights of Indigenous Peoples and local communities in integrated management of Indigenous Territories and

communal lands, and in the conservation and sustainable management of freshwater ecosystems.

2. Propose a moratorium on the construction of new dams in the Amazon and promote a just, low-carbon, low-impact energy transition.

It is essential to avoid new dams that disrupt river connectivity in the Amazon. Energy planning is needed to optimize existing dams and promote renewable sources such as solar and wind power. The removal or refurbishment of obsolete dams should also be considered.

3. Prevent water pollution and improve water treatment in the basin.

It is urgent to invest in infrastructure for the treatment of domestic and industrial wastewater. Mercury pollution must be addressed through better governance, law enforcement, protection of conservation areas and indigenous territories, and restrictions on the use of heavy machinery in mining. Greater control and investment are also needed to prevent oil spills and remediate affected areas.

4. Design and implement nature-based solutions (NbS) for climate change adaptation with a people-centered approach.

NbS include the protection and restoration of critical habitats and sustainable practices in production systems, among others. These measures reduce climate risks such as droughts and floods, improve water quality, regulate flows, and strengthen community resilience. The NbS approach must recognize systemic injustices, respond to socioeconomic and sociopolitical realities, and promote justice and equity.

5. Develop new conservation and management models for freshwater ecosystems.

These should focus on maintaining connectivity and free-flowing rivers, strengthening the management of protected areas, indigenous territories, and other forms of conservation. It is key to promote community leadership and incorporate approaches of diversity, equity, inclusion, and justice.

6. Implement local and regional public policies for sustainable fisheries management.

Support fisheries management by Indigenous Peoples and local communities. Promote the regional exchange of best practices, respect the carrying capacity of ecosystems and fish migration patterns, and strengthen fisheries monitoring at the basin level. Strengthen fisheries governance by recognizing- and building on the contribution of diverse knowledges and best practices.

7. Improve monitoring and information on freshwater ecosystems.

Integrate traditional knowledge with modern science and invest in monitoring systems that enable adaptive, evidence-based decisions on policy and management.

8. Establish transnational governance for the protection of rivers and aquatic ecosystems.

Effective regional agreements and international cooperation plans are required to ensure the free flow of rivers, regulate fishing and coordinate actions vis a vis mining, infrastructure, and energy transition, while guaranteeing territorial rights of Indigenous Peoples.

Conclusions

Amazon rivers and wetlands are essential for biodiversity, the livelihoods of millions of people, and regional and global climate regulation. However, growing pressures from dams, deforestation, pollution, and climate change are rapidly deteriorating the ecological integrity of these ecosystems and compromising their resilience. Maintaining the functionality of the basin is not just an environmental issue: it is an indispensable condition for the water, food, and cultural security of Amazonian Peoples and for the ecological stability of the entire region.

The analysis of ecological integrity and participatory monitoring offer concrete tools for addressing these challenges. By integrating Indigenous and traditional knowledge, and modern science, they enable the identification of priorities for action and the monitoring of changes over time. The recommendations in this chapter aim to halt the expansion of critical pressures, restore strategic ecosystems, and strengthen shared governance. Only cooperation between countries, sustained support, and the leadership of Amazon Peoples will ensure that the rivers and lakes of the Amazon continue to sustain life, culture, and resilience for future generations.

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About the authors



Andrea C. Encalada is an Ecuadorian ecologist with over 30 years of experience in stream ecology and conservation. She holds a Bachelor's degree from Pontificia Universidad Católica del Ecuador and a Ph.D. from Cornell University. In 2004, she founded the Aquatic Ecology Laboratory at USFQ and later the BIOSFERA-USFQ Research Institute in 2016. Her research spans various ecological topics, from aquatic insect life history in temperate streams to biodiversity patterns in the Amazon and Tropical Andes. Between 2019 and 2021, she co-chaired the Science Panel for the Amazon. Since 2021, she has served on its Science Steering Committee. As Provost at USFQ, Andrea leads academic and research missions, focusing on sustainability and positioning the university as a model of environmental leadership and innovation.



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Amazon Waters Alliance. The Alliance brings together more than 30 organizations from Bolivia, Brazil, Colombia, Ecuador, the United States, France, and Peru. Its objective is to maintain the integrity and connectivity of the aquatic ecosystems of the Amazon Basin and the services they provide to the region and the world. Its mission is to promote knowledge and strengthen governance of the Amazon Basin through the use of open and participatory science. It connects diverse actors and initiatives to conserve aquatic ecosystems, contribute to the well-being of Amazonian peoples, and guarantee their fundamental rights. Our actions include initiatives such as scientific collaboration, participatory fish monitoring and management, and spaces for dialogue for inclusive territorial and fisheries governance. To learn more, visit <https://en.aguasamazonicas.org/>

ENDANGERED AMAZONIA:

THE AMAZON TIPPING POINT - IMPORTANCE OF FLYING RIVERS CONNECTING THE AMAZON



AMAZONIA ALIVE:
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80% 2025
2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



Monitoring of the Andes Amazon Program

Technical Briefing: Key Takeaways

1. Contrary to the common perception that the tipping point is a single Amazon-wide event, certain parts of the Amazon are more vulnerable than others.
2. Flying Rivers is a natural phenomenon of aerial moisture transport and recycling that flows from the Atlantic Ocean across the Amazon, uniquely facilitated by the rainforest itself.
3. Precipitation tends to increase exponentially as moist air travels over forests, but then drops off sharply once it moves beyond them.
4. The moisture flows change seasonally in the Amazon. During the rainy season (January–February), the moisture flow is both westward and southward, creating a giant arc. Thus, the continental moisture source is the northeast Amazon. In the dry (July–August) and the dry-to-wet transition (September–October) seasons, the moisture flow shifts more directly westward. Therefore, the continental moisture source is the southeast Amazon, and some studies have identified this region as the most important for maintaining overall Amazonian resilience.
5. There is increasing evidence that future deforestation will reduce rainfall downwind. Several recent studies have found that Amazon deforestation has already caused a significant decrease in precipitation in the southeast Amazon, particularly during the dry season. Moreover, deforestation reduces rainfall upwind of the cleared areas, impacting the western Amazon as well. In addition, recent studies have shown that Amazon deforestation delays the onset of the wet season in southern Amazonia.
6. Continued deforestation and forest degradation, will disrupt and diminish the critical east-to-west aerial water flow, inducing a “tipping point” of impacted regions that would transition from rainforest to drier savannah ecosystems.
7. Multiple sources have reported an increase in the length of the dry season in the southern and eastern Amazon in recent decades, with the largest dry season observed in 2023–2024.
8. There are transboundary implications, as actions occurring in an eastern country can have an impact on a western country downwind of the moisture cascade. For example, deforestation in eastern Brazil can negatively impact moisture flow going to Colombia, Ecuador, Peru, and Bolivia, including the tropical Andean mountains.
9. Deforestation, additional climatic factors, such as increased temperature and the length of the dry season, are also contributing to the tipping point.

10. Drier conditions are leading to record-breaking fire seasons, most notably during the El Niño years of 2016 and 2024.
11. The predicted forest-to-savannah change is already happening in places experiencing increased wildfire frequency due to these hot and dry conditions.

12. Sensitive areas that are the most vulnerable to deforestation-caused disruption of moisture recycling from the Atlantic Ocean source are mostly located in the southwestern Amazon (Peru and Bolivia), positioning them as the most vulnerable areas to a possible tipping point.

Summary

The Amazon biome, stretching over a vast area across nine countries in northern South America, is renowned for its extreme diversity (biological and cultural) and its abundant water resources. Indeed, the major features of the Amazon are linked by interconnected **water flows, both on land and in the air** (Beveridge et al. 2024).

The natural phenomenon of aerial moisture transport and recycling, also known as “**aerial rivers**” and popularized in the press as “**flying rivers**,” has emerged as an essential concept related to the conservation of the Amazon. In short, moisture flows from the Atlantic Ocean across the Amazon, uniquely facilitated by the rainforest itself. As they move westward, these flying rivers drop water onto the forest below. The forest subsequently transpires moisture back into them, thus **recycling water** and supporting rainforest ecosystems far from the Ocean source. For example, the **Intro Map** illustrates the aerial river for the southwest Amazon.

Continued deforestation and forest degradation, however, will disrupt and diminish the critical east-to-west aerial water flow, inducing a “**tipping point**” of impacted regions that would transition from rainforest to drier savannah ecosystems.

In this report, we aim to both summarize the current state of knowledge on the movement of atmospheric moisture across the Amazon and develop novel analyses based on this information. Overall, we aim to show the **critical connections between the eastern and western Amazon** and how these connections change

during the major seasons (wet, dry, and transition) of the year.

Our analysis is divided into **three main parts**:

First, we summarize the state of knowledge on the movement of atmospheric moisture across the Amazon, drawing on a review of recent literature and exchanges with experts. **Second**, we identify the sensitive areas that are the most vulnerable to deforestation-caused disruption of moisture recycling. **Third**, we relate these sensitive areas in the west to their respective eastern key source areas for moisture for each of the three Amazonian seasons: wet, dry, and transition.

In summary, we identified the sensitive areas that are the most vulnerable to deforestation-caused disruption of moisture recycling from the Atlantic Ocean source are mostly located in the **southwestern Amazon (Peru and Bolivia)**. For the wet season, much of the moisture flow to these sensitive areas crosses the continuous primary (non-deforested) forests of the northern Amazon. For the **dry and transition seasons**, however, the moisture flow to the sensitive areas must cross several major deforestation fronts located in the eastern Brazilian Amazon.

Thus, an important contribution of this work is to reveal that, contrary to the common perception that the tipping point is a single Amazon-wide event, certain parts of the Amazon are more vulnerable than others. Most notably, the southwestern Amazon (Peru and Bolivia) is **most vulnerable to a possible tipping point**, particularly stressed by disrupted dry season moisture flows over major deforestation fronts.

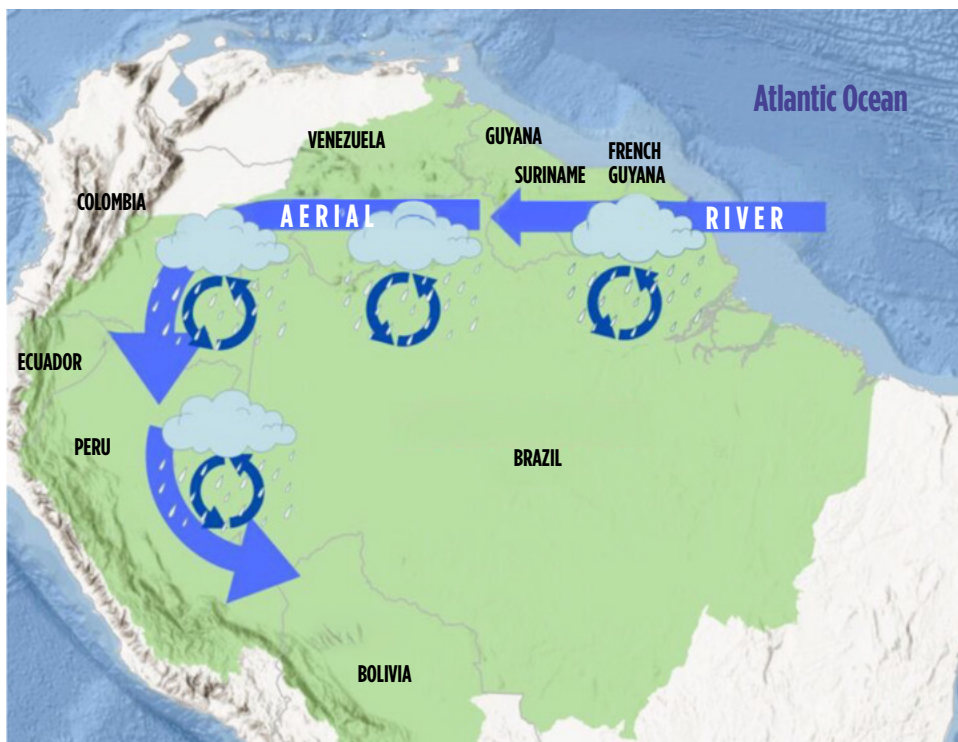
THE AMAZON TIPPING POINT – IMPORTANCE OF FLYING RIVERS CONNECTING THE AMAZON

1. MOVEMENT OF AERIAL MOISTURE ACROSS THE AMAZON (MOISTURE FLOW)

Driven by permanent trade winds, **aerial (atmospheric) moisture** flows westward from its source in the Atlantic Ocean, across the Amazon lowlands, and toward the Andes Mountains. These moisture routes are recharged by evapotranspiration and discharged by precipitation, creating **moisture recycling systems** (Beveridge 2024, Weng et al. 2018, Staal 2018, Weng 2019). Evaporation recycling reloads atmospheric moisture after rainfall, while precipitation recycling removes this moisture. The Amazon forest is therefore a key component of a giant water pump, starting with water transported from the tropical Atlantic Ocean and helping push it westward (Zemp 2017, Boers 2017). **Aerial rivers** are the long-term and large-scale preferential pathways of the moisture flows driving this

pump (Arraut et al. 2012) (see Intro Image). Thus, aerial rivers are the overall average (coarse-scale) moisture flow pattern, while moisture recycling focuses more on the seasonal differences (finer-scale).

Of all the rainfall in the Amazon, its trees have directly transpired 20% of it (Staal et al. 2018). Half of this precipitation (10%) is from moisture from one recycling event, and the other half (10%) is from multiple recycling events. This latter process of cascading precipitation, or **cascading moisture recycling** (Zemp et al. 2014), may happen multiple times (up to five or six), recycling water from the eastern to western Amazon, to areas increasingly distant from the Atlantic Ocean source (Lovejoy and Nobre 2019, Beveridge et al,



Intro Map. Amazon moisture flow (aerial river) for the southwest Amazon. **Source:** Amazon Conservation/MAAP

2024). Precipitation tends to increase exponentially as moist air travels over forests, but then drops off sharply once it moves beyond them, showing just how vital forests are in sustaining rainfall across large regions (Molina et al. 2019). Transpiration-driven moisture recycling is especially important during the dry season (Staal et al. 2018, Nehemy et al. 2025).

Thus, there are **transboundary implications**, as actions occurring in an eastern country can have an impact on a western country downwind of the moisture cascade. For example, deforestation in eastern Brazil can negatively impact moisture flow going to Colombia, Ecuador, Peru, and Bolivia, including the tropical Andean mountains (Ruiz-Vasquez et al., 2020; Sierra et al. 2022, Flores et al 2024). As moisture recycling also continues beyond the boundaries of the Amazon, there may

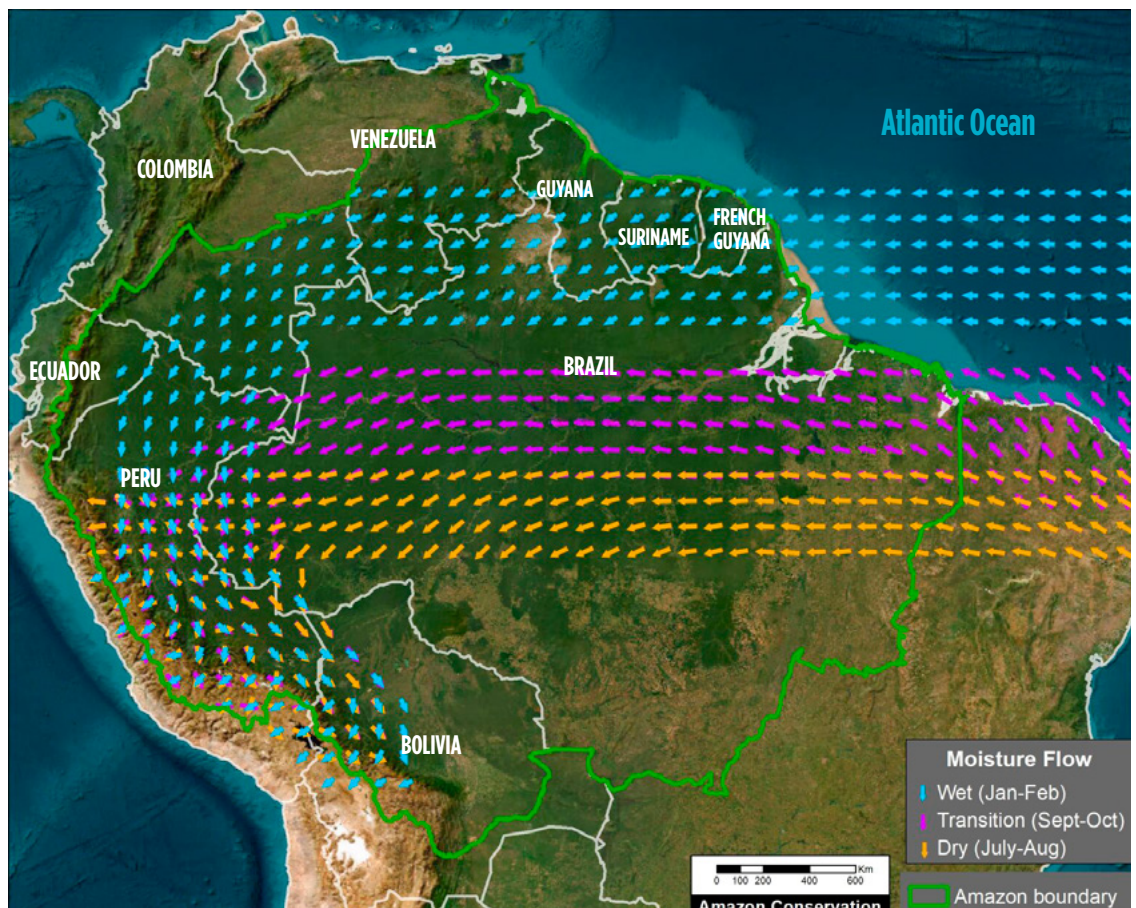
also be impacts to agricultural areas in southern Brazil, Paraguay, northern Argentina, and northern Colombia (Martinez and Dominguez 2014; Ruiz- Vasquez et al., 2020).

The resulting terrestrial flow of water from the Andes mountains through the Amazon lowlands and back to the Atlantic Ocean as runoff and flow of the Amazon river and its tributaries results in the emerging concept known as the **“Andes-Amazon- Atlantic” (AAA) pathway** (Beveridge et al, 2024).

Importantly, the **moisture flows change seasonally** in the Amazon. **Figure 1** illustrates these seasonal changes for the southwest Amazon, as an example.

In the **rainy season** (January–February), the moisture flow is both westward and southward, creating a giant arc (Arraut 2012).

Figure 1. Amazon moisture flows by season for the SW Amazon. *Data: ERA5, ACA/MAAP*



Thus, the continental moisture source is the northeast Amazon (Boers 2017, Weng et al. 2018, Sierra et al. 2022).

In the **dry** (July–August) and the dry-to-**wet transition** (September–October) seasons, the moisture flow shifts more directly westward (Arraut 2012, Staal et al, 2018). Therefore, the continental moisture source is the southeast Amazon, and some studies have identified this region as the most important for maintaining overall Amazonian resilience (Zemp et al. 2017, Staal et al. 2018).

There is increasing evidence that future deforestation will reduce rainfall downwind – further west – of the moisture recycling networks, inducing a “**tipping point**” of impacted regions that would transition from rainforest to savannah ecosystems (Boers 2017, Staal 2018, Lovejoy & Nobre 2018). This has led to calls for forest protection strategies to maintain the cascading moisture recycling system fueling the pathway (Zemp 2017, Encalada et al. 2021). A recent review indicates limited evidence for a single, system-wide tipping point; instead, specific areas of the Amazon may be more vulnerable (Brando et al, 2025).

Scientists are already documenting impacts **linked to increasing forest loss**. Several recent studies have found that Amazon deforestation has already caused a significant decrease in precipitation in the southeast Amazon, particularly during the dry season (Qin et al, 2025, Liu et al, 2025, Franco et al. 2025). Moreover, deforestation reduces rainfall upwind of the cleared areas, impacting the western Amazon as well (Qin et al, 2025). In addition, recent studies have shown that Amazon deforestation delays the onset of the wet season in southern Amazonia (Ruiz-Vasquez

et al., 2020; Commar et al., 2023; Sierra et al., 2023).

Related to deforestation, additional climatic factors, such as increased temperature and the length of the dry season, are also contributing to the tipping point (Flores et al. 2024). Multiple sources have reported on the lengthening of the dry season in southern and eastern Amazonia in recent decades, with the largest dry season observed in 2023–2024 during the major drought reported in Amazonia (Marengo et al 2024; Espinoza et al., 2024). As a result of these drier conditions, recent years have experienced record-breaking fire seasons, most notably during the El Niño years of 2016 and 2024 (Finer et al 2025). Notably, the predicted forest-to-savannah change is already happening in places experiencing increased wildfire frequency due to these hot and dry conditions (Flores et al. 2021).

2. AREAS MOST DEPENDENT ON MOISTURE RECYCLING IN THE AMAZON (SENSITIVE AREAS)

A series of recent empirical and modeling studies indicate that the **southwest Amazon** (including the Peruvian and Bolivian ranges of the tropical Andes) is the major **moisture sink** – the area where precipitation is most dependent on moisture recycling (Boers et al. 2017, Zemp et al. 2017, Weng et al. 2018, Staal et al. 2018, Sierra et al. 2022). In fact, tree-transpired rainfall is greater than 70% in this region (Staal et al. 2018, Weng et al. 2018).

Given its dependence on transpiration-driven precipitation, the impact of a reduction in rainfall from cascading moisture recycling is predicted to be greatest in the **southwest Amazon** (Zemp et al. 2017, Weng et

al. 2018, Staal 2018, Sierra et al. 2022, Beveridge 2024). Indeed, the southwest Amazon forest may enter the bioclimatic equilibrium of savannas following projected extensive Amazon deforestation scenarios (Zemp, 2017). Forests in the northwest and Guyana Shield are also relatively dependent on forest-rainfall cascades (Hoyos et al 2018; Staal et al. 2018).

To precisely identify the most vulnerable areas in the Amazon to disruptions of transpiration-based moisture recycling in a spatially explicit manner, we merged two key studies featuring spatially explicit model outputs (Weng 2018, Staal 2018). These studies cover data for the dry season (Staal 2018) and yearly (both dry and wet seasons) (Weng 2018).

Weng 2018 identifies “sensitive areas,” defined as areas having more than 50% of

rainfall coming from Amazonian evapotranspiration (representing the 98th percentile of the highest sensitivity to Amazonian land use change). Staal 2018 estimates the effect of Amazon tree transpiration on Amazon forest resilience. We selected the areas with the highest resilience loss (0.8 and higher), quantified as the fraction of resilience that would be lost in the absence of tree transpiration by Amazonian trees.

Figure 2 illustrates the merged dataset, which we refer to as “**merged sensitive areas**.” Notably, both studies concur that the most vulnerable areas are located in the southwest Amazon, spanning the lowlands of only two of the nine countries of the Amazon Basin: **Peru and Bolivia**. This merged sensitive area covers a 1,750-kilometer-long swath along the Peruvian and Bolivian Andes. In this merged data map,

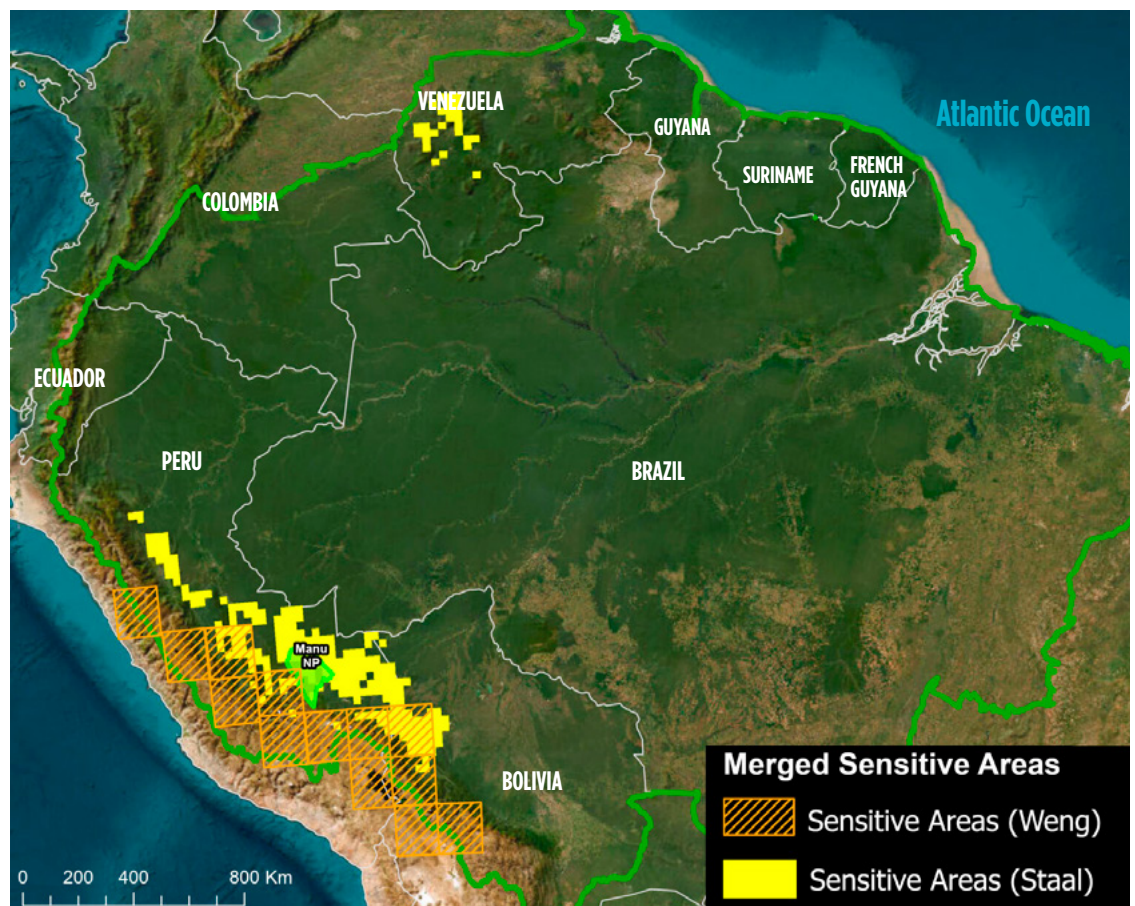


Figure 2. Merged sensitive areas.
Data: Staal 2018, Weng 2018, Amazon Conservation/MAAP

we include Manu National Park as a reference point, located roughly in the middle of the sensitive areas.

Weng et al. identified higher elevation areas of the Andean-Amazon transition area in both Peru (Junín, Cusco, and Puno regions) and Bolivia, while Staal et al (2018) identified slightly lower elevation areas in this same range. These regions are consistent with predicted areas of higher rainfall reduction due to deforestation (Sierra et al. 2022). Also, note that Staal indicates an additional area in the Venezuelan Amazon.

Although, as noted above, forests in the northwest and northeast (Guyana Shield) are also relatively dependent on forest-rainfall cascades, the forests of the southwest are the most dependent, likely given their location at the far end of the Atlantic-Amazon-Andes pathway.

3. MOISTURE FLOWS TO SENSITIVE AREAS (BY SEASON)

Given the reliance of western, especially southwest, Amazon forests on cascading moisture recycling, a key challenge is to identify the most important moisture source areas in the **eastern Amazon**. In this respect, the literature provides a less definitive answer, likely because the moisture recycling routes change with seasons, in contrast to the long-term path of the aerial rivers that represent overall preferential pathways (Arraut 2012, Staal 2018, Weng et al. 2018).

We correlate the merged sensitive areas in the southwest Amazon with their respective moisture source areas by back-tracking the moisture flows upwind. This com-

ponent of the work was inspired by the **precipitation-shed** concept, defined here as the terrestrial upwind surface areas providing evapotranspiration to a specific area's precipitation (Keys et al. 2012, Weng et al. 2018).

We determined that analyzing all **three major seasons** is essential because of the major seasonal variability (Staal et al, 2018) and that each plays a key role in the stability of the rainforests: During the wet season, nearly 50% of total annual precipitation falls over the region, and these wet periods recharge Amazonian groundwater reserves vital for sustaining forest transpiration rates during dry months (Miguez-Macho and Fan 2012, Sierra et al 2022). During the dry season, moisture recycling processes are particularly important to ensure that some of the limited precipitation reaches the western Amazon (Beveridge et al, 2024). Tree-transpired rainfall then peaks during September to November, when large parts of the Amazon are at the end of the dry season and transitioning to the wet season (Zanin et al., 2024).

To map the pathway of moisture flow between the western Amazon merged sensitive areas and their eastern moisture sources, we utilize moisture flow data from the ERA5 reanalysis (Hersbach 2023). Specifically, we merged vertically integrated data for both northward and eastward water vapour flux. We chose data from 2022 as a recent year not heavily influenced by extreme weather events such as El Niño or drought (Espinoza et al., 2024). For 2022, we downloaded and analyzed the moisture flow data for three separate time periods: **January-February** (representing the wet or monsoon season), **July-August** (dry season), and **September-October** (dry-to-wet transition season).

The results for all three seasons are illustrated in **Figure 3**, where the arrows represent the ERA5 reanalysis moisture flow data from the Atlantic Ocean to the merged sensitive areas in the southwest Amazon.

Note that in the **wet season (January-February)**, moisture flows from the Atlantic Ocean over the northeast Amazon (northern Brazil, French Guiana, Suriname, Guyana, and Venezuela) before taking a major southern turn (arc) through the southeast Colombian Amazon and northern Peru before reaching the Sensitive Areas. This general pattern is consistent with other studies focused on the wet season (Arraut 2012, Boers 2017, Sierra et al. 2022) and year-round (Weng et al. 2018).

In contrast, in the **dry (July-August)** and **transition (September-October)** seasons, the moisture flows from the Atlantic Ocean

further south across the central Brazilian Amazon, and has a less pronounced arc near the border with Peru. Specifically, the dry season pattern is consistent with other studies focused on the dry season (Arraut 2012, Staal 2018, Zemp 2017 NC). Note that the transition season flow is located between the wet season to the north and the dry season to the south.

For all three seasons, we emphasize that the entire trajectory from east to west is important for conservation regarding cascading moisture recycling. That is, the farthest away areas in the east represent the full cascading trajectory, while the closest areas in the west exert the strongest direct influence (Weng et al. 2018).

While moisture recycling covers a vast area from east to west, much of the tree-induced rainfall in the southwest Amazon is trans-

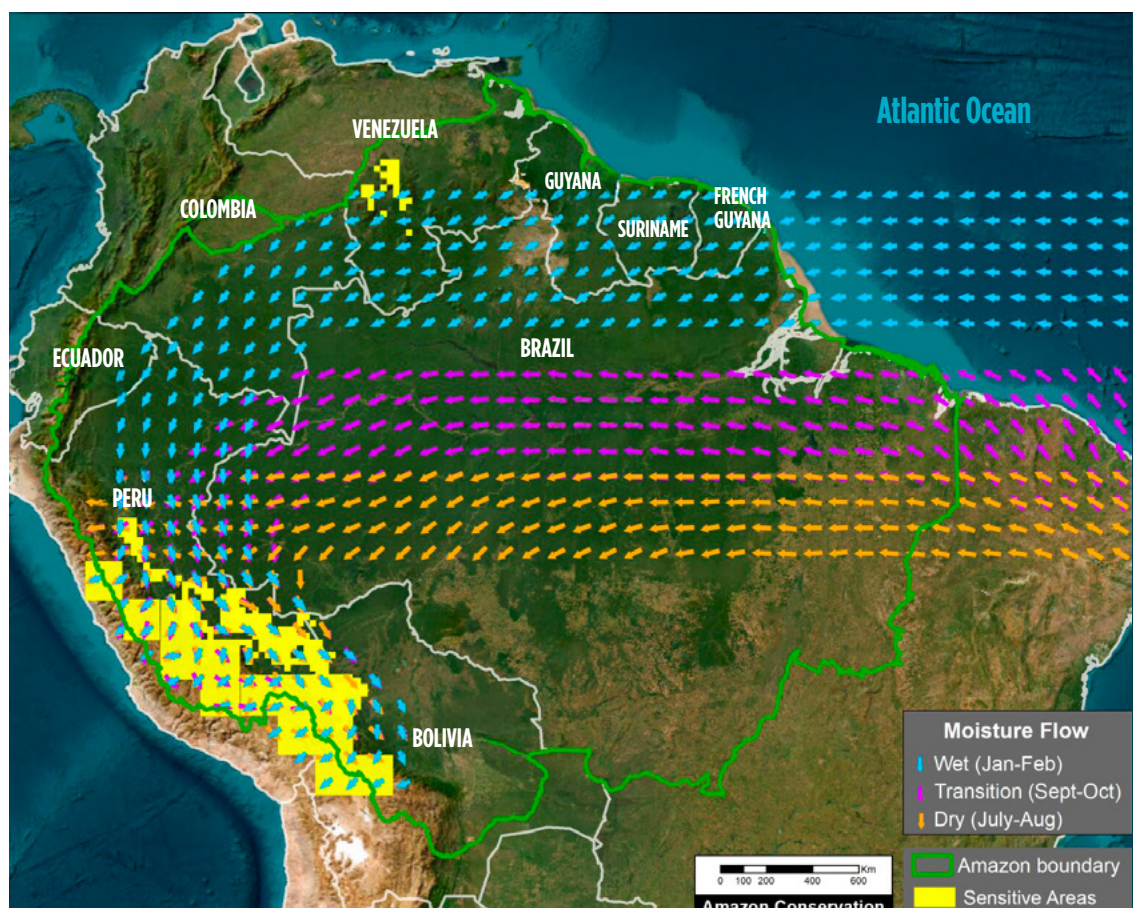


Figure 3. Amazon moisture flows by season relative to sensitive areas in the southwest Amazon.
Data: ERA5, ACA/MAAP

pired **nearby** (Stall 2018). That is, areas exerting the strongest and most efficient influence on the southwest Amazon are located just upwind, in the central-west Amazon (Weng 2018; Wongchuig et al., 2023). In sum, extensive forest loss anywhere along the cascading moisture pathway from the eastern to the western Amazon, far or near, may affect transpiration-based precipitation in the western Amazon, adding to its sensitivity.

The overall annual pattern, accounting for all three seasons, could then be described as **aerial rivers**. As indicated by Weng et al. (2018), this mostly matches the pattern of the wet season.

For additional context, **Figure 4** incorporates current land classification broken down into three major categories based on satellite imagery analysis: Forest, Non-for-

est (such as savannah), and accumulated Deforestation areas (as of 2022).

For **January-February (wet season)**, note that much of the moisture flow crosses the continuous primary forest of the northern Amazon. That is, the moisture crosses predominantly non-deforested areas of northern Brazil, French Guiana, Suriname, Guyana, Venezuela, southeast Colombia, and northern Peru.

In contrast, the moisture flows for **July-August (dry season)** and **September-October (transition season)** cross several major **deforestation fronts** in the central Amazon, particularly during the dry season.

During the critical dry-to-wet transition season, the role of the local area's tree evapotranspiration is especially important. The southern Amazon presents lower overall

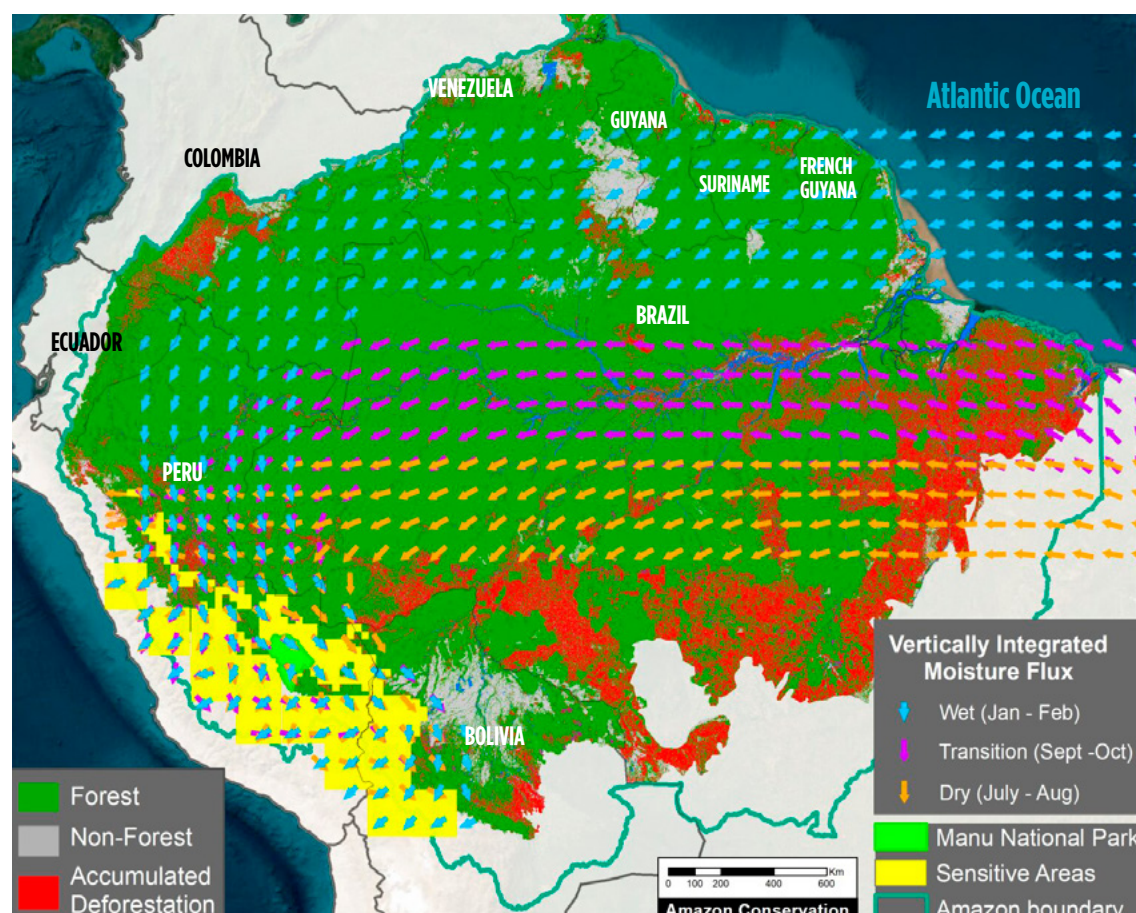


Figure 4. As in Figure 3, plus forest cover.
Data: ERA5, Amazon Conservation/MAAP

evapotranspiration values (Fassoni-Andrade 2021; Zanin et al., 2024). Due to the greater access of forest roots to deep soil water, however, evapotranspiration over forested areas is higher than croplands/grasslands during this time (von Randow et al. 2004). Since, during this transition season, the moisture transport to the southwestern Amazon passes over large deforested areas, the conservation of the remaining forest along this pathway is critical.

Conclusion

Above, in this initial technical report, we merged three key points that are critical to understanding the tipping point concept in the Amazon.

First, we presented an overview of aerial moisture flows originating from the Atlantic Ocean and then moving and recycling from the eastern to the western Amazon. Second, we identified the “sensitive areas” that are the most vulnerable to deforestation-caused disruption of moisture recycling, mostly located in the western Amazon (Peru and Bolivia). Third, we relate these sensitive areas in the west to their respective eastern key source areas for moisture for each of the three Amazonian seasons: wet, dry, and transition.

Incorporating updated land-use data, we found important differences by season. For the wet season, much of the moisture flow crosses the continuous primary (non-deforested) forests of the northern Amazon. For the dry and transition seasons, however, the moisture flow must cross several major deforestation fronts mainly located in the central Amazon.

In addition, recent studies show that the main patterns of moisture flux can be altered at a continental scale due to deforestation (Commar et al., 2023; Sierra et al., 2023). As a result, reduced moisture transport from the Atlantic to the continent and delays in the onset of the wet season may occur in the future due to Amazon deforestation and climate change (Agudelo et al., 2023).

Thus, an important contribution of this work is to reveal that, contrary to the common perception that the tipping point is a single Amazon-wide event, certain parts of the Amazon are more vulnerable than others. Most notably, the southwestern Amazon (Peru and Bolivia) is **most vulnerable to a possible tipping point**, particularly stressed by disrupted dry season moisture flows over major deforestation fronts.

We will soon build off of these results in an upcoming policy-focused report that presents the major implications of the maintenance of aerial moisture flows for conservation. This analysis will include how to identify key conservation areas for each season based on the key concept of maintaining cascading moisture flow to the sensitive areas, in relation to protected areas, Indigenous territories, and major road networks. It will also reveal several policy implications that require urgent attention and new approaches to national governance and international cooperation. For example, It considers the implications of planned roads (most notably BR- 319) and fortifying existing conservation areas and creating new ones in undesignated public lands.

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A group of indigenous people, likely from the Philippines, are shown in a dense forest. They are wearing traditional clothing, including patterned headbands and necklaces. Some are holding long wooden poles. The image is overlaid with a dark blue tint.

SECTION II

DEFORESTATION AND DEGRADATION DRIVERS



ENDANGERED AMAZONIA

TRACING THE FOOTPRINTS OF COMMODITY-DRIVEN DEFORESTATION IN THE AMAZON: SUBREGIONAL DATA TO GUIDE POLICY



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



CHALMERS
UNIVERSITY OF TECHNOLOGY



trase



SEI
Stockholm
Environment
Institute



Technical report: Key Takeaways

1. The expansion of agricultural land use—pastures and cropland—is the main driver of deforestation across the Amazon region¹. However, the data presented here also show substantial areas of forest degradation throughout the Amazon; highlight the important role of mining in driving deforestation in the Guiana Shield; and indicate that land speculation and indirect land-use change are likely to be prominent drivers of deforestation.
2. Agriculture-driven deforestation shows a declining trend in most Amazon countries in recent years (2017- 2022), with the exception of Brazil—where it is relatively stable—and Ecuador—where it is much higher than historical levels. Despite cropland expansion accounting for only 22% of total deforestation between 2017-2022, compared to 78% from cattle ranching, trends indicate that it is becoming a more prevalent driver of deforestation across the Amazon region, particularly in Bolivia, Ecuador, Peru, and Venezuela.
3. Sub-national deforestation patterns across the Amazon reveal distinct drivers (2017-2021), with pasture dominating in the eastern and central portions of the Amazon—but advancing into the interior of the region, and crop expansion—particularly soy in Bolivia and staples like maize, rice, and cassava in Peru and Venezuela—prevailing in the western, southern, and northwestern subregions. These results highlight the need for targeted strategies and interventions to address deforestation, tailored to specific sub-national contexts.
4. A key limitation in uncovering explicit drivers of deforestation is the availability of high-quality land use data. Such data is crucial for understanding complex land-use change dynamics and for accurate attribution of deforestation to specific commodities. Additionally,

this data is essential for gaining deeper insights into the impacts of socio-economic factors, such as market dynamics, trade, and finance, on deforestation at a more granular, sub-national scale. Closing this data gap requires active collaboration among state agencies, re-

search institutions, NGOs, and the private sector, ensuring comprehensive data collection, knowledge sharing, and resource coordination to better inform policy actions towards effectively halting deforestation.

Summary

This article includes sections of the main findings and recommendations from the technical report titled “Uncovering Subregional Drivers of Deforestation in the Amazon: A Tool for Finding Solutions” (Ribeiro et al. 2024), which was launched by WWF in 2024 during the United Nations Biodiversity Conference (COP16) held in Colombia. This report presents the first regional-level analysis of the drivers of deforestation in the Amazon. To achieve this, subnational agricultural production sta-

tistics were integrated with satellite data on land use and commodity production in each Amazonian country. By providing a more detailed understanding of deforestation linked to these commodities, the study aims to strengthen the capacity of national and (sub)regional actors—as well as policymakers—to develop targeted strategies tailored to the conditions of each country and territory, in support of sustainable land use and the conservation of the Amazon.

Keywords

Deforestation, land use, agricultural production, regional and subregional analysis.

SUGGESTED CITATION: Ribeiro, R.; Singh, C.; Pacheco, P.; Persson, M.; Vergara, A.; Holle, K.; Flach, R. . “Tracing the Footprints of Commodity-Driven Deforestation in the Amazon: Subregional Data to Guide Policy”, in *Endangered Amazonia*, edited by Alicia Guzmán León, pages 113-126. Quito: COICA, 2025.

TRACING THE FOOTPRINTS OF COMMODITY-DRIVEN DEFORESTATION IN THE AMAZON: SUBREGIONAL DATA TO GUIDE POLICY

INTRODUCTION

The Amazon rainforest, a cornerstone of global biodiversity and climate regulation, is approaching a critical tipping point (Lovejoy 2019). Although deforestation rates have shown historic signs of decline, they persist and continue to push these ecosystems toward a threshold from which recovery may become increasingly difficult (Flores et al. 2024, Amigo 2020). Past successes—such as the significant reductions in deforestation achieved during Phases 1 and 2 (2004–2011) of Brazil’s “Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm)” —demonstrate that halting deforestation is possible. However, these achievements were not sustained. Despite ongoing sectoral and voluntary commitments—such as the Soy Moratorium—the

lack of robust public enforcement policies led to a resurgence in deforestation rates in the Brazilian Amazon after 2010, particularly after 2019 (Levis et al. 2020). In addition, while the Brazilian Amazon has historically been the main contributor to overall deforestation in the region, recent trends show a rapid increase in deforestation in the western Amazon, especially in the Andean-Amazonian countries (Murillo et al. 2022).

A better understanding of the various drivers of deforestation, along with the subregional patterns across all Amazonian countries, can enable decision-makers to tailor sustainable land-use policies to each subnational jurisdiction—while accounting for disparities between countries and sub-



Credit: Luis Barreto. WWF

regions within the Amazon. This approach makes it possible to identify key commodities and deforestation hotspots, thereby reinforcing regional commitments such as those outlined in the Belém Declaration and the Bogotá Declaration during the Amazon Presidential Summits of 2023 and 2025, respectively. It also supports the assessment of progress toward goals like those in IUCN Resolution 129, which aims to avoid a tipping point in the Amazon by protecting 80% of it by 2025. Furthermore, the methodology and insights generated by this study can be replicated and adapted to help understand deforestation patterns and support the design of successful sustainable land-use strategies in other regions.

DEFORESTATION ATTRIBUTION MODEL

To identify deforestation—when natural forests are converted to other land uses—and link it to commodity production, it is essential to integrate high-quality spatial and statistical datasets that can help more accurately track land-use dynamics and land-use change over time. Moreover, it

For this technical report, we have incorporated new subnational data on agricultural land use in Amazonian countries.

is important to recognize that while such data is readily available in Brazil (MapBio-mas 2022, IBGE 2023), it has historically been lacking in most other Amazonian countries. Our deforestation attribution approach seeks to address these challenges by integrating the best available spatial datasets (e.g., MapBiomass) and statistical data, in order to improve deforestation attribution across the Amazon region. By leveraging detailed, high-quality data, we aim to enhance the precision and granularity of deforestation assessments, enabling more effective and targeted conservation efforts. Our analysis uses the Amazon regional boundaries defined by RAISG, which extend beyond the limits of the Amazon biome (see Figure 1).

Deforestation attribution is based on the Deforestation and Emissions Drivers (DeDuCE) model (Singh and Persson 2024), a powerful tool for tracking global drivers of deforestation by integrating the best available spatial and statistical datasets across multiple countries and commodities. For instance, it has been used to support Target 16 of the Global Biodiversity Framework through the Global Environmental Impacts of Consumption (GEIC) Indicator (Jennings et al. 2024). For this technical report, we incorporated new subnational data on agricultural land use in Amazonian countries to provide a more detailed understanding of commodity-driven deforestation across the region.

The model works by overlaying global spatiotemporal data on tree cover loss—sourced from the Global Forest Change (GFC) dataset (Hansen et al. 2013), which identifies complete removal of tree cover (defined as vegetation taller than 5 meters) at a 30-meter pixel resolution—with datasets on agricultural commodities, land use (such as MapBiomass), dominant

drivers of forest loss (Curtis 2018), and other datasets on forest management and disturbances, such as fire-induced tree cover loss (Tyukavina 2022). This allows deforestation and its drivers to be identified using the best available per-pixel data. The spatiotemporal coverage of the MapBiomas dataset also allows differentiation between deforestation and forest degradation.

In cases where deforestation cannot be directly linked to a specific commodity, the model uses national and subnational agricultural statistics to infer the most likely or potential drivers of forest loss. For attributing deforestation to Amazonian countries, the Global Subnational Agricultural Production (GSAP) dataset (Flach 2024) is

used whenever available. The GSAP dataset is a compilation of official subnational data drawn from sources such as national statistical offices, agriculture ministries, censuses, and surveys. These data have been extracted, processed, and cleaned using AI-based optical character recognition (OCR) and pattern-matching techniques to extract agricultural statistics. To ensure consistency, geographic units, crop types, and measurement units have been standardized using [GADM](#) and [FAO](#) crop codes. The details of the modeling framework, along with the spatial and statistical datasets used as inputs, are available in Singh and Persson (2024). Commodity-level deforestation estimates for each country and region are available at: <https://www.deforestationfootprint.earth/Amazon>.



Credit: Luis Barreto, WWF

AMAZON DEFORESTATION (2001-2022)

Not all tree cover loss is deforestation, but most deforestation is driven by livestock grazing and crop cultivation. Results from the DeDuCE model identify agriculture—specifically pasture for livestock and staple crops—and forestry as the main drivers of deforestation in the Amazon, accounting for 38 million hectares (Mha) out of a total of 39 Mha of deforestation between 2001 and 2022 (Figure 1). Of this deforestation, pasture expansion is responsible for nearly 83%, while crops contribute 17%, and forest plantations (mainly for timber) account for a smaller share. Agriculture-driven deforestation is particularly significant in Bolivia, Brazil, Colombia, Ecuador, French Guiana, Peru, and Venezuela. In contrast, only a small portion of deforestation in Guyana and Suriname is attributed to agriculture, as mining activities are among the main drivers of deforestation in these countries (Killeen 2024).

Mining operations in other Amazonian countries also contribute to deforestation (Sonter et al. 2017, Finer & Mamani 2024). Although the direct land-use

change caused by mining is relatively limited, its indirect effects—such as agriculture around mining sites, forest clearing for settlements, and incursions by miners into forested lands—are often several times greater than the deforestation directly linked to mining activities (Giljum et al. 2022, Ladewig et al. 2024). Moreover, mining has significant environmental impacts, including river sedimentation and water pollution. In the case of illegal gold mining, the use of toxic mercury has severe consequences for the health of local and Indigenous communities and affects the region's wildlife (Wenzel 2024).

An analysis of temporal trends in agriculture-driven deforestation (Figure 2) reveals highly heterogeneous patterns across the Amazon. In recent years (2017–2022), most countries—particularly Bolivia, Guyana, Peru, and Venezuela—have shown a slowdown in agricultural deforestation. Despite a decreasing trend in agriculture-driven deforestation (Figure 2), the Bolivian Amazon also shows an increasing loss of tree cover. This discrepancy can be attributed to a rise in forest degradation caused by wildfires in recent years (2019–2023). While many of these fires are deliberately set to clear land for agriculture (Forest Pulse 2024, GFW 2024), Bolivia has also experienced increasingly warm and dry conditions in recent years due to the combined effects of climate change and the El Niño phenomenon (MacCarthy and Parsons 2024). In contrast, deforestation rates in Brazil have remained relatively stable, while Ecuador has shown a notable increase. Interestingly, although pasture expansion for cattle remains the main driver of deforestation in Brazil, Colombia, and the Guianas (Figure 1), some countries such

**Not all tree cover
loss is deforestation,
but most
deforestation is
driven by livestock
grazing and crop
cultivation.**

Amazon deforestation (2001-2022)

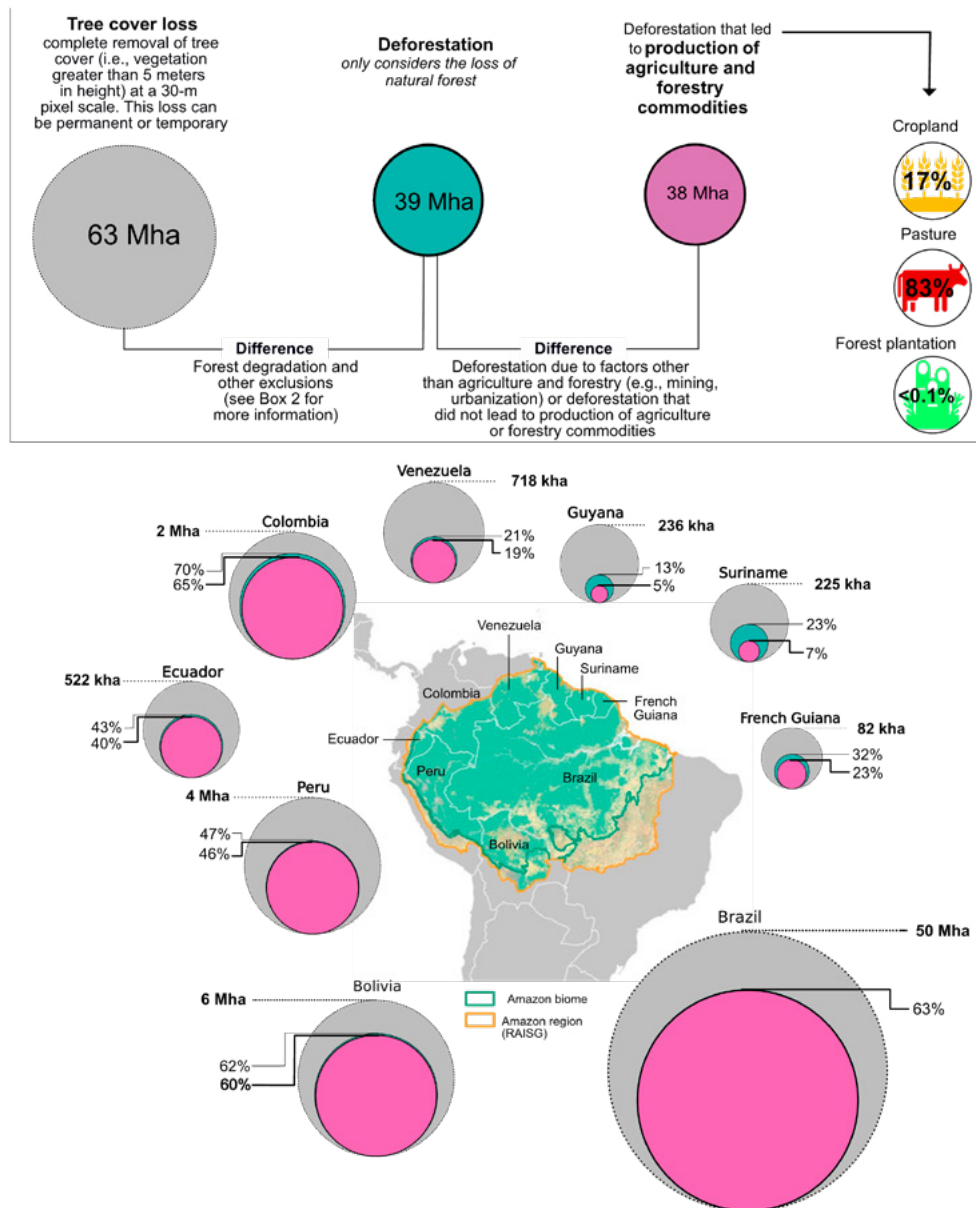


Figure 1. Assessing deforestation linked to agriculture and forestry activities from global tree cover loss estimates (2001-2022). The deforestation assessment undertaken here corresponds to the maximum combined extent of both the Amazon Biome and the Amazon delineation as defined by RAISG. *Ribeiro et al. 2024*

as Bolivia, Ecuador, Peru, and Venezuela have witnessed greater deforestation driven by agricultural commodities in recent years (Figure 2).

The impacts of land speculation are not immediately apparent but are nonethe-

less significant. In the case of Amazonian countries, not all deforestation due to agricultural and forestry activities is directly linked to commodity production. Our results suggest that between 2% and 16% of the deforested area in the Amazon remain unproductive or is associated with

commodities other than those related to agriculture (Figure 1). In many cases, the immediate drivers of deforestation (i.e., the establishment of agricultural land following forest clearing) often mask a deeper and more insidious force: land speculation driven by anticipated future profits from commodity production (Pendrill et al. 2022). Financial drivers—particularly those related to the land market and not directly connected to the production of specific commodities—pose a major challenge for conventional attribution methodologies. These drivers often involve the purchase of forest land with the intent to clear it for future agricultural expansion, engage in illegal activities, or simply hold it as a speculative investment.

Degradation-Tree cover loss not associated with deforestation

There has been debate over how much of satellite-detected tree cover loss constitutes deforestation (typically defined as the persistent conversion of natural forest to any other land use such as agriculture, human settlements, or tree plantations (GFW 2022). Tree cover loss data captures the annual loss of all vegetation taller than five meters within a 30-meter pixel between 2001 and 2022. This includes the loss of trees in both natural forests and plantations or tree crops and can result from human activities or natural disturbances. Additionally, the loss may be either permanent or temporary.

To distinguish between deforestation (when natural forests are permanently converted to other land uses) and forest degradation (when forest structure deteriorates without complete canopy removal due to natural or human disturbances), we used the spatiotemporal coverage of

the MapBiomas dataset. By linking loss drivers to specific pixels showing tree cover loss in a given year, we also checked the land use classification of that pixel in the year 2000 to assess the initial ecosystem state. For example, if we detect tree cover loss (from the GFC dataset) linked to agriculture (from the MapBiomas dataset) in 2010, but the pixel was already classified as agricultural land in 2000, we consider this loss to have occurred on managed lands, not natural forest. This results in several combinations that we classify as forest degradation and other exclusions (24 Mha total), most of which fall into the following categories: i) Tree cover loss detected in forest formations (14 Mha); ii) Tree cover loss in non-forest natural formations (4 Mha); iii) Tree cover loss in pre-existing agricultural lands and plantations (5 Mha); iv) Fire-induced forest degradation (<1 Mha).

While we suggest these dynamics based on spatial patterns of tree cover loss and MapBiomas land use, it is important to acknowledge that both datasets rely on algorithms to classify land cover and its dynamics. These algorithms may contain errors or biases—for example, due to cloud cover, sensor errors, or misinterpretation of spectral signals—which can result in discrepancies between detected tree cover loss and MapBiomas land classification. It is also important to note that—although some of this degradation may lead to the permanent loss of natural forest ecosystems, with serious consequences for climate and biodiversity (Lapola et al. 2023)—linking these losses to commodity production and assessing their potential impacts is beyond the scope of this technical report. Tree cover loss statistics for each country and region are available at: <https://www.deforestationfootprint.earth/Amazon>.

Sub-national level

While national-scale deforestation estimates are crucial for understanding the role of agriculture and forestry in forest loss across the Amazon region (Figures 1 and 2), they may not be sufficient to develop targeted strategies to address deforestation in specific subregions. Deforestation estimates derived from this subnational DeDuCE model reveal contrasting patterns across the Amazon Basin (Figure 3)

In the eastern and central Amazon, pastures—primarily for beef production—play

a dominant role in driving deforestation, a trend particularly evident in the Brazilian Amazon. Meanwhile, in the western Amazon (parts of Bolivia, Ecuador, and Venezuela), deforestation is largely driven by crop expansion, while both crops and livestock pastures are key drivers in the southern and northwestern subregions (Figure 3). Additionally, in parts of the eastern Brazilian Amazon, the southern Bolivian Amazon, and the Colombian Amazon, deforestation is being driven by the expansion of both livestock pastures and crops, especially due to the cultivation of soy, cacao, maize, and rice.

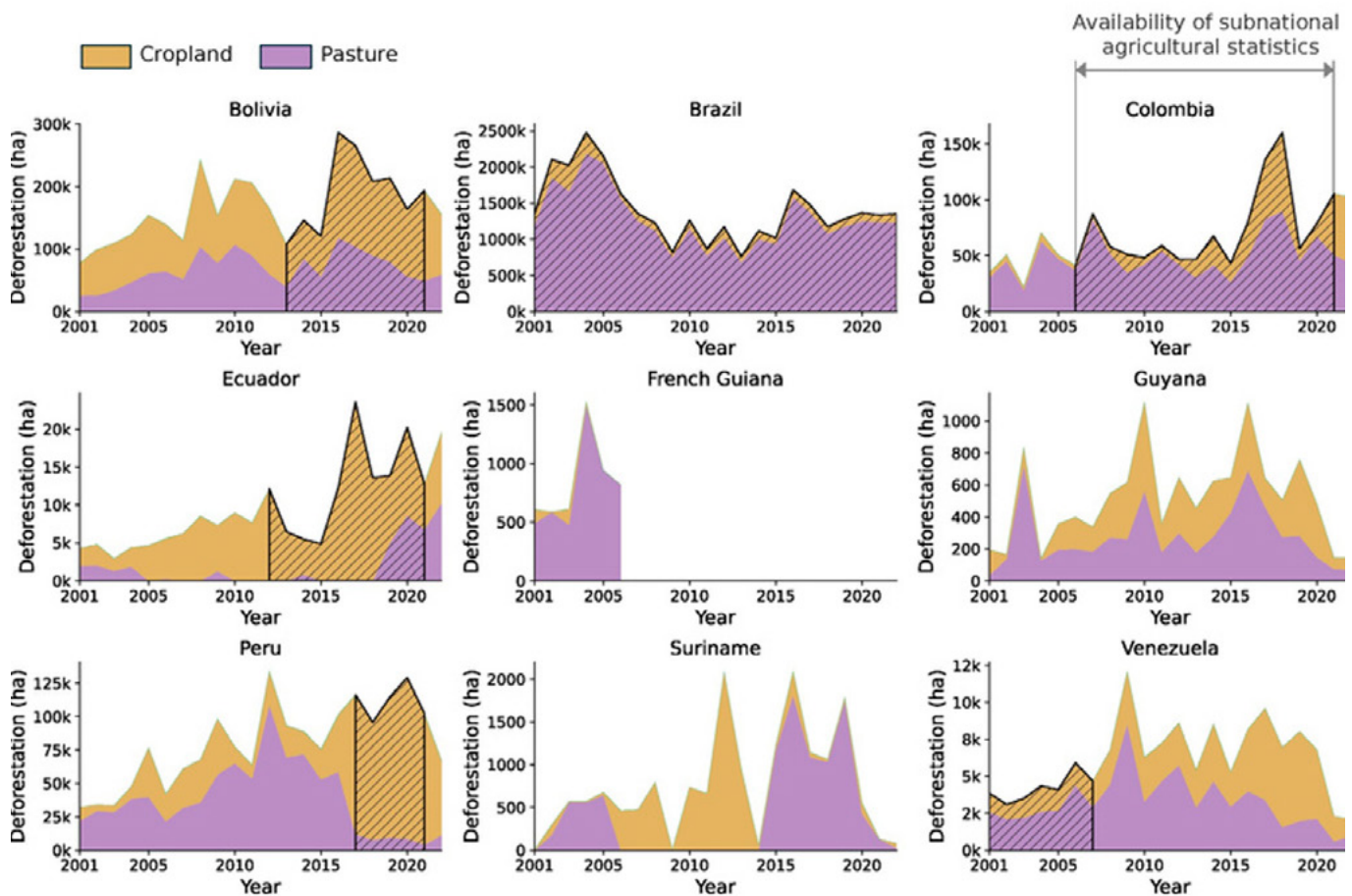


Figure 2. Deforestation trends in the Amazon driven by the production of commodities associated with cropland, pasture and forest plantation expansion (2001–2022). While deforestation from forest plantation expansion is included in this plot, its impact is less prominent due to the comparatively smaller area affected when contrasted with cropland and pasture-driven deforestation. The hatched area represents the time frame during which sub-national agricultural statistics were available and utilized for subnational deforestation attribution in the DeDuCE model. *Ribeiro et al. 2024*

Soy-related deforestation is especially significant in the Bolivian Amazon, while cacao and oil palm plantations are key drivers of deforestation in Colombia, Ecuador, and Peru. In addition, staple crops such as maize, rice, and cassava contribute significantly to deforestation in the Peruvian and Venezuelan Amazon. These staple crops are vital for future food security, as they make up half of the average human diet (Xia et al. 2022), yet they often receive less attention than commercial crops when assessing their role in defor-

estation. Illicit production—for example, coca cultivation—may also contribute to the discrepancy between deforestation rates and reported agricultural production, as seen in Colombia, Bolivia, and Peru, since it does not appear in official statistics (Murillo et al. 2023).

The availability of subnational deforestation estimates also highlights the spatial heterogeneity of trends across different national and subnational jurisdictions (Figure 2). While deforestation for livestock

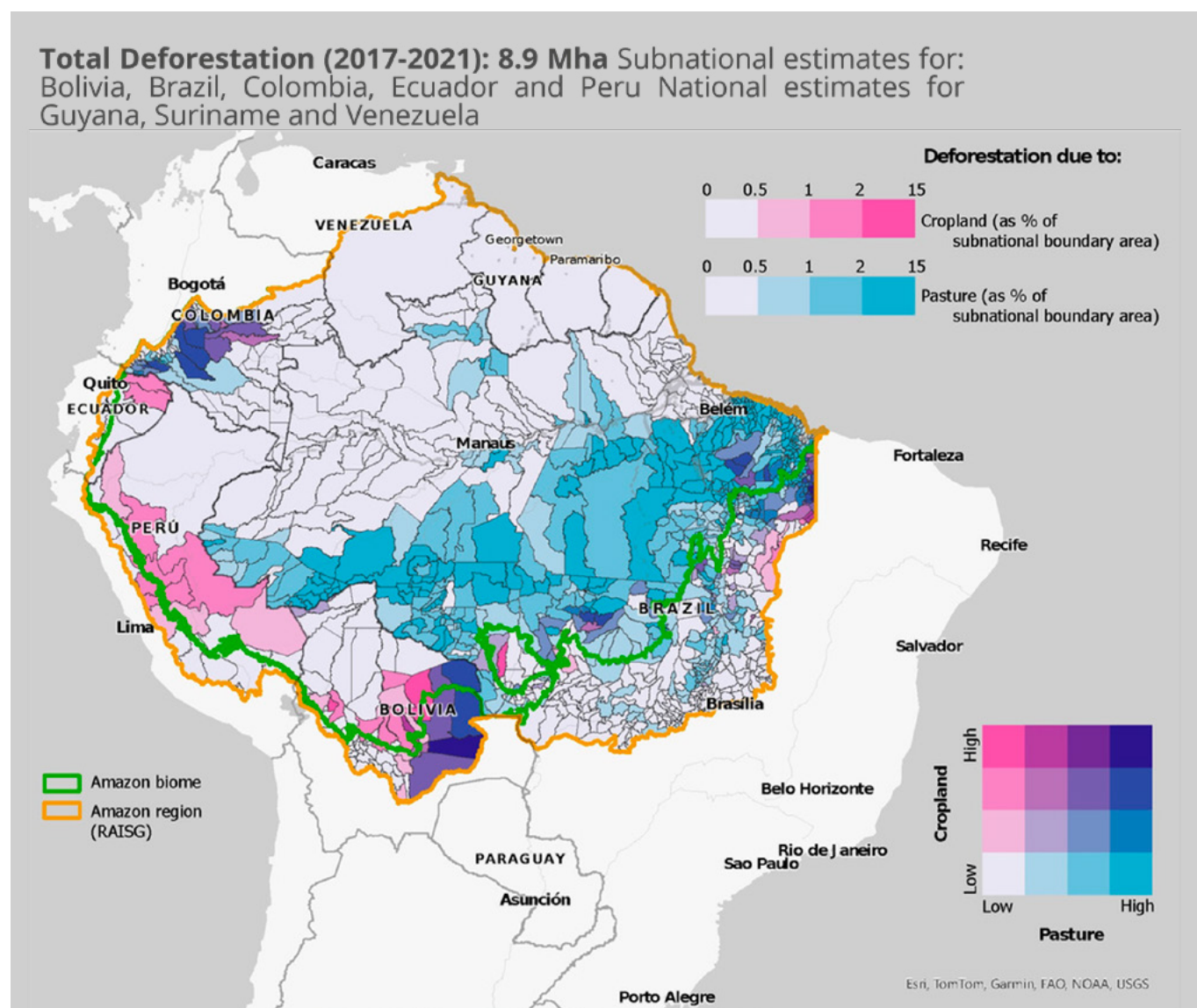


Figure 3. Croplands and pastures as the dominant drivers of deforestation within the Amazon, represented as a percentage of the sub-national boundary area. Here, total deforestation values refer to deforestation associated with the production of agriculture and forestry commodities. *Ribeiro et al. 2024*

production is slowing in both the eastern and western Amazon, the central Brazilian Amazon has experienced a significant increase in recent years. The most plausible explanation for this pattern is the indirect effects of soy expansion, which has displaced cattle pastures that were deforested prior to 2008, subsequently push-

ing ranchers to clear new natural areas in the central Amazon. Additionally, while soy-related deforestation is declining in Bolivia, a moderate increase is observed in the eastern Brazilian Amazon. For maize and rice, similar patterns of spatial variation can be seen across different subnational jurisdictions.

Conclusions and recommendations

- To address deforestation leakage, companies must go beyond monitoring specific commodities and adopt a more comprehensive assessment of their activities and impacts. The level of detail in the data presented here challenges a long-standing excuse for private sector inaction: the lack of subnational, multi-commodity deforestation data. Strengthening and promoting multi-sectoral and cross-commodity partnerships or working groups can help prevent, detect, and mitigate such effects. Multi-stakeholder groups like the Brazilian Coalition on Climate, Forests, and Agriculture—which brings together members from various sectors to tackle shared deforestation challenges—are crucial for addressing these complex, interconnected issues.
- Companies operating across the Amazon Basin should adopt zero-deforestation and zero-conversion commitments throughout the region, recognizing that deforestation transcends national borders and biomes. Industry leaders should spearhead this effort by establishing best practices and encouraging competitors to adopt a consensus-based set of minimum standards that address both the environmental and social components of sustainable production in the Amazon.
- It is important to recognize that commodity-driven deforestation is unevenly distributed across the Amazon region. This insight can help guide targeted support from consumer countries, including investments in land use mapping and traceability systems for compliance with environmental regulations, as well as programs supporting smallholders.
- Governments can consider using subnational deforestation estimates—such as those provided by DeDuCE—as a support tool for implementing public traceability and MRV (Monitoring, Reporting, and Verification) systems, or other measures aimed at achieving deforestation- and conversion-free supply chains at the national scale. Prioritizing their implementation in high-risk regions identified by the model would maximize short-term impact on deforestation.
- To ensure the sustainability of both domestic and international markets, Amazonian governments must significantly strengthen oversight of national supply chains for forest-risk commodities, while preparing to comply with international commodity regulations. They must also develop targeted strategies and interventions to address deforestation driven

by domestic consumption, tailored to specific subnational contexts.

- Neighboring countries should adopt more ambitious goals for this region within the framework of the COP30 Climate Conference, similar to Brazil's Forest Code, which requires 80% forest protection on private lands in most of the biome, treating 30% conservation as a minimum requirement, not a goal. Fulfilling these international commitments will require leveraging deforestation data in the Amazon to enable targeted interventions, improve supply chain transparency, and promote scalable, cross-sectoral

solutions to reduce and mitigate deforestation.

- There is a need to generate robust datasets that go beyond merely identifying deforestation in the Amazon and uncover the national, regional, and international supply chains that drive it, as well as the actors and financial sectors involved, in order to promote greater accountability among all stakeholders. In this regard, the next phase of this study, to be launched at COP30, will include information on trade and financial aspects related to the assessment of commodity-driven deforestation presented in this technical report.

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WWF has been working in the Amazon since the 1970s, guided by the vision of achieving “an ecologically healthy Amazon that sustains its environmental and cultural contributions to local communities, the countries of the region, and the world, within a framework of social equity, inclusive economic development, and global responsibility.” With the goal of preventing the Amazon from reaching an ecological point of no return, WWF launched the initiative “**The Amazon Push**,” which seeks to achieve three main objectives—or *Big Wins*: i) Achieve zero deforestation and conversion; ii) Eliminate illegal gold mining; and iii) Conserve at least 80% of the Amazon's forests, wetlands, and rivers by 2030. Within this framework, and as part of the first objective, we generate relevant information to support decision-making and promote the adoption of zero-deforestation and zero-conversion value chains across the Amazon.

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ENDANGERED AMAZONIA:

ILLICIT ECONOMIES AND CRIMINAL GOVERNANCE IN THE AMAZON: A THREAT TO THE REGION AND THE GLOBAL CLIMATE



AMAZONIA ALIVE:
**PROTECT +
RESTORE**
80% 2025
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



AMAZON WATCH

Technical Briefing: Key Takeaways

1. Amazon on the brink of collapse

The combination of accelerated deforestation, intentional fires, agricultural expansion, and mercury pollution is weakening the Amazon's resilience. If it loses its ability to absorb carbon, the region could become a net source of emissions, altering the global climate. Criminal economies are driving this process by promoting the systematic and unregulated destruction of forests.

2. Illicit economies as drivers of degradation

Coca cultivation, drug trafficking, and illegal gold mining generate billions of dollars a year. These economies attract international networks that invest in machinery, logistics, and money laundering. Their scale makes them major drivers of deforestation, river pollution, and biodiversity loss. Furthermore, their connection to global legal markets allows local damage to have global repercussions.

3. Criminal governance displaces the state

In regions with weak institutional presence, armed groups and criminal organizations impose rules of coexistence, collect illegal taxes, and exercise control over

strategic territories. This “criminal governance” limits state action, undermines local democracy, and prevents the implementation of environmental protection and human rights policies. For indigenous communities, this means living under constant threat and losing autonomy in their territories.

4. Triple border as the epicenter of Amazonian crime

In the area of Colombia, Ecuador, and Peru, groups such as FARC dissidents, the ELN, and transnational gangs converge to control strategic cocaine, gold, and arms corridors. This concentration of criminal power disrupts traditional indigenous governance structures and creates an environment of violence that prevents the defense of forests and community culture. The result is a vicious circle where insecurity reinforces the illegal exploitation of resources.

5. Impacts on human rights

Local communities suffer forced displacement, murders of leaders, recruitment of minors, and sexual violence as methods of social control. This violence fragments the community fabric and

weakens the capacity of Indigenous Peoples to manage their territories and protect them from invaders. The erosion of indigenous governance also opens the door to the expansion of illicit activities that directly affect the climate and biodiversity.

6. Massive environmental devastation

Illegal gold mining releases tons of mercury into rivers, contaminating fish and affecting the health of entire communities. The clearing and burning of forests to make way for coca crops or cattle pastures leads to accelerated deforestation, loss of biodiversity, and greenhouse gas emissions. These dynamics degrade ecosystems that are critical to global climate balance, with impacts that transcend borders.

7. Convergence with legal economies

Illegally mined gold, uncontrolled logging, and meat and soy produced on deforested land are inserted into global value chains. This intertwining blurs the boundaries between legal and illegal, giving the appearance of legitimacy to activities that destroy the Amazon. By normalizing criminal extraction, the agri-

cultural and mining frontier expands into indigenous territories and conservation areas, amplifying the climate crisis.

8. A regional and global threat

The criminalization of the Amazon is not only a national security problem for Amazonian states, but also a global challenge to climate security and biodiversity. The expansion of criminal economies in the rainforest means that the future of the world's largest tropical forest, and therefore the stability of the global climate, is in the hands of transnational illicit networks.

9. Strategic recommendations

Strengthening international cooperation is key: the Amazon Cooperation Treaty Organization (ACTO) needs to be aligned with the global commitments of the Paris Agreement and COP16 on biodiversity. It is also essential to protect indigenous territorial governance, ensure the safety of leaders and communities, and build sustainable economic alternatives that break the dependence on criminal economies. Without these measures, the Amazon will continue to be captured by illicit networks that threaten the climate, democracy, and human rights.

Summary

Illicit economies, criminal governance, and transnational organized crime networks have become one of the main threats to the Amazon and, by extension, to the global climate. This article explores the historical context and conditions that facilitated the expansion of organized crime, highlighting institutional weakness, porous borders, and the profitability of illicit economies due to high prices and demand in the global market. Through concrete examples from Colombia, Ecuador,

Brazil, Peru, and Venezuela, we illustrate how transnational crime networks and illicit economies have established criminal governance, creating conditions of exploitation in the Amazon and pushing it beyond the point of no return. Finally, we conclude that political responses to this situation must incorporate the perspective of human and climate security, placing indigenous territorial governance and the traceability of global chains at the center of the response.

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ILLICIT ECONOMIES AND CRIMINAL GOVERNANCE IN THE AMAZON: A THREAT TO THE REGION AND THE GLOBAL CLIMATE

1. INTRODUCTION

The Amazon covers 847 million hectares, making it the largest and most biodiverse tropical forest on the planet, regulating South America's hydrological cycles and stabilizing the global climate (MapBiomass Amazonia 2024). It is home to more than 500 Indigenous Peoples and contains one-third of known plant and animal species. It also has a carbon storage capacity of 56.8 gigatons of carbon, which could reach between 70 and 100 gigatons if the carbon reserves contained in the soil and necromass are included (Springer 2024). Its role as the world's lung and climate regulator is now seriously threatened by the expansion of multiple forms of extractivism—both legal and illegal—including mining,

oil, livestock, and agribusiness projects, as well as illicit economies and transnational organized crime networks. In recent years, these dynamics have shaped new forms of criminal and extractive governance in vast areas of the biome.

The Amazon is not isolated from global dynamics. On the contrary, it is deeply embedded in the illicit value chains that supply international markets with cocaine, gold, and timber, as well as meat, soy, oil, and other products. The rise in the international price of gold (UNODC 2024), the persistent demand for cocaine in North America and Europe, and the growing pressure on natural re-



Coca harvest. **Credit:** Tom Lafay.

sources have encouraged the expansion of criminal organizations with transnational networks. These groups take advantage of institutional weaknesses and limited state presence in the region to consolidate forms of criminal governance that replace the traditional functions of the state.

Beyond being a national security issue, this phenomenon must be understood as a challenge to climate and human security, as it compromises the forest's ability to regulate the global climate and the survival of the peoples who inhabit it. It also threatens indigenous, Afro-descendant, and peasant governance processes by eroding the community institutions that have historically protected the territory. The advance of organized crime in the Amazon represents simultaneously a crisis of governance, an attack on the self-determination of Indigenous Peoples, institutional and physical erosion of States, and a direct threat to the planet's climate stability.

Illegal gold mining and indiscriminate logging consolidated a criminal ecosystem that is expanding by taking advantage of porous borders and the profitability of illicit markets (WRI 2022).

2. EXPANSION OF ORGANIZED CRIME IN THE AMAZON

Historically, the Amazon has been the scene of successive extractive cycles: from the rubber boom in the 19th and early 20th centuries to oil and timber exploitation in the last century. These processes consolidated dynamics of violence, exclusion, and limited state presence. Since the late 20th century, coca cultivation and cocaine production have transformed the region into a strategic hub for drug trafficking. Subsequently, illegal gold mining and indiscriminate logging consolidated a criminal ecosystem that is expanding by taking advantage of porous borders and the profitability of illicit markets (WRI 2022). In this sense, the expansion of Amazonian illicit economies cannot be analyzed in isolation, but rather as part of transnational value chains that are connected to local territories, financial centers, and global consumption.

This historical process consolidated a pattern of accumulation and dispossession: the Amazon became a territory where extractive cycles, whether legal or illegal, develop under schemes of violence, exclusion, and criminal governance. The weak state presence in the Amazon creates gaps in authority and deepens the absence of basic services, making it easier for illegal actors to occupy that space. In addition, porous borders and corruption allow criminal networks to expand, operate with impunity, and consolidate their power. From a political economy perspective on violence, this pattern has been described as a system of “brown zones” where the state shares or loses its monopoly on coercion in the face of non-state armed actors (O'Donnell 1993). This power vacuum translates into growing vulnerability for indigenous and rural communities, who have

seen their territories transformed into illicit corridors occupied by foreign actors seeking to control access to resources through coercion and violence.

Between 2016 and 2025, multiple factors converged in a perfect storm that expanded the influence of organized crime: i) high prices and demand for gold (since 2022) and cocaine on the global market (Gold-Price 2025), combined with the impoverishment and abandonment of Amazonian populations; ii) permissive or complicit policies in Venezuela¹, Brazil², Peru³, and Bolivia⁴ have contributed to the expansion of illicit economies; iii) the incomplete implementation of the peace agreement in Colombia left power vacuums that have been disputed by different criminal organizations; and iv) finally, the pandemic diverted state resources, reduced security operational capacity, and expanded opportunities for illegal control. Various UN-ODC reports (2021; 2023) show that these factors did not act in isolation, but rather reconfigured criminal routes and markets throughout the Amazon basin, with visible impacts on the dynamics of drug trafficking, mining, and logging.

The ecosystem of armed control and criminal governance was also transformed: the

The expansion of Amazonian illicit economies cannot be analyzed in isolation, but rather as part of transnational value chains that are connected to local territories, financial centers, and global consumption.

fragmentation of the Revolutionary Armed Forces of Colombia (FARC), the consolidation of the presence of the National Liberation Army (ELN) in Venezuela, and the breakdown of the pact between the Comando Vermelho (CV) and the Primeiro Comando da Capital (PCC). In Brazil, this triggered prison massacres and criminal reconfigurations, bringing their dispute to the Amazon. The escalation and fragmentation of Ecuadorian criminal groups, which have

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- 1 See International Crisis Group (2017), report on how the Orinoco Mining Arc decree enabled extractive operations in protected areas and facilitated the advance of criminal networks.
 - 2 Human Rights Watch (2021) describes how, during the Jair Bolsonaro administration, regulations such as bill PL 191/2020 and the reduction of environmental penalties contributed to the expansion of illegal mining on indigenous lands.
 - 3 The Peruvian Society for Environmental Law (2023) and various analyses of the REINFO (Registry of Informal Miners) point out how the constant extension of permits allows operations to continue without rigorous controls.
 - 4 The Institute for Socioeconomic Research and Community documents that mercury remains legal for artisanal mining and that Bolivia is a key importer in the region, facilitating its availability throughout the Amazon.

The weak state presence in the Amazon creates gaps in authority and deepens the absence of basic services, making it easier for illegal actors to occupy that space.

also expanded their influence in the Amazon region, contributed to this as well. Our field research, conducted with the *Amazon Underworld* team in six countries, found the presence of armed groups and crime syndicates in 70% of the municipalities analyzed, with at least one armed actor stationed at each Amazonian border; this presence imposes “criminal governance” on millions of people (Amazon Watch 2023).

Today, the Amazon has become a global corridor for organized crime. Colombia, Peru, and Bolivia maintain high rates of coca cultivation, with Colombia reaching 253,000 hectares in 2023—a 10% increase over 2022—and recording the highest potential cocaine production worldwide (UNDOC 2024 b). This production is transported to the United States, Europe, Asia, Africa, and Brazil via a variety of land, river, and air routes.

At the same time, illegal gold mining has established itself as one of the main criminal economies in the region: in 2020, at least 4,500 sites had been identified in the Amazon (RAISG 2020), but more recent estimates by international organiza-

tions show that the scale and profitability of this activity have increased dramatically, moving between \$12 billion and \$48 billion annually worldwide (Interpol 2022), with Latin America as one of the main epicenters (Fact Coalition 2025). Both economies converge in a functional way: coca finances machinery and bribes, while gold launders profits and reduces legal risks.

Other illicit economies, such as biodiversity trafficking, human and arms trafficking, illegal logging, and extortion, fuel the economic and political power of transnational crime networks. Their activities also have a large presence in formal economies and politics. From the political economy of violence, this network forms parallel orders that replace state functions and reconfigure markets and territories, reinforcing the convergence between legal and illegal extractivism.

3. CRIMINAL GOVERNANCE: THE CASE OF THE TRIPLE FRONTIER

To understand how this criminal governance works, it is useful to review the case of the triple border between Colombia, Ecuador, and Peru, which has become one of the most violent areas in the Amazon. In our report produced with Amazon Underworld, *“In the Shadows of the State”* (Amazon Underworld 2025), we analyze how this model of power is characterized by the comprehensive control exercised by armed groups and criminal organizations over territories, communities, and natural resources. Our findings reveal that criminal governance has succeeded in consolidating illicit corridors along cross-border rivers and transforming the sociocultural dynamics in the area through the impacts of armed coercion.

The main armed actors are the Comandos de la Frontera and other dissident factions of the FARC in Colombia, which, following the 2016 peace agreement, expanded their influence into Ecuador and Peru, as well as Ecuadorian gangs such as Los Lobos and Los Choneros, which moved from operating in urban and prison environments to establishing themselves in the Amazon. These groups are not only involved in drug trafficking and illegal mining—forming pragmatic alliances with those who regulate access to machinery, fuel, and river corridors—but have also developed structures of social and political domination that replace the state in regions where institutions are weak or non-existent (Amazon Underworld 2025).

The basis of criminal governance is the illicit economy. Coca cultivation and cocaine trafficking are the main sources of

financing, with Putumayo, Sucumbíos, and Peruvian Amazonian areas as the epicenters of production and logistics. Added to this dynamic is illegal gold mining, which uses mercury and causes serious environmental damage, while generating revenues that rival those of drugs. These activities are coordinated through river corridors such as the Putumayo, Caquetá, and Napo rivers, which simultaneously serve as transport routes for cocaine, gold, and weapons.

The insertion of these products into international markets—cocaine to the United States, Europe, and Africa; gold to global supply chains that are difficult to trace—turns criminal governance into a cog in transnational economies that transcend Amazonian borders. Evidence of illegal gold exported from Guyana, Suriname, and Peru to the United Arab Emirates and Swit-



Puerto Leguizamo in the Tri-Border area of Peru, Ecuador, and Colombia. *Credit: Raphael Hoetmer, Amazon Watch*

zerland confirms the difficulty of tracing these flows and preventing the laundering of money obtained from drug trafficking (OECD 2023).

Therefore, the control exercised by armed groups is not limited to the economic sphere, but rather constitutes a parallel system of authority that imposes social norms through curfews, violent sanctions, surveillance of communications, and the administration of “justice” by their own hands. They collect “taxes” from producers and traders, regulate prices, and manage access to land and resources, becoming arbiters of daily life. In addition, they co-opt or intimidate traditional and indigenous authorities, weakening their community governance structures. The forced recruitment of minors and young people fuels the sustainability of these organizations, perpetuating cycles of violence and social breakdown.

The impact on local communities is devastating. Indigenous peoples, Afro-descendants, and peasants suffer forced displacement, confinement, selective killings, and a constant climate of fear. Cultural autonomy is eroded as traditional institutions are penetrated by criminal logic, and environmental devastation directly affects the livelihoods of populations that depend on rivers, forests, and soils for their survival. The loss of biodiversity, mercury pollution, and deforestation compromise not only local life but also global climate stability.

All this occurs in a context of structural state weakness. The presence of Colombia, Ecuador, and Peru in these areas is fragmented and episodic, marked by military operations that fail to establish security and, at times, increase abuses against civilians. Corruption in security forces and local authorities facilitates the consoli-



Clandestine landing strip in Reserve for indigenous people in isolation. **Credit:** Aidesep

dation of criminal power. In addition, the lack of cross-border coordination allows groups to take advantage of porous borders to take refuge or move their operations without hindrance. In this scenario, criminal actors not only fill a power vacuum, but also build their own order which, although based on coercion, ends up being the frame of reference for communities that find no protection or opportunities in the state.

In short, criminal governance in the Amazonian triple border area is configured as an alternative system of power that combines territorial control, social discipline, and transnational illicit economies. This criminal governance has not only replaced and undermined state authority, but has also selectively incorporated its functions, appropriating its resources, local institutions, and even symbols of authority to reinforce its coercive legitimacy.

In this way, criminal governance is not limited to reaffirming the absence of the state, but also challenges the very concept of sovereignty: it belongs to the realm of the illicit, but it feeds on formal structures, legally established institutions, and business actors that legitimize and facilitate its permanence. At the same time, it is true that, given the state's abandonment of the Amazon, it is these actors who provide economic opportunities, work, and even various services to local populations. As a result, new forms of colonization are emerging, where indigenous and rural communities are treated as populations administered for the benefit of illicit and extractive networks.

Similar situations are repeated throughout the Amazon, such as in the Triple Frontier of Colombia, Brazil, and Peru, on the border between Venezuela and Colombia, in

The triple border between Colombia, Ecuador, and Peru, which has become one of the most violent areas in the Amazon.

Guaviare in Colombia, in the Mining Arc in Venezuela, Madre de Dios and Ucayali in Peru, and in several Amazonian states in Brazil. Comparative evidence in these areas shows patterns of local institutional capture, social disciplining, convergence of illegal economies, articulation with formal legal chains, reinforcing the logic of "criminal governance" as a substitute order. In other words, we are facing a structural problem that must be analyzed at the regional level, implementing intersectional approaches where human rights and climate security provide us with the introspection and foresight needed to address the future scenarios we face as a region.

4. IMPACTS ON THE RIGHTS OF AMAZONIAN COMMUNITIES AND THE ENVIRONMENT

The impacts of criminal governance are manifold: they undermine state authority, destroy the community fabric, systematically violate human rights, and cause irreparable environmental damage.

The Indigenous Peoples of the Amazon face devastating impacts from criminal expansion. Entire communities are being dispossessed of their territories, while

mercury pollution and deforestation threaten their traditional ways of life. In Brazil, the Mundurucu and Kayapó territories have suffered massive invasions by illegal miners who are destroying the rivers and forests on which they depend for their livelihoods. The Kakataibo and Ashaninka peoples suffer a similar situation at the hands of drug traffickers in Peru. Between 2020 and 2024, six Kakataibo leaders were murdered in Ucayali in retaliation for their opposition to coca and illegal logging; FENACOKA reported previous threats, evidencing a pattern of criminal retaliation (Mongabay 2024). In Colombia, the Constitutional Court has identified risks to the survival of entire peoples, while human rights networks have documented that more than 50% of the murders of environmental defenders in the country between 2020 and 2023 occurred in indigenous Amazonian terri-

tories. Sexual violence against indigenous women, the forced recruitment of children, and the murders of environmental leaders constitute serious violations of the human rights and cultural survival of these peoples. According to Global Witness (2023), in 2022, one in five deaths of environmental defenders worldwide occurred in the Amazon, revealing the magnitude of the risk in the region.

In Venezuela, reports from the United Nations Human Rights Council (UN 2022) describe conditions of forced labor and modern slavery in the Orinoco Mining Arc, where indigenous communities are forced to pay extortion fees or work under threat. In Brazil, Federal Police operatives seized military weapons from garimpeiro camps in 2023, illustrating the criminal militarization of conflicts over gold (Policia Federal do Brasil 2023).



Kakataibo Guard. **Credit:** Jhomar Maynas

The environmental impact of organized crime in the Amazon is profound and multifaceted. Illegal mining contaminates rivers with mercury, causing irreversible damage to aquatic ecosystems and human health in areas such as Napo in Ecuador and Maynas in Peru. In Kichwa communities in the Napo, community biomonitoring has identified mercury levels above WHO safety limits (Amazon Watch, 2024), compromising food security and the health of entire generations.

Illegal logging contributes to the degradation of critical ecosystems and the loss of biodiversity. Drug trafficking, for its part, opens up corridors of deforestation in national parks and protected areas. In Venezuela, the Orinoco Mining Arc has devastated thousands of hectares of forest (Transparencia Venezuela 2022), while in Brazil, the expansion of criminal groups into Amazonian states such as Pará and Roraima has accelerated forest destruction (Mongabay 2025). Fires, often set to clear new areas for exploitation, also generate massive greenhouse gas emissions.

Organized crime also erodes the rule of law in the Amazon. Local mayors' offices, justice systems, and security forces are co-opted or intimidated. Institutional corruption facilitates the expansion of criminal networks and limits the state's capacity to respond. Violence becomes a daily occurrence: homicides, massacres, forced displacement, and threats against social leaders are common. In Amazonian cities, homicides are skyrocketing: Manaus records 54.5 homicides per 100,000 inhabitants, Tabatinga 106.6, and Leticia 60.

In rural areas such as Putumayo, disputes between factions have led to 21 massacres since 2020, and in Ecuador, it is the Ama-

zonian provinces of Sucumbíos and Orellana where the homicide rate has grown the most in 2024 in a country overwhelmed by violence. In Putumayo, Colombia, intermittent displacements of at least 12 indigenous communities have been documented since 2022, fragmenting social life and weakening territorial governance processes (Ombudsman's Office 2022 to 2025). In Ecuador, FOIN has recorded the displacement of community leaders and technicians threatened by illegal miners, directly affecting environmental monitoring processes.

5. CRIMINAL GOVERNANCE, THE POINT OF NO RETURN, AND CLIMATE CHANGE

Climate and ecological threats—such as deforestation, mercury pollution, and violence associated with illicit economies—directly impact the physical and cultural integrity of Amazonian Indigenous Peoples. However, state responses to security issues continue to focus on militarization and securitization strategies that prioritize territorial control over addressing structural causes.

Entire communities are being dispossessed of their territories, while mercury pollution and deforestation threaten their traditional ways of life.

These strategies do not address historical inequalities, the unequal distribution of wealth, or disputes over common goods. Instead of strengthening the resilience of Indigenous and rural communities, securitization deepens their exclusion and vulnerability. This approach is at odds with contemporary notions of “climate security,” which argue that the protection of ecosystems is inseparable from human security and social justice. This situation calls for an urgent review of national security strategies in Amazonian countries, moving toward comprehensive human security that incorporates human rights approaches, climate justice, and differentiated protection for Indigenous Peoples.

In this context, criminal governance has consolidated itself as one of the dominant forces in vast areas of the Amazon, in many cases displacing state authority

and imposing a system of control based on violence, coercion, and resource capture. This phenomenon directly affects the capacity of Amazonian countries and local communities to protect the forest and maintain their traditional systems of governance. Its impacts are multiple: some direct, such as deforestation and environmental degradation resulting from illicit economies; and others indirect, such as the erosion of community institutions and the weakening of the management of parks and nature reserves that until recently had contained destruction. Taken together, this web pushes the Amazon toward the dreaded point of ecological no return. Scientific literature warns that this threshold will be reached if total deforestation exceeds 20% to 25% of the biome, degrading the Amazon rainforest into a savanna and generating irreversible climatic consequences (Lovejoy 2020).



Coca plantation in Putumayo. **Credit:** Tom Lafay

Criminal governance not only sustains illicit economies such as drug trafficking, illegal logging, and clandestine logging, but is also intertwined with forms of formal extractivism. Through corruption, the capture of local authorities, and territorial control, these criminal actors create conditions conducive to the expansion of activities such as cattle ranching, logging, and even mining, oil, and energy projects on previously dispossessed or degraded territories. In this way, illegal circuits open roads, clear land, and displace communities, while formal sectors benefit from this infrastructure of violence and dispossession, allowing the extractive frontier to advance with an appearance of legality but on deeply illegitimate and destructive foundations.

Illicit economies—illegal gold mining, indiscriminate logging, and drug trafficking—are the main drivers of this criminal governance. Each leaves behind devastated landscapes: ravaged forests, arson, rivers contaminated with mercury, invaded indigenous territories, and displaced or subjugated communities. These activities do not operate in isolation, but are linked to formal economies that launder their illicit origins, such as cattle ranching or the timber trade, thus consolidating a criminal ecosystem that penetrates ever deeper into the forest.

The crisis facing Ecuador's Amazonian indigenous communities (Amazon Watch 2024) shows that illegal gold mining in Ecuador has created different corridors of expansion where massive deforestation, contamination of rivers with heavy metals and mercury, weakening of indigenous governance projects, and an increase in murders, extortion, and social fragmentation that threaten the cultural and physical survival of indigenous peoples. In Peru, Ecuador, Brazil, and other areas, studies have

documented mercury levels in indigenous communities well above safety thresholds, highlighting the severity of the contamination. This vicious cycle contaminates, sickens, and weakens local governance, opening up even more space for criminal networks.

Illegal logging, for its part, opens gaps in the forest that facilitate fires and conversion to pasture. Recent research shows that about 40% of timber extraction in the Brazilian Amazon is unlicensed, and a significant portion occurs within protected areas. Although Brazil managed to reduce total deforestation in 2023–2024, illegal logging increased by 19%, demonstrating the adaptability of these networks. This timber often enters global chains through fraudulent documentation, making traceability difficult and facilitating money laundering.

Livestock farming represents the final destination for much of the deforested land. *Cattle laundering* is also a money laundering technique that involves rais-

Criminal governance not only sustains illicit economies such as drug trafficking, illegal mining, and clandestine logging, but is also intertwined with forms of formal extractivism.

ing cattle in protected or illegally deforested areas. Laundering occurs when cattle are moved from illegal or seized properties to “clean” farms with falsified or incomplete documentation, concealing their origin and thus enabling their entry into legal supply chains. This undermines international commitments to zero deforestation. Globally, conversion to pasture is responsible for almost half of the loss of forests in South America, and the Amazon is one of the epicenters of this dynamic.

Drug trafficking adds another significant pressure: coca cultivation is expanding rapidly. In 2023, Colombia reached a record 253,000 hectares of coca, with much of it concentrated in Amazonian areas; Peru reported more than 92,000 hectares, many in Amazonian micro-basins and indigenous territories (UNODC 2024). In addition to crops, there are clandestine airstrips, laboratories, and illegal corridors that further fragment and

degrade the forest. Between 2018 and 2022, the Amazonian territories of Colombia, Ecuador, and Peru lost more than one million hectares, largely due to the expansion of coca.

These drivers of illegality are part of a global dynamic of organized crime and criminal governance that combines armed violence, institutional corruption, and illicit economies. Wherever they advance, communities lose control over their territories, traditional environmental protection systems are weakened, and the forest becomes a net source of carbon emissions. Recent studies show that parts of the eastern Amazon already emit more CO₂ than they absorb, bringing the entire region closer to the critical threshold at which the forest could collapse into a degraded savanna ecosystem.

It is particularly worrying that they are managing to penetrate the hitherto most protected areas of the forest, where community territorial governance had remained more intact. Self-determination processes, such as the Autonomous Territorial Government of the Wampis Nation or the Mundurucu in Brazil, are facing both attacks from outside and internal pressures from these activities.

In this context, the literature on “tipping points” in the biome reinforces the link between ecological degradation and climate security, emphasizing that the loss of forest resilience also translates into greater social and political vulnerability for the populations that inhabit it. Hence, the defense of the Amazon cannot be understood solely as environmental conservation, but rather as a global human and climate security strategy that articulates the care and protection of biodiversity, human rights, and social peace.

Organized crime in the Amazon is not a marginal phenomenon, but a structural threat that compromises both regional stability and the planet’s climate balance.

Conclusions and recommendations

Organized crime in the Amazon is not a marginal phenomenon, but a structural threat that compromises both regional stability and the planet's climate balance. The expansion of illicit economies has created a network of criminal governance that replaces the state in vast areas, with devastating consequences for Indigenous Peoples, ecosystems, and the security of the region.

Evidence shows that the Amazon is on the verge of an ecological tipping point, largely driven by criminal dynamics. If deforestation reaches critical levels, the collapse of the Amazon ecosystem will have global repercussions. Faced with this reality, political responses must transcend traditional security approaches and comprehensively address the social, environmental, and climatic dimensions of the problem.

Faced with the growing threat of organized crime in the Amazon, a comprehensive and regional political response is required that combines security, environmental protection, and social development. The experience of recent decades shows that militarized responses, isolated from a human rights and sustainable development approach, have not been effective. Therefore, six dimensions must be considered:

1. Strengthen regional cooperation - the Amazon Cooperation Treaty Organization (ACTO) must be strengthened as a mechanism for cross-border coordination. The recent Amazon Summit in Belém in 2023 marked a step forward in building a common agenda, which was confirmed at the Summit in Bogotá in

2025, but these commitments have yet to be translated into concrete actions. For its part, the Andean Community of Nations has been advancing cooperation initiatives to combat illicit economies, particularly illegal gold mining. Such cooperation should prioritize the inclusion of Indigenous Peoples in decision-making mechanisms and ensure that their proposals for territorial governance are a binding part of regional agreements.

2. Implement international commitments and agreements that link biodiversity and climate justice with security and policies against organized crime - COP16 on biodiversity and the Paris Agreement on climate change provide global frameworks in which the Amazon must be prioritized as a critical ecosystem. Linking the fight against illicit economies with international climate commitments would allow for the channeling of greater financial resources and the strengthening of international cooperation. In this regard, climate finance commitments should be directed towards schemes that strengthen human security, the protection of defenders, and indigenous governance initiatives, rather than replicating models of militarized securitization. To this end, a protocol on crimes affecting the environment at the COP on Transnational Crime (UNTOC), which places indigenous territorial governance at the center, is essential.

3. Strengthen the protection of environmental defenders and Amazonian peoples - Indigenous Peoples are the

main guardians of the forest, but also the most exposed victims. It is essential to guarantee their safety through collective protection mechanisms, recognition of territorial rights, and strengthening of their traditional economies. The self-determination of peoples such as the Wampís, Munduruku, and FOIN demonstrates that indigenous governance systems are the most effective defense against the expansion of illicit economies.

4. Promote alternative economies rooted in conservation

- Alternative development and sustainable policies must offer real alternatives to communities that currently depend on illicit economies. Programs to replace illicit crops, incentives for sustainable forest economies, and access to fair markets are necessary measures. These programs will only be successful if they are designed with community participation and respect for the worldview of indigenous and/or rural communities, avoiding the reproduction of welfare schemes or state imposition.

5. Confront corruption and state complicity

- Institutional strengthening and the fight against corruption are essential. Without strong institutions, any strategy will be insufficient. Justice systems and environmental prosecutors must be strengthened, the legitimate presence of the state in isolated territories must be increased, and transparency in the use of resources must be guaranteed

6. Ensuring traceability of natural resources

involves certification and tracking the entire supply chain of gold, timber, and other products, which

is key to reducing incentives for illicit economies. Cooperation with consumer countries, especially in Europe and Asia, is essential. However, this traceability will only be effective if the convergence between illegal economies and formal extractive chains, such as large-scale livestock farming and mining, which often benefit from the infrastructure of dispossession and violence created by criminal networks, is also controlled.

7. Regulating supply chains

is essential to close the critical links that feed criminal markets: (i) mercury and chemical precursors: despite the Minamata Convention, smuggling remains a central factor in illegal mining; mandatory traceability, strict customs controls, and cross-border sanctions are urgently needed; (ii) Laundering of illegal gold: without robust verification and due diligence mechanisms, illicit gold enters formal markets through lax certifications and triangulated exports; (iii) Inputs and facilities: effective monitoring and regulation of machinery, fuels, and other critical inputs associated with these chains. Likewise, controlling illicit financial flows and cooperating with financial centers and consumer countries are necessary conditions for dismantling the criminal profits that put pressure on indigenous territories and biodiversity.

In short, policy responses require a holistic approach that combines local, regional, and international action, with the active participation of communities and a sustained commitment from Amazonian states and the international community. The defense of the Amazon must be understood as a global climate security strat-

egy, in which biodiversity, human rights, and social peace converge. The future of the Amazon is also the future of the planet. For decision-makers, this challenge requires the coherence of public policies based on international cooperation, the protection of human rights, institutional

strengthening, and a real commitment to sustainability. The window of opportunity for action is rapidly closing: the time for fragmented responses is over; it is time to build coordinated and decisive action to ensure that the Amazon remains the green heart of the world.

About the authors

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Sofía Jarrín Hidalgo is an Ecuadorian anthropologist and international advocacy advisor for the Western Amazon at Amazon Watch. With more than 16 years of experience in human rights, Indigenous Peoples, environmental justice, and corporate abuse in Latin America, she has articulated grassroots mobilization with international diplomacy to drive structural change. Her current work focuses on the intersection of organized crime, illegal economies, and Indigenous territorial governance in the Amazon basin.

Amazon Watch is a non-profit organization founded in 1996 to protect the rainforest and promote the rights of Indigenous peoples in the Amazon basin in Ecuador, Peru, Colombia, and Brazil. We work in solidarity with Indigenous and environmental organizations on campaigns for human rights, corporate responsibility, and the preservation of the Amazon's ecosystems. We are part of the 80x25 campaign.

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ENDANGERED AMAZONIA

EXTRACTIVE THREATS IN THE AMAZON: OIL, GAS, AND MINING CONCESSION OVERLAP WITH INDIGENOUS TERRITORIES AND KEY BIODIVERSITY AREAS



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



Key Takeaways: Key Messages

1. Critical overlap between extractive concessions and Indigenous territories:

more than 30 million hectares of Indigenous territories (12%) are compromised by hydrocarbons and 9.2 million hectares (4%) by mining, undermining the territorial and cultural integrity of Amazonian peoples.

2. Key Biodiversity Areas (KBAs) are under pressure:

around 25.6 Mha (14%) overlap with oil and gas, and 19.7 Mha (10%) with mining, threatening unique habitats and regional ecological resilience.

3. High-integrity forests at risk:

in the Amazon, 66 Mha (13%) of *intact* forests are threatened by oil and gas. Their degradation would compromise rainfall regu-

lation and carbon storage, with regional and planetary impacts.

4. Cases from five Amazonian countries reveal a systemic pattern:

from mining expansion in Brazil to pressure on PIACI in Peru, overlaps in Ecuador, vulnerability in Bolivia, to oil in Colombia, all Amazonian countries face critical tensions between conservation and extraction.

5. The protection of Indigenous territories is essential to meet global commitments:

without securing rights, strengthening PIACI reserves, and applying moratoriums in critical areas, it will be impossible to achieve the 30x30 Target of the Global Biodiversity Framework or the climate goals of the Paris Agreement.

Photo: Macaws flying over the Peruvian jungle. **Credi:** Rhett Ayers Butler/Mongabay

Summary

This article shows how the expansion of oil, gas, and mining industries in the Amazon directly threatens the territorial integrity, culture, and survival of Indigenous Peoples, as well as Key Biodiversity Areas. Most of the analysis is based on data from Earth Insight (Earth Insight et al. 2024) in the nine countries. However, this analysis presents regional results and specifically those of five Amazonian countries: Brazil, Peru, Ecuador, Colombia, and Bolivia. This analysis only covers legal concessions; therefore, it is essential to clarify that the data does not include illegal mining.

More than 30 million hectares of Indigenous territories are overlapped by hydrocarbon blocks and 9.2 million with mining concessions, weakening their autonomy and ways of life. This pressure critically affects Peoples in Isolation and Initial Contact (PIACI), whose survival depends on reserves that are increasingly vulnerable to extractive and legislative initiatives. The intensity of the extractive industries' presence varies from country to country. In Ecuador and Colombia, many Indigenous territories coincide with oil blocks, while in Bolivia and Brazil, mining increases this threat. Indigenous Peoples are essential

custodians of the forest and stewards of biodiversity, so their protection is indispensable to meeting the 30x30 Target and the Paris Agreement. This article's conclusions make an urgent call to fully recognize their rights, including guaranteeing Free, Prior, and Informed Consent (FPIC), strengthening their territories, and ensuring direct financing.



Credit: Rhett Ayers Butler/Mongabay

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EXTRACTIVE THREATS IN THE AMAZON: OIL, GAS, AND MINING CONCESSION OVERLAP WITH INDIGENOUS TERRITORIES AND KEY BIODIVERSITY AREAS

INTRODUCTION

The Amazon is a living system that regulates the global climate, is home to unparalleled biodiversity, and sustains the cultural ways of life of more than 400 Indigenous groups (COICA 2025). It is home to some of the planet's last high-integrity tropical forests, as well as extensive Indigenous territories and Key Biodiversity Areas (KBAs). However, the expansion of industrial oil, gas, and mining concessions threatens to irreversibly fragment and degrade these ecosystems and ancient ways of life.

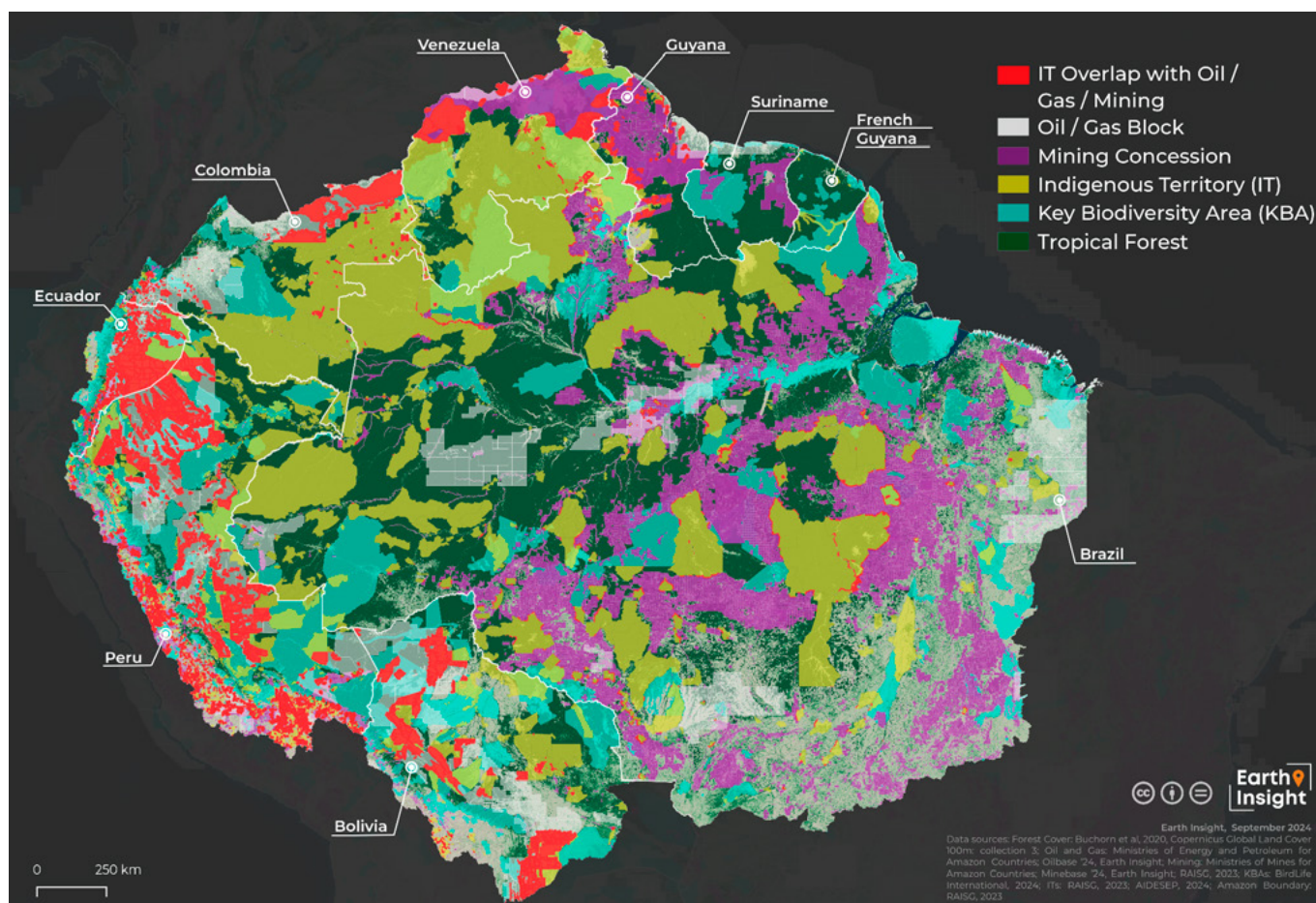
THE MAGNITUDE OF EXTRACTIVE THREATS AT THE REGIONAL LEVEL

Earth Insight's analysis shows that extractive concessions cover critical areas of the Amazon. **Regional maps show significant overlaps between oil, gas, and legal mining blocks with Indigenous territories, KBAs, protected areas, and high-integrity forests** (Earth Insight et al. 2024).

Alarming, 30 million hectares (Mha) of Indigenous territories (12% of their total doc-



Oil megaprojects operate in Colombia's Amazon region. *Credit: Shutterstock, 2018*



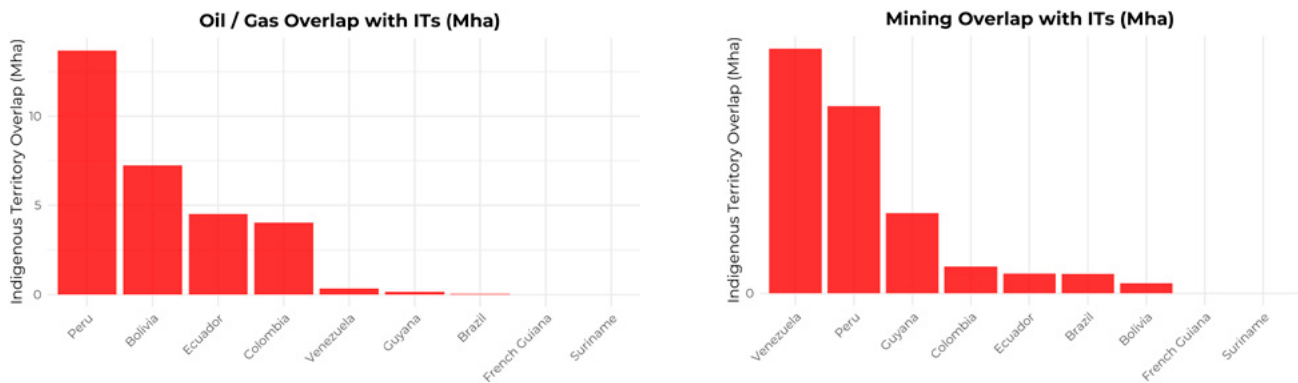
MAP 1: Overlap of oil and gas concessions and mining in the Amazon with Indigenous Territories and areas of high ecological and social value.

Source: Earth Insight et al. 2024, 15.

umented territories¹⁾ in the Amazon are under oil and gas concessions (Earth Insight et al. 2024, 13). This overlap represents more than one-tenth of the lands documented as belonging to Indigenous Peoples in the region, indicating that the oil frontier directly threatens their territorial integrity (Earth Insight et al. 2024, 15). Another 9.2 Mha (4%) of Indigenous territories overlap with mining concessions (Earth Insight et al. 2024, 15). It should be noted that this analysis does not cover the impact of illegal mining.

This overlap is shown in Map 1 below. The map, which uses the Amazon boundary defined by RAISG, shows mining concessions (in purple) and oil and gas blocks (in white) across the Amazon, as well as Indigenous territories and Key Biodiversity Areas. The areas in red highlight Indigenous territories overlapped by extractive industries. Map 2 shows the overlap between Key Biodiversity Areas and extractive industries in red.

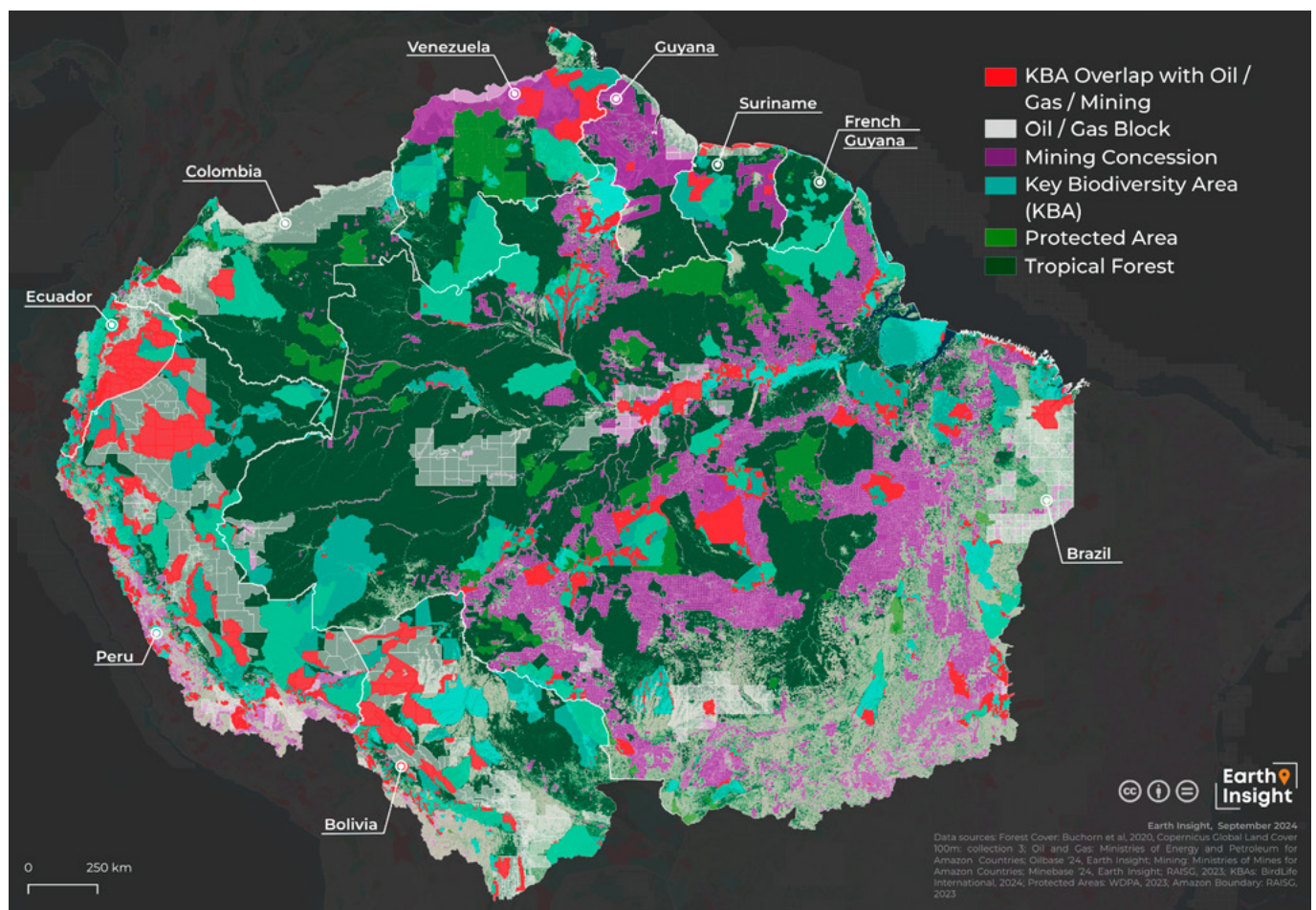
¹ Documented indigenous territories include not only titled or recognized territories, but also territories that are in the process of official titling or demarcation and, in some cases, territories that are not yet recognized but have been mapped or documented.



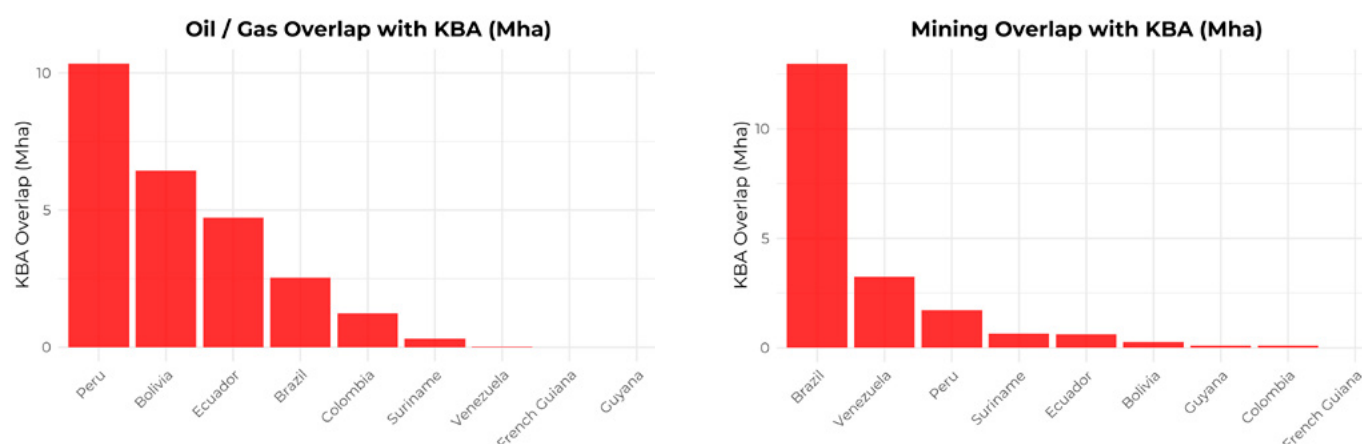
Figures 1 and 2: Overlap of oil and gas concessions and mining with Indigenous Territories in the Amazon. More than 30 million hectares of oil and gas and 9 million hectares of mining concessions overlap with Indigenous territories (*Earth Insight et al. 2024, 15*).

On the other hand, **25.6 Mha (14%) in the Amazon are under oil and gas concessions, and 19.7 Mha of KBAs (10%) overlap with mining concessions** (*Earth Insight et*

al. 2024, 14). In addition, at least 4.1 Mha of protected areas in the Amazon are overlapped by hydrocarbon projects (*Earth Insight et al. 2023, 7*).



MAP 2: Overlap of oil and gas concessions and mining in the Amazon, which degrade Key Biodiversity Areas.
Source: *Earth Insight et al. 2024, 14*.



Figures 3 and 4: Overlap of oil and gas concessions and mining concessions in the Amazon, which degrade Key Biodiversity Areas. More than 25 million hectares of oil and gas and 19 million hectares of mining concessions overlap with Key Biodiversity Areas (*Earth Insight et al. 2024, 14*).

High-integrity forests, characterized by low fragmentation and high levels of ecological connectivity, are particularly vulnerable to industrial concessions. At the pantropical level, more than 180 Mha of high-integrity tropical forests—an area twice the size of Venezuela—are overlapped by extractive industries (*Earth Insight et al. 2024, 9*). In

the Amazon, there are 513 Mha of high-integrity forests, of which 66 Mha (13%) are threatened by oil and gas blocks (*Earth Insight et al. 2024, 15*). The degradation of these forests would negatively impact continental rainfall regulation and carbon storage, with serious consequences, not only regionally but also globally.



Aerial panoramic view of the Cerros de Mavicure—three imposing granite monoliths that rise above the Amazon rainforest in the department of Guainía, Colombia, 50 km south of Inírida. **Credit:** Shutterstock, 2024.

FIVE COUNTRIES, COMMON REGIONAL THREATS

Brazil: mining and oil in the largest Amazon forest

Brazil is home to more than 60% of the Amazon. Research from Earth Insight shows that oil and gas blocks in the Brazilian Amazon overlap with more than 47,000 hectares (0.04%) of Indigenous territories (Earth Insight et al. 2024, 15). If combined with legal mining, i.e., mining with state concessions, spatial analysis reveals that active or planned mining concessions in Brazil cover around 300,000 hectares (0.26%) of Indigenous territories (Earth Insight et al. 2024, 15).

In Brazil, most extractive pressure is concentrated in KBAs, with 2.5 Mha overlapped by oil and gas blocks and almost 13 Mha overlapped by mining concessions, representing 3% and 15% of the Brazilian Amazon, respectively (Earth Insight et al. 2024, 15). KBAs are identified to contribute to the management of lands and waters with high levels of biodiversity and to prevent the loss of this unique biodiversity. The magnitude of this overlap with extractive industries makes the country a critical case, as pressure from mining, oil and gas is concentrated in areas where some of the most intact forests in the Amazon persist.



Aerial view of the Amazon rainforest near Manaus, capital of the Brazilian state of Amazonas. **Credit:** Neil Palmer/CIAT via Flickr.

Peru: numerous overlaps in Indigenous territories

In Peru, the data paint a grim picture: more than 35% of the Peruvian Amazon has been covered at some point by oil and gas concessions (Earth Insight et al. 2024, 15). This includes 13.7 Mha (39%) of Indigenous territories overlapped, which compromises both their territorial security and the conservation of unique ecosystems (Earth Insight et al. 2024, 15). Mining adds an additional layer of pressure: about 2.9 Mha (8.4%) of mining concessions overlap Indigenous territories (Earth Insight et al. 2024, 15).

Meanwhile, 10.3 Mha of Amazonian KBAs in Peru (26%) are overlapped by oil and gas, and an additional 1.7 Mha are overlapped by mining (Earth Insight et al. 2024, 14). This overlap reveals that the two extractive industries operate in areas that are key for biodiversity, increasing the risk of irreversible ecosystem loss.

There are 185 Indigenous Peoples in Isolation and Initial Contact (PIACI) in the Amazon (Land Is Life 2022). The case of Peru includes an analysis of PIACI Reserves and extractive industries. Despite being highly vulnerable, some PIACI peoples in Peru are currently at risk and others have already entered into processes of forced contact due to the presence of extractive industries. Below, we summarize the current situation of PIACI peoples in Peru and the industries present in their territories.

Peoples in Isolation and Initial Contact and the importance of Protected Areas in the Peruvian Amazon

The term “Peoples in Isolation and Initial Contact” (PIACI) refers to Indigenous Peoples who have chosen to live in voluntary isolation or who are in the early stages of contact with the outside world (Peru



View of the Amazon rainforest from Tambopata, Peru. *Image credit: Edwin Bellota via Flickr, 2017.*

2006). In many cases, these communities have deliberately avoided contact in order to protect their cultural heritage and traditional ways of life, as well as to protect themselves from the dangers of disease and violence from external contact (IA-CHR 2013).

Despite the recognition of their rights at the national and international level (IA-CHR 2013), PIACI communities remain extremely vulnerable to external pressures that threaten their existence and the preservation of their unique cultural identities.

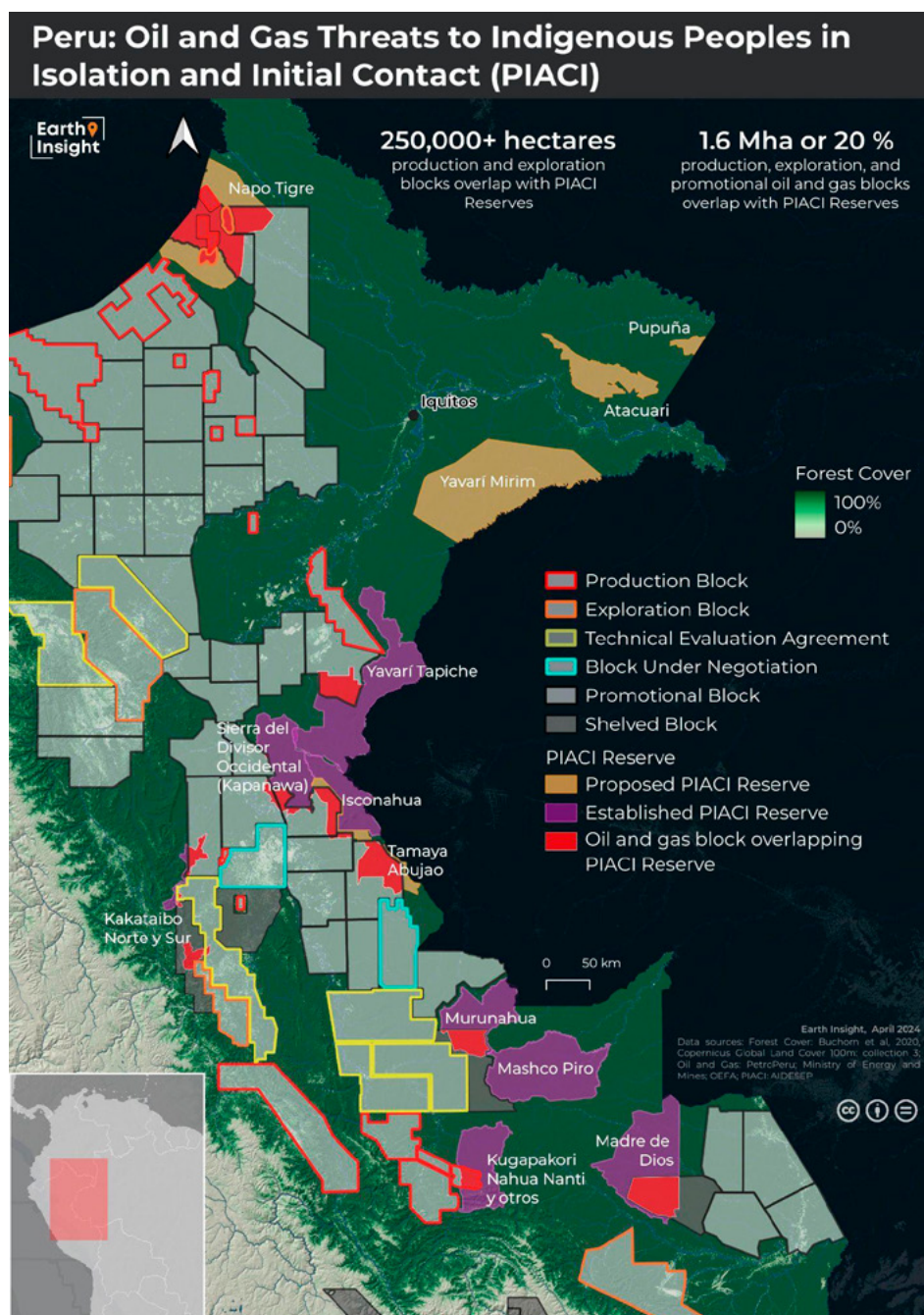
To safeguard their rights and territories, the Peruvian government has established eight Indigenous Territorial Reserves in the Amazon, with five additional reserves in the process of official recognition. These reserves seek to provide a legal framework to protect PIACI territories from industrial expansion and exploitation.

PIACI reserves not only protect Indigenous Peoples, but also a wealth of biological diversity: approximately 60% of these reserves overlap with KBAs. However, despite the importance of these reserves, around 20% of PIACI reserves are overlapped by oil and gas blocks, covering nearly 1.6 million hectares of land and water critical for conservation. This significant overlap with PIACI territories undermines the effectiveness of the reserves and places these communities at high risk. In fact, more than 250,000 hectares of the blocks overlapping with PIACI reserves are under exploitation or exploration, indicating a high level of risk. In the case of blocks under promotion, especially where there is overlap with PIACI reserves, there is an opportunity to withdraw the blocks to prevent the threat to communities living in voluntary isolation.

Around 20% of PIACI reserves are overlapped by oil and gas blocks, covering nearly 1.6 million hectares of land and water critical for conservation. This significant overlap with PIACI territories undermines the effectiveness of the reserves and places these communities at high risk.

The map below shows this threat posed by oil and gas blocks to PIACI reserves. Blocks at each stage of development—shown with different colored outlines—overlap with requested PIACI reserves (light brown) and established PIACI reserves (purple). The 1.6 Mha of overlap between oil and gas blocks and PIACI reserves are highlighted in red.

The threat to PIACI communities is exacerbated by legislative and industry initiatives that seek to reduce or even eliminate existing protections. In 2023, for example, a bill (PL No. 3518/2022-CR) was introduced to overturn PIACI reserves, which was shelved because it posed a serious threat to the fundamental rights of PIACI. This year, however, there is a new bill (PL No. 12215/2025-CR) that proposes reevaluating at six-month intervals whether existing Indigenous re-



MAP 3: Overlap of oil and gas production, exploration, and promotion with reserves designated for Indigenous Peoples in Isolation and Initial Contact (PIACI) in Peru (*Earth Insight et al. 2024, 18*).

erves should be maintained, modified, or eliminated based on their impacts to regional or national development, thus undermining the legal certainty that reserves provide to PIACI.

These initiatives threaten to weaken the legal barriers that currently prevent the exploitation of resources within these reserves. As a result, the integrity of these areas is increasingly compromised, en-

dangering not only the survival of PIACI communities, but also the biodiversity and capacity for carbon capture that these territories safeguard. There is therefore a clear argument in favor of strengthening and expanding reserves designated for PIACI, as they represent one of the most effective means of ensuring the long-term preservation of these highly unique and vulnerable Indigenous populations, as well as the ecosystems they inhabit.

Ecuador: overlaps in a megadiverse country

In a small Amazonian territory, simultaneous pressures from two industries make Ecuador an emblematic case of biocultural fragility. In the Ecuadorian Amazon, around 4.5 million hectares of Indigenous territories are overlapped by hydrocarbon concessions, making it the country with the highest percentage of Indigenous lands overlapping with hydrocarbons, at 62%. On the other hand, 310,000 hectares are covered by mining, compromising both the integrity of Indigenous Peoples and the ecosystems they inhabit (Earth Insight et al. 2024, 15).

Geospatial analysis also reveals that almost 50% of Ecuador's Amazonian KBAs are overlapped by oil and gas blocks (Earth Insight et al. 2024, 14). This overlap signals that areas of global importance for biodiversity are under direct threat from extractive activities.

Colombia: oil in the Amazon

The Colombian Amazon covers 44% of the national territory and contains the majority of the country's tropical forests; it is key to climate regulation and the conservation of global biodiversity. Much of this region coincides with the territories of Indigenous Peoples, local communities, and Afro-descendant communities, who have been its primary guardians.

Across the country, approximately 14 Mha of the Colombian Amazon, almost a third of the region, is overlapped by oil and gas blocks, including 20% of the intact Amazon rainforest (Earth Insight et al. 2025, 11). Nearly 70% of Indigenous, local, and Afro-descendant communities in the Colombian Amazon are threatened by oil and gas blocks. Oil and gas blocks directly overlap with 15% of the surface area of recognized and documented territories of Indigenous Peoples and local communities in the Colombian Amazon (Earth Insight et al. 2025, 5).

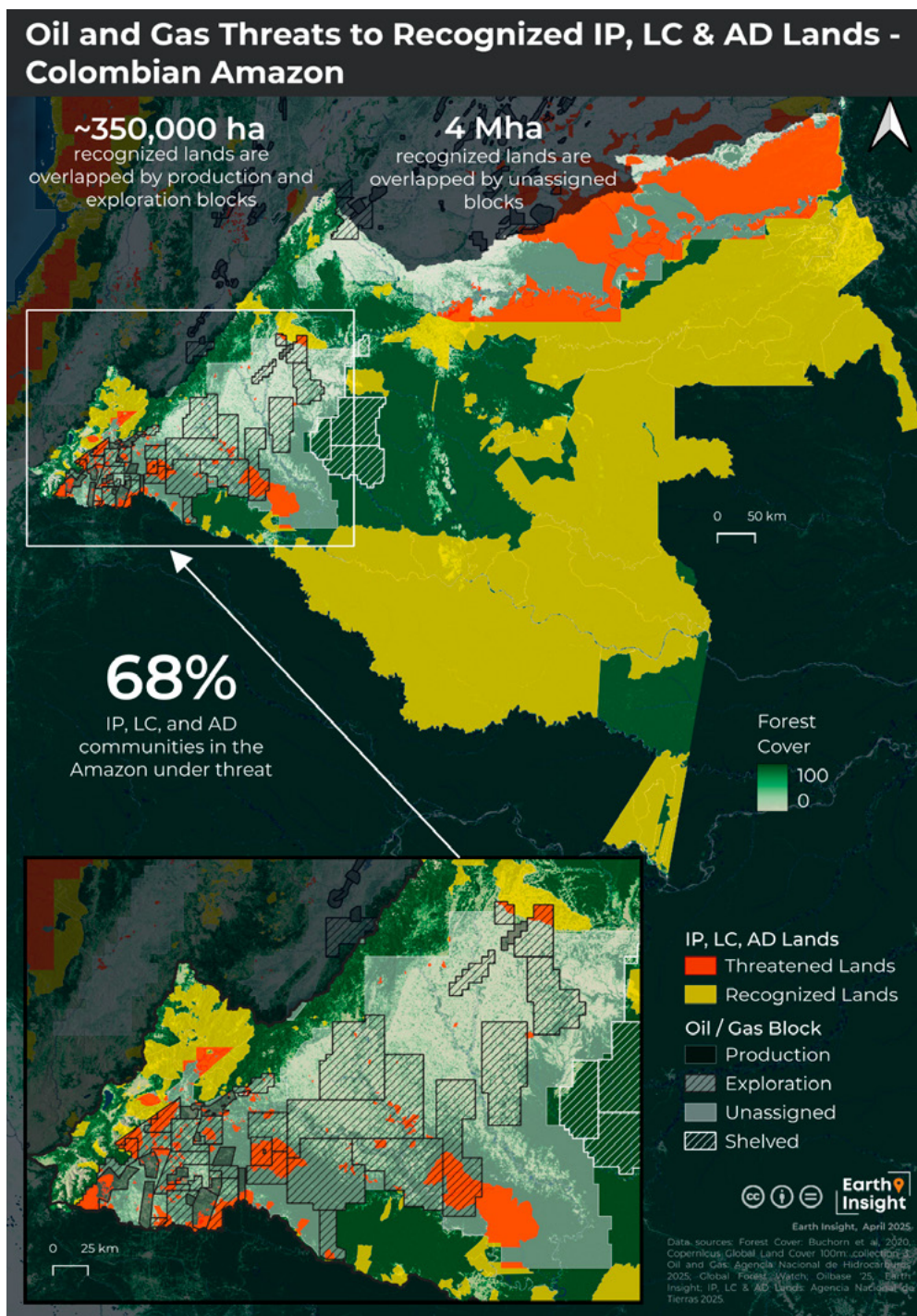


Community on the banks of the Amazon River in Ecuador. **Credit:** Courtesy of COICA.

The map below highlights the threat that oil and gas extraction poses to Indigenous territories, local communities, and Afro-descendant communities in the Colombian Amazon. Recognized territories—shown in yellow—are threatened by blocks in production, exploration, and available blocks. The 4 Mha of threatened territories are highlighted in red.

About 43% of KBAs in the Colombian Amazon are unprotected and remain threatened by oil and gas extraction or potential expansion (Earth Insight et al. 2025, 5).

The current government has marked a historic shift by halting new oil and gas projects in Colombia, joining the Beyond Oil and Gas Alliance (BOGA), and supporting



MAP 4: Oil and gas blocks threaten the territories of Indigenous Peoples, local communities, and Afro-descendant communities in the Colombian Amazon (Earth Insight et al. 2025, 15).

a Fossil Fuel Non-Proliferation Treaty at COP 28, becoming the first oil-producing country to do so. These decisions have positioned Colombia as a leader in the just and sustainable energy transition. However, without firm measures such as a moratorium on fossil fuels, its rich biocultural diversity will remain at risk.

Bolivia: gas and mining in Indigenous territories

In Bolivia, energy and economic dependence on natural gas as a strategic resource has direct implications for the Amazon, resulting in expanding extractive frontiers and putting conservation and sustainable development goals under strain. Analysis from Earth Insight shows that more than

7.2 Mha of Indigenous territories in Bolivia (38%) are overlapped with oil and gas blocks, and 160,000 hectares are overlapped by mining concessions (Earth Insight et al. 2024, 15). This overlap reflects the country's structural vulnerability, by which energy needs translate into pressure on areas of high ecological and cultural value.

The maps also show significant overlaps with KBAs: 6.4 Mha of Amazonian KBAs in Bolivia coincide with hydrocarbons (ca. 26%), and around 280,000 hectares with mining concessions (Earth Insight et al. 2024, 14). The convergence of gas and mining places Bolivian forests in a critical situation, where extractive expansion compromises both biodiversity and Indigenous rights.



Madidi National Park. **Credit:** Joe Lazarus via Flickr (CC BY-NC-ND 4.0).

Ecological and social implications

The overlaps described in these five Amazonian countries demonstrate that the region faces a systemic risk. Indigenous communities are on the front line of impact. Their role as custodians of the forest is weakened when the territories they inhabit coincide with extractive concessions. In the case of PIACIs, the threat is all the more serious: any intervention in their territories could mean the disappearance of entire communities. Ecologically, the data indicate that extractive expansion compromises global biodiversity, reduces habitat connectivity, and weakens the capacity of forests to store carbon (Earth Insight et al. 2024, 3).

Indigenous leadership and the Brazzaville Declaration

Since 2021, the Amazonian Indigenous Peoples grouped together in the Coordi-

nating Body of Indigenous Organizations of the Amazon Basin (COICA) have positioned the Amazon as a global priority in Resolution 129 of the International Union for Conservation of Nature (IUCN) aimed at “Avoiding a point of no return, by protecting 80% by 2025,” which was the first motion proposed by Indigenous organizations within the IUCN. Since then, two resolutions have been passed by the United Nations Permanent Forum on Indigenous Issues (UNPFII) to protect 80% by 2025. Colombia has also adopted the goal as its official position, and the Belém Declaration recognized the point of no return as the most important challenge facing the region. In September 2025, COICA achieved a new Resolution (068) calling for “Emergency action to restore 80% of ecological integrity in the Amazon by 2030, avoiding cascading tipping points.”

Faced with these growing threats that extend beyond the Amazon, the Indigenous Peoples of the planet’s major tropical for-



Malocas, traditional communal houses built by the Indigenous Peoples of the Amazon rainforest, from the Isconahua people.

Credit: Courtesy of Melissa Medina, Instituto del Bien Común via AIDESEP

ests have raised a unified voice through the Brazzaville Declaration (Global Alliance of Territorial Communities 2025), adopted in May 2025 by the Global Alliance of Territorial Communities (GATC), of which COICA is a member. This historic milestone calls for five fundamental demands: full recognition of Indigenous territories and rights; protection of life and an end to criminalization; guaranteed direct and adequate financing; binding par-

ticipation in decision-making; and respect for and integration of their traditional knowledge (Global Alliance of Territorial Communities 2025). This declaration offers a clear roadmap: without securing the rights of Indigenous Peoples and their central role as custodians of the forests, it will be impossible to halt biodiversity loss or stabilize the global climate. Protecting their territories means protecting the future of all humanity.

International Commitments

The need to protect the areas most important for the climate, biodiversity, and people is critical, especially in the face of growing threats from oil, gas, and mining activities. The international community has committed to ambitious goals, such as Target 3 (30x30) of the Global Biodiversity Framework (GBF), which calls for:

Ensure and enable that, by 2030, at least 30% of terrestrial and inland water areas and marine and coastal areas, especially areas of particular impor-

tance for biodiversity and ecosystem functions and services, are conserved and effectively managed through ecologically representative protected area systems (...) recognizing, where appropriate, Indigenous and traditional territories (Convention on Biological Diversity 2025).

Similarly, the Paris Agreement calls for “a transition away from fossil fuels” (Conference of the Parties to the Paris Agreement 2024).

Conclusions

The overlap of extractive concessions in Indigenous territories, areas with high biodiversity and carbon richness, remains alarmingly high and the drive to expand resource extraction continues to undermine conservation goals. To effectively combat biodiversity loss and climate change, it is necessary to balance the protection of biodiversity, human rights, and Indigenous territories with the development of economic opportunities for local populations.

This involves 1. expanding the recognition of Indigenous territories, guaranteeing their legal, physical, and financial security and governance, and 2. improving the management and promoting co-governance of existing areas with Indigenous Peoples, ensuring their resilience to industrial pressures through Indigenous knowledge systems. The tension between conservation and exploitation underscores the urgency of protecting these critical regions before their ecological value is irreversibly compromised.

Recent advances around the concept of the ***tipping point***, driven by Indigenous leadership in the Amazon, underscore that the threats facing tropical forests—from the Amazon to the Congo and Southeast Asia—are part of the same planetary crisis. This recognition reaffirms the urgency of coordinated regional and global responses to prevent cascading ecological collapses and safeguard the planet’s climate stability and life systems.

The success of global conservation efforts will depend on our collective ability to prioritize these vital areas and implement

management systems that recognize the interconnectedness of ecosystems, climate stability, and human well-being. Addressing these challenges requires a coordinated global effort to enforce protections, resist harmful developments, and promote viable alternatives that benefit both nature and local communities, with stronger legal frameworks, effective management strategies, and the meaningful participation of Indigenous Peoples at all levels of decision-making.

The time to act is now, before the ecological and cultural value of these irreplaceable areas is lost forever.

Recommendations

- **Recognize and provide legal, physical, and financial security to Indigenous territories**, guaranteeing full respect for and fulfillment of their collective rights, the strengthening of their own governance systems, and effective protection against external threats.
- Integrate Indigenous Peoples into the negotiating tables and guarantee **Free, Prior, and Informed Consent (FPIC)** in every project.
- **Integrate traditional knowledge systems into conservation strategies**, strengthening management by combining Indigenous knowledge and modern science to achieve more sustainable and resilient results.
- **Strengthen and expand reserves designated for PIACI**, one of the most effective means of ensuring the long-term preservation of these highly unique and vulnerable Indigenous populations, as well as the ecosystems they inhabit.
- **Enact and enforce a global moratorium in key areas**. Establish national and international legal frameworks that prohibit new oil, gas, and mining operations within protected areas and Indigenous territories, and phase out existing projects.
- **Prioritize ecological integrity in the energy transition in sites of high biocultural diversity**. Ensure that resource extraction for green energy occurs only outside critical habitats, with strict environmental standards and rigorous assessments to minimize impacts.
- **Apply the mitigation hierarchy in industrial activities outside protected**

areas. Any oil, gas, or mining proposal must, as a first priority, avoid impacts on areas important for biodiversity and climate regulation, and on Indigenous territories, which are a right enshrined in the Declaration on the Rights of Indigenous Peoples.

- **Increase funding for nature conservation.** Mobilize new resources, reform harmful subsidies, and fulfill existing financing commitments under the GBF and the Paris Agreement, as well as provide direct financing to Indigenous Peoples.

Authors

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Earth Insight: develops essential transparency tools and promotes initiatives to curb the expansion of extractive industries that threaten key ecosystems and Indigenous and local communities. Its research, communication, and advocacy work supports interventions needed to address the climate and biodiversity crises.

More information at: www.earth-insight.org

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ENDANGERED AMAZONIA

FROM EXPLOITATION TO RESTORATION: CANADA'S PRESENCE IN THE AMAZON AND THE TRANSFORMATIVE POWER OF INTERNATIONAL SOLIDARITY



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

- 1. Contradiction in Canada's Image:** A stark contrast exists between Canada's international reputation as a human rights and environmental champion and the destructive reality of its extractive companies' operations abroad.
- 2. Environmental and Human Rights Violations:** Canadian extractive companies have caused severe damage in Latin America, with documented evidence of 105 oil spills, violations of Indigenous peoples' right to Free, Prior, and Informed Consent in 26 projects, and violent confrontations in 16 projects.
- 3. Amazon Under Threat:** Canadian mining operations directly affect at least 16 Indigenous ethnic groups in the Amazon region, causing severe damage to biodiversity, forests, and waterways in an ecosystem approaching a dangerous tipping point of collapse.
- 4. Need for Binding Legal Frameworks:** While Europe made some progress toward mandatory human rights and environmental due diligence laws, Canada continues to rely on ineffective voluntary measures despite widespread calls for robust legislation from Canadian civil society organizations.
- 5. Transformative International Solidarity:** Effective solidarity requires actors from the Global North to support Indigenous-led struggles, influence governments and corporations, advocate for binding accountability frameworks, and build horizontal partnerships that respect the autonomy and knowledge of Amazonian peoples.

Photo: Cerro Verde Copper Mine (Perú). **Credit:** Rankin, 2017

Summary

This article exposes the stark contradiction between Canada's reputation as a human rights and environmental champion and the devastating impact of its mining companies in Latin America, particularly the Amazon region. As home to approximately half of the world's publicly listed mining companies operating in 95 countries, Canada provides these corporations with favorable tax incentives and minimal regulatory oversight, creating conditions for corporate impunity abroad. The consequences in Latin America have been severe, with documented evidence of environmental destruction, human rights violations, and violence against local communities. The Amazon rainforest faces particular

threat, with Canadian mining operations directly affecting Indigenous peoples and causing severe damage to biodiversity and waterways in a region approaching ecological collapse. Women, especially Indigenous women, bear disproportionate burdens from these operations.

The article concludes by highlighting the transformative potential of international solidarity movements and outlines how actors in the Global North can become better allies to Indigenous communities by supporting their struggles, influencing governments and corporations, and demanding binding legal frameworks to prevent abuses and provide remedies for affected communities.

Keywords

Canadian mining companies, Environmental justice, Indigenous rights, Amazon rainforest, Corporate accountability, Human rights defenders, International solidarity

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FROM EXPLOITATION TO RESTORATION: CANADA'S PRESENCE IN THE AMAZON AND THE TRANSFORMATIVE POWER OF INTERNATIONAL SOLIDARITY

CANADA'S MINING DOMINANCE: A GLOBAL FORCE WITH LIMITED ACCOUNTABILITY

Canada's reputation as a global leader in human rights and environmental protection stands in stark contrast to the conduct of its mining companies abroad, particularly in Latin America and the Amazon region. This discrepancy between image and reality reveals a troubling pattern of environmental destruction, human rights violations, and corporate impunity that demands urgent attention.

Canada has established itself as the undisputed global mining powerhouse. According to Natural Resources Canada, the country is home to approximately half of the world's publicly listed mining and mineral exploration companies. These Canadian mining corporations operate in 95 countries worldwide, with assets totaling

an astounding \$336.7 billion. (Natural Resources Canada 2025)

This dominance is no accident. Canada offers mining companies a highly favorable business environment, including a 15% tax credit for extractive activities conducted abroad and reimbursement for exploration expenses. (Mongabay 2023) The Canadian government has historically maintained a welcoming approach to multinational mining corporations through relaxed regulatory and taxation requirements and a reluctance to interfere in business operations. (Human Rights Research Centre 2022).

While the Canadian government "expects" Canadian companies to respect human rights throughout their global operations,



Bolivia. **Credit:** CECI (Meagan Hancock), 2019

the absence of binding rules that enshrine these principles into Canadian law too often lead to companies failing to deliver on their responsibilities. (CNCA 2022).

Human Rights and Environmental Impacts in Latin America: A Pattern of Abuse

Half of Canadian foreign mining assets are located in Latin America and the Caribbean, making the region a primary target for Canadian extractive operations. (The Conversation 2025) The consequences have been devastating for local communities and ecosystems.

A report presented at the United Nations Universal Periodic Review Process in 2023 documented that 32 Canadian companies' projects were responsible for environmental rights violations across Latin America. (Amazon Watch 2023) The impacts include 105 oil spills in Peru's Block 192 linked to Frontera Energy, and violations of Indigenous peoples' right to Free, Prior, and Informed Consent in 26 projects, exemplified

Canada's reputation as a global leader in human rights and environmental protection stands in stark contrast to the conduct of its mining companies abroad, particularly in Latin America and the Amazon region.

by dubious practices in Ecuador's Warintza project managed by Solaris Resources Inc. (APIB 2023)

The report also highlighted violent confrontations tied to 16 projects, including a notable incident in Peru in July 2023, where 20 individuals were injured. The Advocacy Manager at Amazon Watch described the situation starkly: "Our report unveils the disturbing reality behind Canada's corporate endeavors in Latin America. While Canada boasts of ethical business conduct, the documented evidence reveals a starkly contrasting picture – one where profit is prioritized over people and the environment." (APIB 2023)

A pattern: Specific cases in Latin America

In Colombia, for example, Cosigo Resources LTD's Machado gold extraction project severely impacted sacred indigenous sites in the Yaigojé Apaporis territory, while Libero Copper's Mocoa mining project directly harmed the ancestral territory of the Inga people, violating their rights. (APIB 2023)

In Ecuador, Solaris Resources Inc.'s Warintza mining project ignored the territorial rights of the Shuar Arutam indigenous people and adopted divisive tactics. (APIB 2023) In 2025, 283 Ecuadorian, Canadian, and international organizations sent a letter expressing deep concern about the systematic criminalization of 29 human rights and land defenders in Bolívar province, due to their opposition to the Canadian-owned Curipamba-El Domo mining project. (MiningWatch Canada 2025)

As a member of the Buenos Aires community in Ecuador's Las Naves district ex-

plained: “We are defenders of water, and we are being criminalized for the simple act of protecting our territories and protesting against this mining project that threatens our water sources and food sovereignty—in other words, what sustains our lives.” (MiningWatch 2025)

Women, particularly Indigenous women, bear a disproportionate burden of mining’s negative impacts, including gender violence, economic and food insecurity, and health problems. They also face gender-specific risks and challenges when defending their communities against extractive industries. (The Conversation 2025)

The Amazon Under Siege: Canadian Mining’s Devastating Impact

The Amazon rainforest, one of the planet’s most biodiverse regions and crucial for climate stability, has become a particular

focus of Canadian mining operations, with devastating consequences.

The Amazon Report Canada specifically documents abuses and rights violations linked to 7 mining and 4 oil extractive projects in Brazil, Colombia, Ecuador, and Peru, controlled by 16 Canadian companies and supported by Canadian banks. These operations cause severe damage to biodiversity, forests, and waterways in a region that is approaching a dangerous tipping point of collapse. (MiningWatch Canada 2023)

Ten of these projects directly affect Indigenous peoples from at least 16 ethnic groups, as well as traditional communities such as riverine peoples, and protected areas. Together, these four countries account for 85% of the Amazon, a tropical forest with the greatest biodiversity in the world and which plays a key role in containing the climate crisis. (MiningWatch Canada 2023)



Jatunyacu, Ecuador. *Credit: Anhalzer, 2024*

The APIB (2023) report also alleges that, in Brazil, the company Equinox Gold concealed data regarding their operations and impacts, including a dam break that affected 4,000 people with toxic waste contaminating local Amazonian rivers. This violated communities' rights to a clean environment and adequate access to drinking water. It was reported that the company also participated in criminalizing local community leaders who protested for their right to water.

According to the International Rights of Nature Tribunal (2020), Canadian mining company Belo Sun's operations in Brazil's Volta Grande do Xingú, a region already devastated by the Belo Monte hydroelectric dam, exemplify this pattern of abuse. A member of the Xingú Vivo movement, stated: "Belo Sun arrived without permission, without consultation, and with violence." The same source explains that the project threatens to trigger one of Brazil's worst environmental disasters, as explosions near the Belo Monte dam risk its structural integrity, while extracting 43,000 cubic meters of water per hour would exacerbate the region's water crisis. More than 50 people have been criminalized for defending

their land, and one human rights defender has already been murdered (International Rights of Nature Tribunal 2020).

The Legal Coordinator from Brazil's Association of Indigenous People (APIB), emphasized the disconnect between Canada's image and actions: "While Canada portrays itself as a defender of human rights and the environment, its actions contradict this narrative, especially when infringing upon the rights of indigenous peoples in Brazil." (APIB 2023)

In Ecuador, Vancouver-based Solaris Resources has pursued mining plans in one of the most biodiverse areas of the Amazon despite opposition from Indigenous communities. According to a complaint filed against the company, Solaris has disclosed only partial information regarding its relationships with Indigenous communities opposing the project and has failed to properly disclose Ecuador's political and legal risks that may impede mining activities. (MiningWatch Canada 2024)

The Shuar Arutam, an Indigenous group from the Ecuadorian Amazon, have denounced that their leaders have been threatened by representatives of Solaris Resources. They also report that the company, with the support of the Canadian government, has manipulated some Shuar community members by providing money in exchange for supporting the mining operations. (MiningWatch Canada 2022)

As a staff member of Proyecto Dulcepamba observed: "Canadian mining companies tout themselves as having some of the best social, ecological, and governance (ESG) commitments in the world. That is not what we are seeing here on the ground in Ecuador." (MiningWatch Canada 2025)

**International
solidarity actors
must learn to
become better
allies of Indigenous
peoples in the
Amazon.**

The Canadian government's pursuit of free trade agreements with countries like Ecuador further threatens to increase mining investment without adequate protections for the environment or human rights defenders. As a representative of MiningWatch Canada warned: "A Free Trade Agreement between Canada and Ecuador will only increase Canadian mining investment in the country, and with it, the violence in territories such as Las Naves. Economic interests cannot be placed above the protection of environmental defenders." (MiningWatch Canada 2025)

The stark reality is that Canadian mining companies' operations in Latin America, and particularly in the Amazon, represent a profound threat to biodiversity, Indigenous rights, and global climate stability. Canada's failure to effectively regulate and hold accountable its mining companies makes it complicit in these abuses. Meaningful change will require not just corporate accountability mechanisms, but a fundamental rethinking of an extractive economic model that prioritizes profit over people and the planet.

THE TRANSFORMATIVE POWER OF INTERNATIONAL SOLIDARITY

While the role of Canadian extractive companies abroad contributes alarmingly to the exploitation of the Amazon, actors united across the international solidarity sector are mobilizing to have the Amazon's role recognized as the biological heart of our planet.

From June 2024 to June 2025, the Quebec Association of International Cooperation Organizations (AQOCI) conducted an extensive dialogue and consultation

International Solidarity

International solidarity refers to all the actions of different actors, both state and non-state, which consider inequalities and injustices at various levels to confront them together, in an attempt to redress the power imbalances between states and peoples. International solidarity is therefore a collaborative relationship based on reciprocity and an eminently political commitment. It is not limited to the activities traditionally associated with official development assistance or international cooperation. It includes initiatives in support of struggles that address the root causes of poverty, oppression and exploitation, and that are led by and for marginalized populations both within and beyond our borders. To move towards a truly equitable and reciprocal relationship, it is vital that the International Cooperation Organizations of the Global North commit themselves to listening more closely to their partners in the Global South, and to making the most of their knowledge and expertise. (AQOCI 2023).

process in Quebec, Canada, engaging more than 1,000 people from social movements (trade unions, women's movement, environmental movement, community-based organizations, peace movement, research centers, student organizations, and others) and allied organizations from 33 countries. The objective was to reflect on and discuss the transformation and changes in the international solidarity sector to develop common understandings and increase the impact of Quebec-based actors.



Chuquibambilla. *Credit: Delso, 2016*

This process has considerably deepened the reflections and practices of Quebec actors involved in international solidarity. In the following sections, we provide a brief overview of the international solidarity landscape, followed by the identification of commitments and potential actions for transformative international solidarity that respects the environment while fighting against inequalities, oppressions, and poverty. Finally, we outline recommendations and international solidarity actions to protect and restore the Amazon.

Brief Overview of the International Solidarity Landscape

First, we note that environmental and climate issues now hold a prominent place in international discussions. Nevertheless, global challenges have intensified, with rising inequalities, conflicts, and humanitarian crises. The current period is also marked by a persistent and deepening crisis in international development funding, illustrated notably by the recent and historic dismantling of USAID, which threatens organizations'

ability to respond to the most urgent needs. We also note a concerning disengagement by several governments that refuse to recognize their differentiated responsibility in the face of growing inequalities and the climate and environmental crisis. Attacks on the rights of historically or socially marginalized and oppressed groups are multiplying. This context leads to the intensification of multiple and interconnected crises. This situation has the effect of relegating international solidarity to the background, despite the magnitude of global challenges.

In this changing context, international solidarity must not only adapt, reinvent itself, and innovate, but also be at the heart of solutions to be built.

Pathways of Actions to Building Transformative International Solidarity

In an uncertain and unstable world, international solidarity must break with top-down logics and focus on a system based on horizontality, respect for the autonomy of all peoples, and epistemic justice. It is

essential that international solidarity actors from the Global North unite their forces to increase the scope, impact, and transformative power of solidarity and collective action. They must be able to break down the compartmentalization of international solidarity and show the interconnection between issues and struggles experienced locally and globally.

Faced with the domination of capitalism that prioritizes the economy over social and environmental aspects, it is essential to advocate for a just, sustainable, and people-centered approach. International solidarity must actively contribute to struggles against the concrete effects of economic inequalities, resulting from structural systems of oppression and the dynamics of globalization.

As human rights are being attacked, international solidarity groups from the Global

North must reaffirm the importance of individual and collective rights, and in particular the rights of minorities and vulnerable populations.

Finally, in the Global North, it is essential to decolonize knowledge and practices by valuing the experiences and struggles carried by diverse groups, particularly those historically marginalized or oppressed. Decolonization is not simply a matter of terminology or a theoretical and institutional trend: it is an ethical and political commitment to international solidarity that respects the plurality of knowledge, promotes the redistribution of power and resources, and contributes to the self-determination of peoples (Acápacá 2025). It is an ongoing construction process that requires willingness, active listening, and transformations in both normative frameworks and daily practices of international solidarity.



Great March for life. **Credit:** AQOCI, 2022

Conclusions and recommendations:

How can International Solidarity Contribute to the Protection and Restoration of the Amazon?

International solidarity actors must learn to become better allies of Indigenous peoples in the Amazon. This should translate into supporting their struggles and demands, establishing reciprocal relationships, recognizing their territories, political autonomy, governance and ancestral rights. Alliances and partnerships must be part of a structuring, inclusive approach with a long-term perspective, while remaining attentive to priorities defined by Amazonian peoples.

They must also play an influential role with elected officials, governments, and transnational companies from the Global North as we risk reaching a point of no return in the Amazon. Indigenous groups and peoples are asking that their territories be declared as exclusion zones for extractive activities because these are areas particularly important for biodiversity and for the planet. International solidarity must actively contribute to this request. Ensuring the protection of indigenous territories in the Amazon basin must become a priority climate action in both the South and the North. Organizations from the Global North must call for the adoption of binding legal frameworks by their governments as well as at the international level to prevent human rights abuses and environmental damage caused by extractive companies and to provide remedies for affected communities. At the same time, it is important to continue documenting the real impacts of these practices and raising public awareness in the Global

North about the impacts of extractive companies in the Amazon.

In Canada, civil society organizations have been advocating for nearly two decades in favor of corporate accountability through the Canadian Network on Corporate Accountability (CNCA), a coalition which brings together over 40 human rights, environmental, labour, faith, and solidarity groups representing more than 3 million Canadians. Today, the CNCA is campaigning specifically in favor of a mandatory human rights and environmental due diligence legislation that would require Canadian companies to identify, prevent, and remedy human rights abuses and environmental damage in their global operations. (CNCA 2022) While Canada has largely relied on ineffective voluntary measures thus far, the CNCA advocates for robust legislation that would also empower affected communities to seek justice in Canadian courts.

This movement has gained significant public support. On September 26, 2025, during a national rally on Parliament Hill in Ottawa, people standing in solidarity with frontline communities around the world called on the Canadian government to take action to end ongoing human rights abuse and environmental destruction linked to Canadian companies globally and delivered a petition signed by over 52,000 Canadians calling for Canada to adopt rigorous corporate accountability legislation. (CNCA 2025) While countries across the globe strengthen their regulatory frameworks, Canada continues to lag significantly in holding corporations accountable

for their global impacts. The European Union's Corporate Sustainability Due Diligence Directive, along with legislation already implemented in France, Germany, and Norway, stands in stark contrast to Canada's continued reliance on ineffective voluntary measures. (CNCA n.d.)

International solidarity must continue to exert pressure on governments to force them to move from words to action. The endogenous and traditional knowledge of the peoples of the Amazon must not only be recognized but must also guide actions and solutions to the crisis. States

and international institutions must mobilize financial resources to protect and restore the Amazon and provide effective and flexible financing mechanisms allowing money to reach directly the frontline communities protecting the Amazon.

As international solidarity actors, we have a responsibility to demand these changes while remaining attentive to the priorities defined by indigenous groups in the Amazon. Let us unite our forces to meet these common challenges and build together a better future for all.

About the authors



Denis Côté: Denis has been the Policy Analyst of the Quebec Association of International Cooperation Organizations (AQOCI) for the past 10 years. He represents AQOCI on the Steering Committee of the Canadian Network on Corporate Accountability (CNCA) and in international events, such as the Conference of Parties (COP) on climate change. He is also a lecturer in the International Cooperation and Solidarity program at the Université de Montréal. Denis holds a master's degree in political science and held the position of Asia-Pacific Working Group Coordinator with the Canadian Council for International Cooperation (CCIC) for six years before joining AQOCI.



Martín Portocarrero Incio: Martín holds an MA in International Relations from the University of Montreal and a BA in International Relations from the University of Puebla in Mexico. He has worked in international cooperation and solidarity in Quebec, Canada for nearly ten years. As Program Manager at the Quebec Association of International Cooperation Organizations (AQOCI), he drives initiatives on environmental, security, and youth issues. Martín leads the association's community of practice on the environment and serves as the focal point for COICA, a key AQOCI partner. His commitment to global change has taken him to major international summits, including COP27 and COP28 on climate change, as well as COP15 and COP16 on biodiversity.

AQOCI: The Quebec Association of International Cooperation Organizations (AQOCI), established in 1976, brings together more than 70 organizations from 14 regions across Quebec that work both internationally and locally for sustainable and human development. As a network, AQOCI promotes and supports the work of its members and their initiatives for international solidarity. The association works to eradicate the causes of poverty and build a world based on principles of justice, inclusion, equality, and respect for human rights. AQOCI's strategic priorities include increasing its influence in matters of international cooperation and solidarity, strengthening and diversifying strategic alliances, and supporting its members through advocacy, capacity building, and education for global citizenship. The organization is particularly committed to defending women's rights, human rights, peace, and the environment.

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ENDANGERED AMAZONIA

INDIGENOUS PEOPLES IN ISOLATION AND INITIAL CONTACT IN PERU



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



AIDESEP

Technical Briefing: Key Takeaways

1. The Amazon is home to nearly 200 Indigenous Peoples in Isolation and Initial Contact (PIACI) who are disappearing as they are forced into contact with the outside world, mainly due to extractive pressures such as road construction, oil, mining, and legal and illegal logging, among others.
2. Indigenous peoples in isolation must be a priority on climate and human rights agendas, as they inhabit the most remote ecosystems and are the invisible guardians of the Amazon. Protecting them means protecting the planet.
3. In Peru, there has been a setback in the protection of Indigenous rights.

Legislative initiatives are currently being promoted in Congress to modify the Law on Indigenous Peoples in Voluntary Isolation and Initial Contact (PIACI), aiming to block the creation of new Indigenous reserves and to review—essentially dismantle—those that already exist. This puts at risk the lives and territories of the most vulnerable peoples.

4. When Indigenous organizations are strong, they can better influence government action. A solid organization is essential to defend the Amazon, the rights of its peoples, and the environment.

Summary

The Amazon is home to nearly 200 Indigenous Peoples in Isolation and Initial Contact (PIACI) who are disappearing as they are forced into contact with the outside world, mainly due to extractive pressures such as road construction, oil, mining, and legal and illegal logging, among others. In Peru, recent policies that have weakened the legal framework for the protection of forests and indigenous organizations, along with several attempts to dismantle the laws that protect PIACI peoples,

have created a high-risk environment for the survival of these groups. In this interview, Shipibo peoples leader Julio Cusurichi Palacios explains the current situation in Peru, outlines the main guidelines of the PIACI Law in force in Peru, and finally highlights recommendations that his organization in Peru, AIDSEP, has been promoting for decades to ensure the effective protection of the fundamental rights and territories of PIACI peoples.

Keywords

Indigenous peoples, Amazon, PIACI, Peru, Brazil.

INDIGENOUS PEOPLES IN ISOLATION AND INITIAL CONTACT IN PERU

INTERVIEW WITH APU JULIO CUSURICHI, SHIPIBO PEOPLE - MADRE DE DIOS, AIDSEP EXECUTIVE COUNCIL

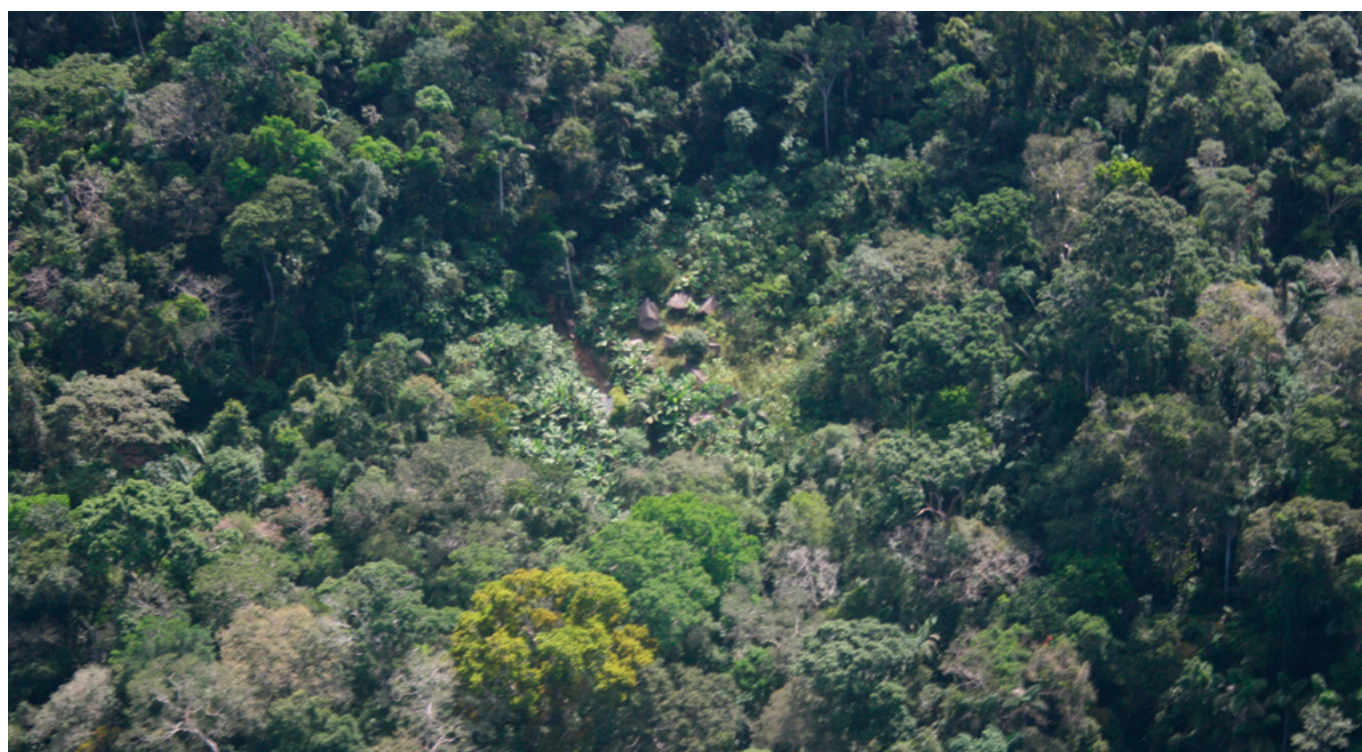
Question 1: What is the current situation of the PIACI in Peru?

Julio Cusurichi: There are 25 legally recognized PIACI peoples in Peru. All PIACI reserves cover more than 4 million hectares of Amazonian forest (3.6% of the national territory) and are located in the departments of Cusco, Madre de Dios, Huánuco, Loreto, and Ucayali, the latter being one of the regions that hosts the greatest number of reserves.

The PIACI are our most vulnerable brothers and sisters. They are protected by international standards such as the ILO Convention 169, Universal Declaration of Human Rights and the United Nations Declaration on the Rights of Indigenous Peoples, which

recognize their right to life, self-determination, and to live according to their own ways, without being disturbed. Most of these frameworks are not legally binding.

In Peru, we also have a crucial piece of legislation: the PIACI Law (Law No. 28736). This law is a tool that seeks to guarantee the inviolability of their territories, prohibiting extractive activities or invasions that could endanger their survival. Thanks to this law, the State has the responsibility to create and maintain indigenous and territorial reserves that ensure their permanent protection. We firmly believe that no economic activity, whether oil, mining, or other, should violate the right to life of the PIACI. They are part of humanity and deserve to live in peace, according to their own ways of life.



Isconahua Malocas RII Orpio. *Credit: AIDSEP 2015*

The defense of PIACI peoples is part of the defense of human rights, the Declaration on the Rights of Indigenous Peoples, and, in Peru, the PIACI Law enacted in 2006. Peru's PIACI Law (Law No. 28736) protects PIACI peoples, guaranteeing their rights to life and health, and establishing a special regime to safeguard their integrity and right to non-interaction with society. Its objective is to ensure that these peoples, mainly from the Amazon, can develop in accordance with their ways of life, maintaining their territories intact and avoiding forced contact, which represents a risk of disease transmission. This law contains four aspects that are crucial for the survival of these peoples: 1. Protection of rights; 2. The principle of non-contact, which is a prohibition on contact, aimed at prioritizing their self-determination and the preservation of their culture; 3. The creation of indigenous and territorial reserves to declare their inviolability, a principle under which the development of economic activities is prohibited; and 4. Implementation of a Special Transsectoral Regime (RET) for the protection of these peoples, under the stewardship of the Ministry of Culture.

In Peru, regional organizations assume responsibility for ensuring compliance with the rights of PIACI peoples, and at the national level.

Today, the PIACI in Peru face constant threats from illegal activities such as mining, logging, and drug trafficking, many of which are endorsed by new legal frameworks. In addition, five indigenous reserves have yet to be recognized, and this delay puts them at high risk because they are highly vulnerable peoples who should have the right to continue living according to their self-determination. The Napo Tigre Indigenous Reserve, for example, took two decades to be officially recognized, while threats from extractive activities continue to advance on its territory. The reserve has not yet been created. However, the greatest challenge today is the dismantling of the laws that protect PIACI peoples, their territories, and the organizations that we safeguard for law compliance.

What role do Amazonian indigenous organizations play in defending PIACI?

Indigenous organizations such as AIDES-EP, FENAMAD, ORAU, ORPIO, CORPIAA, COMARU y ARPI-SC are playing a very important role in advocacy not only at the national and international levels, but also in the territories, confronting powerful interests that prevent indigenous and territorial reserves to be approved.

In response, regional organizations such as ORPIO and others are doing very important work to clarify, raise awareness, propose, and assert that the rights of these peoples must be guaranteed. Additionally, these organizations are confronting illegal activities, which are now at a higher level and continue to grow.

In Peru, regional organizations assume responsibility for ensuring compliance with the rights of PIACI peoples, and at the na-

tional level, AIDESEP fulfills this role. AIDESEP also works hand in hand with allies through the PIACI International Working Group, a technical space where we participate alongside indigenous organizations and allies. Thanks to them, we are strengthening our advocacy platform to confront government decisions that threaten PIACI peoples and the approval of laws that threaten their rights.

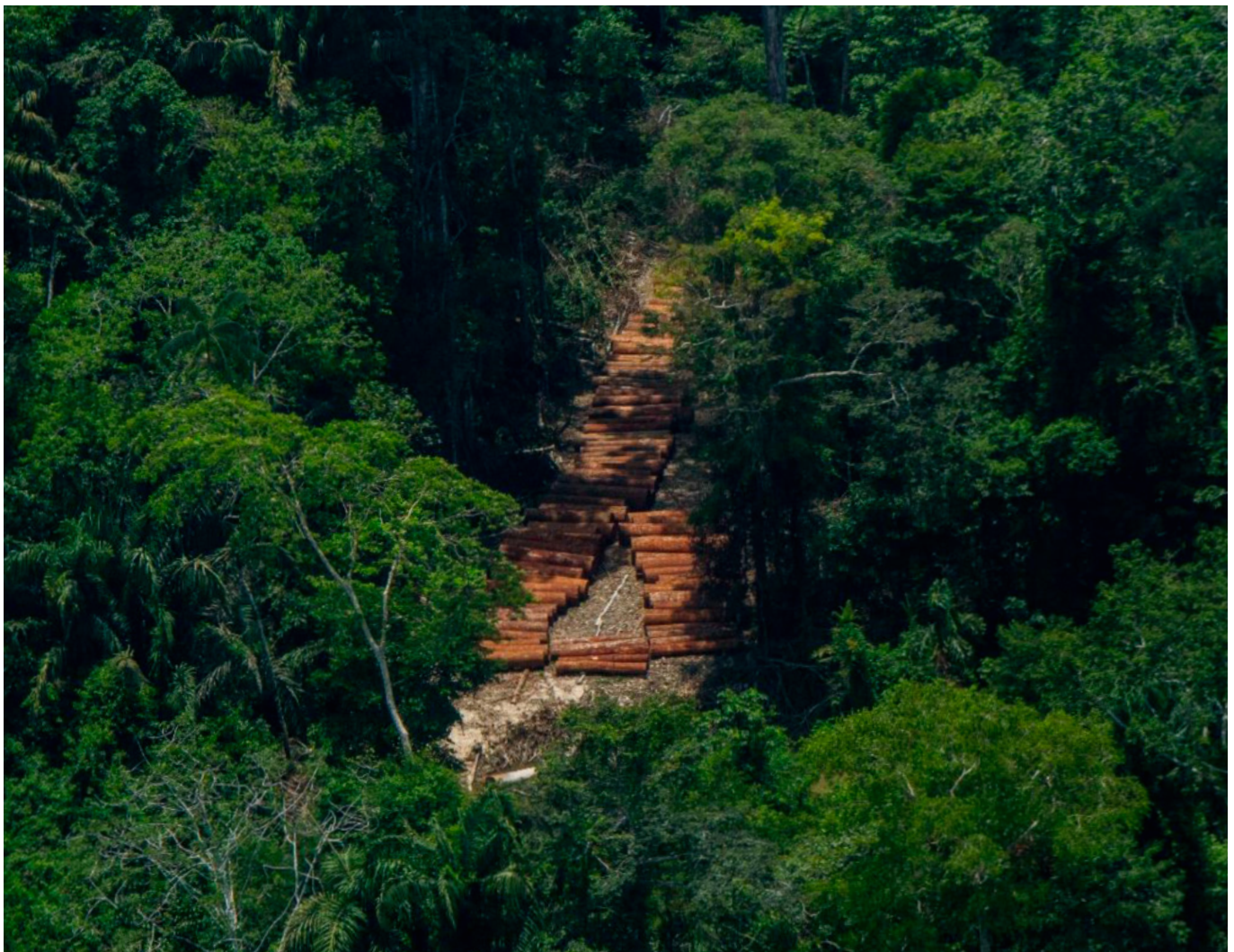
What are the threats affecting PIACI in Peru?

Julio Cusurichi: The protection of our Indigenous brothers and sisters in isolation is

a priority for AIDESEP, because we are always defending their rights — we are their voice.

There are various threats, such as the Peruvian government's delay in creating indigenous and territorial reserves, which in some cases have taken 10, 15, or even 20 years. Meanwhile, the territories are being invaded, endangering the lives of the PIACI.

Added to this are the public policies and laws promoted by the Executive and the Congress of the Republic that seek to open up the Amazon to extractive industries, including oil activity, in areas where Indigenous Peoples in isolation live and move. In



Illegal wood in PNSD and Yavari Tapiche. *Credit:* IBC 2015

There are legislative initiatives in Congress to amend the PIACI Law, seeking to transfer powers to regional governments or allowing for the revision of the studies that support the reserves. This could even put the reserves already created at risk.

the sessions of the Multisectoral Commission, the body that decides on the creation of PIACI reserves, the government, through its representatives from various ministries—such as Energy and Mines, Agriculture, and Defense—and some regional governments vote against them, either because of links to interests related to illegal logging and/or mining or because they consider extractive industries to be promoters of development. Previously, indigenous organizations, some ministries, and academia vote in favor of policies that defend the rights of PIACI peoples. Recently, this Commission rejected the creation of the Yavarí Mirim Reserve home to the Matsés, Matis, Korubo, Kulina-Pano, and Flecheiro despite the

the supreme decree issued by the Peruvian government that officially recognized the existence of PIACI in the proposed Indigenous Reserve in 2018. It is not the only reserve facing challenges.

A direct threat to the PIACI reserves in Ucayali, for example, is the construction of the Nueva Italia-Breu highway that crosses Ucayali to Brazil, a road network of almost 200 kilometers built in stages without approved environmental studies¹ that overlaps with around 40 native communities of indigenous peoples, with the buffer zone of the El Sira Communal Reserve and passes close to the Murunahua Indigenous Reserve (IR), putting at risk the PIACI Chitonahua and Mashco Piro peoples, as well as the Amahuaca indigenous people in initial contact. A study and several experts confirm that **deforestation** and over **1,200 hectares of coca crops** are expanding along the road's route². Since 2021, complaints have been filed with the Public Prosecutor's Office for crimes against forests, threats to community defenders, and land grabbing, yet none have received a response or resulted in sanctions.

Another serious problem in Madre de Dios is the Mining Corridor, established by the Peruvian State—a policy that promotes mineral extraction and designates the region as a “Zone for small-scale and artisanal mining in the department of Madre de Dios.” Mining activity there can be formal, informal, or illegal. Between 2021 and 2023, deforestation in the Mining Corridor reached 18,174 hectares (MAAP #195). Currently, gold mining in

1 <https://ojo-publico.com/ambiente/territorio-amazonas/deforestacion-y-cultivo-coca-que-llega-frontera-brasil>

2 <https://ojo-publico.com/ambiente/territorio-amazonas/deforestacion-y-cultivo-coca-que-llega-frontera-brasil>

the Peruvian Amazon has expanded to nine regions: Amazonas, Cajamarca, Cusco, Huánuco, Loreto, Madre de Dios, Pasco, Puno, and Ucayali. By mid-2025, deforestation caused by gold mining had reached 139,169 hectares in Peru, with Madre de Dios accounting for most of it (97.5% of the total) (MAAP #233). Illegal mining is closely tied to drug trafficking and is not a problem limited to Peru, but one that affects the entire Amazon basin. Moreover, it is not merely an extractive issue—it forces Indigenous Peoples into a direct struggle within their own territories. Therefore, it is essential to know where the gold comes from and where it goes—to establish a traceability system that prevents the gold rush from continuing to destroy our forests, our territories, and ultimately, the PIACI.

The issue of oil extraction has not been an easy one in Peru. In 2022, the Perenco company filed an injunction against the Ministry of Culture in an attempt to halt the creation of the Napo Tigre Indigenous Reserve, whose recognition process has been ongoing for almost two decades. Although the company later withdrew its lawsuit, the case reflects the tensions between extractive interests and the protection of isolated peoples. The company argued that there were no PIACI peoples in the area of its operation (Lot 67) and that the reserve overlapped its territory when in fact the opposite is true. In 2022, the Peruvian State issued Supreme Decree No. 010-2022-MC, recognizing the Aewa, Taushiro, Tagaeri, Taromenane, and Záparo Indigenous Peoples living in the proposed Napo Tigre and Tributaries Indigenous Reserve to protect their rights and territory. Drug trafficking is also very strong in the Peruvian Amazon and within the territories of the PIACI. We have reported this to the authorities, without response. The Peruvian State must

In spaces such as the Conference of the Parties on Climate Change (COP) and other international forums, this issue must be addressed with seriousness.

assume its role in protecting the PIACI peoples. Currently, there are legislative initiatives in Congress to amend the PIACI Law, seeking to transfer powers to regional governments or allowing for the revision of existing reserves. This could even put the reserves already created at risk.

What needs to happen to guarantee the survival of the PIACI in Peru?

Julio Cusurichi: No country can govern through legal backsliding. In Peru's case, we are witnessing a clear setback: international treaties and agreements signed in defense of the environment, human rights, and indigenous rights are not being enforced. On the contrary, there are attempts to dismantle the few laws that protect not only indigenous rights but also human rights.

For this reason, we call on embassies and international human rights organizations to be vigilant and to take action against the violations of rights that endanger the lives of these peoples. In spaces such as the Conference of the Parties on Climate Change (COP) and other international fo-

rums, this issue must be addressed with seriousness, as the recommendations that emerge from these venues can influence national governments.

The lives of PIACI in the Peruvian context cannot depend solely on indigenous organizations, which, like others, are left unprotected by the current law. The survival of PIACI and Indigenous Peoples is everyone's responsibility, and even more so that of States. Academia and national and international civil society must continue to strengthen control, monitoring, and surveillance initiatives in the territories, with the direct participation of indigenous organizations. In areas where reserves already exist, there must be a monitoring system with equipment and resources, demonstrating

to the government that it is indeed possible to protect these territories effectively.

When indigenous organizations are strong, they can better influence government action. That is why the support of allies is essential: a solid organization is key to protecting the Amazon, the rights of its peoples, and the environment. Protecting PIACI is not only the task of indigenous organizations; it is the responsibility of the State, which by law must defend and safeguard their territories, guaranteeing their intangibility and full respect for their right to live in isolation.

Defending the rights of PIACI is also defending the environment and the planet. Indigenous peoples in voluntary isolation



PIACI in the river. **Credit:** FENAMAD

protect the forests where they live, and in doing so, they contribute to mitigating climate change. Many of Peru's intact forests are home to PIACI. We do not demand recognition of their territories on a whim, but because it is part of international environmental commitments for the protection of PIACI: their territory is their life.

I want to emphasize that this work is not easy. In Peru, more than 36 indigenous leaders have been killed for defending their territories. In my case, for denouncing in 2020 that a logging company was operating within PIACI territory, I have been criminalized and am still undergoing legal proceedings. The Peruvian justice system seems intent on silencing those of us who defend these rights. But we will not be intimidated: this gives us more strength to continue working, together with COICA and its allies, to defend the lives of these peoples, not only in Peru but throughout the basin.

The lives of PIACI in the Peruvian context cannot depend solely on indigenous organizations, which, like others, are left unprotected by the current law. The survival of PIACI and Indigenous Peoples is everyone's responsibility, and even more so that of States. Academia and national and international civil society must continue.

Recommendations for COP30

Julio Cusurichi: My message to world leaders is clear: the protection of Indigenous Peoples in isolation must be a priority on climate and human rights agendas. We cannot talk about climate change or conservation without recognizing those who inhabit and depend on the forests and have cared for them for millennia with their own systems of governance and knowledge. The PIACI hold the deepest secrets of the forest and biodiversity in their oral tradition.

COP30 must be a space where the voices of the Amazonian Indigenous Peoples are truly heard. We do not want empty speeches, but concrete commitments: real protection of Indigenous territories by States, compli-

ance with international treaties, such as the Minamata Convention. Peru must adopt a policy of progressive elimination of mercury in gold mining. Moreover, it is crucial to ensure and make effective direct financing to strengthen the Indigenous organizations on the front lines.

The PIACI are the invisible guardians of the Amazon, and protecting them means protecting the planet. If governments continue to allow oil and extractive activities in their territories, they are condemning not only these peoples, but also the global climate.

Therefore, my message to world leaders is to make decisive decisions, listen to the

peoples, and act consistently because you cannot sign climate agreements and at the same time promote the destruction of indigenous territories and violate the rights of the most vulnerable on the planet.

I believe it is extremely important that AIDESEP and its grassroots organizations join the strategies led by COICA at the Amazon basin level to consolidate a single front that defends the territories of indigenous peoples in isolation at COP30 and other international forums. These peoples require immediate recognition of their territories to guarantee their ex-

istence. Where concessions have been granted to extractive industries, they must be revoked; and where current legal frameworks allow them, those frameworks must be reformed.

This should be addressed at COP30, which will be attended by representatives of Amazonian countries and those countries where the companies present in PIACI territories originate. COP30 must issue a mandate to stop the intrusion into PIACI territories and, instead, policies must be implemented for the full implementation of ILO Convention 169 and other international treaties.

About the author



Julio Cusurichi Palacios is a prominent Peruvian indigenous leader and environmentalist from the Shipibo people, originally from Madre de Dios. He is a member of the Executive Council of the Interethnic Association for the Development of the Peruvian Rainforest (AIDESEP), where he coordinates the Program for the Protection of Indigenous Peoples in Voluntary Isolation and Initial Contact (PIACI), dedicated to protecting the most vulnerable peoples of the Amazon.

Internationally recognized for his defense of indigenous territories against logging, mining, and oil concessions, he received the 2007 Goldman Environmental Prize, the world's most important award for environmental defenders.

Julio has been a key voice in national and international forums, advocating for respect for the rights of Indigenous Peoples and the protection of the Amazon as an essential pillar for global climate balance.

AIDESEP. The Interethnic Association for the Development of the Peruvian Rainforest (AIDESEP) is the main Amazonian indigenous organization in Peru, representing 2,439 native communities, 109 federations, and nine regional organizations. Since its founding in 1979, AIDESEP has worked to defend collective rights, strengthen territorial autonomy, and promote a sustainable development model based on the ancestral knowledge and proposals of Indigenous Peoples for the well-being of the Amazon and the country as a whole.

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ENDANGERED AMAZONIA

ECO-TERRITORIAL RESISTANCE TO EXTRACTIVISM AND BIODIVERSITY SAFEGUARDING IN THE SOUTHERN ORINOCO: THE CASE OF THE VENEZUELAN AMAZON



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
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AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

1. The expansion of the extractive frontier in the Amazon in general, and in Venezuela in particular, spread at an unprecedented rate, especially during the pandemic years.
2. The Indigenous Peoples of the Venezuelan Amazon south of the Orinoco have been containing the expansion of the extractive frontier in their territories to safeguard biodiversity through their organisational forms, ranging from the strengthening of grassroots indigenous organisations to the establishment of women's associations that work on and promote socio-productive projects using non-timber forest products, along with the establishment of forest guardians.
3. The blurring of the nation-state gives way to the transnationalisation of non-state actors. Illegal gold mining, especially in the states of Bolívar and Amazonas, where 60% of the country's deposits are located, has attracted large migratory flows from the interior and neighbouring countries, causing great environmental damage and negative impacts on the Indigenous peoples of these states.
4. Venezuela is one of the world's largest oil producers. Extractivism is a form of energy accumulation based on the overuse of fossil fuels. It is a logic of subjecting the sources of life (water, oxygen, and forests) to economic interests based on the unlimited extraction of natural resources.
5. Our indigenous and environmental rights are not guaranteed as long as they continue to ride on a model of energy accumulation, which is predatory in its very essence.

Credit: ORPIA

SUGGESTED CITATION: Dacosta, Eligio and Aguilar Castro, Vladimir. 'Eco-territorial resistance to extractivism and biodiversity conservation in the southern Orinoco: the case of the Venezuelan Amazon,' in *Amazonia Endangered*, edited by Alicia Guzmán León, pages 185-190. Quito: COICA, 2025.

ECO-TERRITORIAL RESISTANCE TO EXTRACTIVISM AND BIODIVERSITY SAFEGUARDING IN THE SOUTHERN ORINOCO: THE CASE OF THE VENEZUELAN AMAZON

INTRODUCTION

Territorial resistance is inherent to the expansion of the extractive frontier in the southern Orinoco region of Venezuela. The most diverse forms of re-existence and resistance of the Amazonian Indigenous Peoples clash with the criminal governance structures that have taken root in the region.

The blurred nation-state gives way to the transnationalisation of non-state actors. Indigenous peoples stand as rights holders who, through their own territorial and cultural governance, resist the onslaught of these forms of criminalisation of the forest, creating the conditions for the emergence of hybrid forms of gov-

ernance in dispute and conflict: one to safeguard the Amazon rainforest and the other to advance the destructive logic of scorched earth. It is in this context that we must understand the proximity of the tipping point, which is not a natural or organic process, but a permanent conflict in which Indigenous Peoples defend our territories and our very existence.

The Indigenous Peoples of the Venezuelan Amazon south of the Orinoco have been containing the expansion of the extractive frontier in their territories to safeguard biodiversity through organisational forms ranging from the strengthening of grass-roots indigenous organisations to the es-



Uwottuja women engaged in eco-territorial resistance in Autana, Amazonas Indigenous State, Venezuela. **Credit:** ORPIA

establishment of women's associations that work on and promote socio-productive projects using non-timber forest products, along with the establishment of forest guardians.

One example of coordination is the work carried out between ORPIA and the grassroots organisations of the Uwottujja people of Sipapo, OIPUS, and the Caño Grulla Association, ASOCAGRU, where more than 100 volunteers have been recruited as territorial guardians from the four rivers: Autana, Cuao, Sipapo, Guayapo, and Orinoco. This experience has inspired young people from other municipalities in the interior of Amazonas State in Venezuela. It constitutes one of the many forms of resistance and is an expression of the self-determination and right to cultural identity of the Indigenous Peoples south of the Orinoco.

BIODIVERSITY MANAGEMENT IN INDIGENOUS TERRITORIES AND THE LIMITS TO EXTRACTIVISM IN VENEZUELA

Venezuela is one of the countries with the highest oil production in the world. Extractivism is a form of energy accumulation based on the overuse of fossil fuels. In countries dependent on hydrocarbons (gas, oil, and coal) such as Venezuela, the ways of relating to nature significantly impact upon it. It is a logic of subjecting the sources of life (water, oxygen, and forests) to economic interests based on the unlimited extraction of natural resources.

The expansion of extractive activities in the Amazon in general, and in Venezuela in particular, spread at an unprecedented rate, especially during the pandemic. Paradoxically, it was during COVID-19 that



Meeting of Defenders of Nature, Autana Municipality, Amazonas Indigenous State, Venezuela. **Credit:** ORPIA

the Amazon recorded its highest rates of deforestation.

The Amazon region of Venezuela is located mainly in the south of the country along the Orinoco River, occupying primarily the two largest states in Venezuela: Bolívar and Amazonas, which, together with the state of Delta Amacuro in the north-west and a small portion of the state of Apure in the south-west, cover a total area of 491,389 km², accounting for more than 50% of the national territory. This Amazon region has a low population density (approximately 20 inhabitants per km²), representing only 8.5% of the total population, i.e. approximately 32 million inhabitants; however, more than 24 of the Indigenous nations living in Venezuela reside in this area.

Illegal gold mining, especially in the states of Bolívar and Amazonas, where 60% of the country's deposits are located, attracted large migratory flows from inland and neighbouring countries, causing significant environmental damage and negative impacts on the Indigenous Peoples of these states.

Moreover, in recent years, faced with falling crude oil prices, the Venezuelan government has rapidly and aggressively applied a new mining policy through agreements with various countries and transnational companies. This has had devastating consequences, such as the destruction of nature and the exclusion and aggression towards the peoples who inhabit the region.



Regional Organisation of Indigenous Peoples of Amazonas (ORPIA), Amazonas Indigenous State, Venezuela. **Credit:** ORPIA



Meeting of Defenders of Nature, Autana Municipality, Amazonas Indigenous State, Venezuela. *Credit: ORPIA*

Emerging forms of safeguarding the territory, nature, and Indigenous cultures are part of the strategies that Amazonian Indigenous Peoples are beginning to instrument in multiple expressions of resistance to voracious extractivism, taking on the most diverse forms. Some range from control of territorial spaces to managing access to areas considered indigenous habitats, which have not yet been demarcated by the Venezuelan State.

As a result, the management of Indigenous territories emerges as a way of guaranteeing recognised rights and conserving biodiversity. In addition, the associated traditional knowledge forms the basis of the ancestral cultures and languages of Indigenous peoples.

THE WORK OF ORPIA

Our organisation has been working tirelessly for thirty years to defend Indigenous rights and safeguard our territories, forests,

jungles and Mother Earth. We are aware of the tragedy of illegal mining in our territories and protected areas. We are facing a completely exhausted model of energy accumulation based on fossil fuels, which urgently needs to be replaced through an ecological transition due to the ongoing climate crisis. Indigenous Peoples know the territory and other ways of life and economies that can guide a fair transition.

Our Indigenous and environmental rights are not guaranteed as long as they continue on a model of energy accumulation, which is predatory in its very essence. Today, we have alerted state institutions because we are concerned about the presence of external individuals and groups in our territories, people who have not understood that extractive activities such as illegal mining endanger our sources of life, as well as our cultures and worldviews, and eventually theirs as well.

This has led to persecution and displacement in our Indigenous communities, re-

sulting in the harassment of our Uwottuja brothers and sisters and the murder of territorial and environmental guardians, such as our brother Uwottuja Virgilio Trujillo, Chief Curripaco of the Montaña Fría community, and Uwottuja Indigenous leaders such as Freddy Menare. Furthermore, the impact of these extractive activities on our health and community ways of life has accelerated processes of social breakdown in our communities, with dire consequences for our Indigenous Peoples.

It is important to note that this problem is due, among other causes, to the lack of demarcation and titling of Indigenous Peoples' territories, as well as the lack of alternatives to empower and strengthen our livelihoods. This is not only a problem in Venezuela but throughout the entire basin. The lack of demarcation of our territories, a right enshrined in the United Nations Declaration on the Rights of Indigenous Peoples and Convention 169 on Indigenous and Tribal Peoples, creates a

legal vacuum that results in a lack of normative, physical and financial security. This has allowed illegal mining and transnational groups engaged in this and other illicit activities to penetrate our territories and protected areas.

We understand the defence of the territories of Indigenous Peoples as an innate mandate. The territory is the kernel that gives rise to existence; it is everything: life, health, education, food, culture, identity, economy, and housing.¹ That is why the relationship between Indigenous Peoples and their territory is vital. It is the only place that guarantees our spiritual connection with nature, which is why we preserve, value, and defend it. The tipping point is a lethal threat to the existence of our peoples, our home, our economy, and it must be understood that the defence of territory today is a hand-to-hand struggle. The Amazonian states must define a common path with the Amazonian peoples at COP30 to avoid a final scenario.

About the Authors

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1 Cited in the institutional magazine 'Somos COICA' Issue 02, 2022.



ENDANGERED AMAZONIA

DEFENDING THE DEFENDERS OF THE AMAZON: CLIMATE JUSTICE, HUMAN RIGHTS AND ENERGY TRANSITION



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

1. Violence against environmental defenders reflects a power structure that criminalises the defence of territory and protects extractive interests.
2. Being a defender of the Amazon involves taking life-threatening risks. The IACHR (2022) has pointed out that Indigenous leaders and environmentalists are subject to threats, judicial persecution, and murder for opposing extractive projects.
3. Of the countries in the Amazon basin, three have so far ratified the Escazú Agreement: Ecuador, Bolivia, and Guyana. Other Amazonian countries (such as Peru and Brazil) have signed the treaty but have not yet ratified it.
4. Protecting those who defend the forest—and recognising them as **legitimate political actors**—is a minimum condition for avoiding the tipping point.
5. In the context of the climate crisis, states are promoting an ‘energy transition’ towards cleaner sources. However, when this process ignores the rights of Indigenous Peoples or is built on new forms of extractivism, it becomes a ‘transition without justice’ (Gudynas 2021).
6. It is not just a matter of conserving biodiversity, but of restoring reciprocal relationships between humans and nature. Ultimately, a living Amazon offers the possibility of keeping all of humanity safe, and its loss would be an irreversible wound to the planet.

Summary

Several regions in the Amazon are already facing a tipping point. The expansion of the extractive frontier—driven by mining, hydrocarbons, and illicit economies—is eroding not only biodiversity, but also the rights and lives of those who protect it. Environmental and Indigenous defenders, men and women who function as territorial guardians, face systematic threats, criminalisation, and violence in a context of structural impunity.

Through a review of international human rights frameworks, recent studies on environmental violence, and theoretical contributions from political ecology, it is argued that protecting defenders is essential to prevent the collapse of the Amazon biome and ensure effective climate justice.



Flooded Amazonian forest in the Santa Cruz Amazon of Bolivia. **Credit:** Jan Spickenbom, 2021.

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DEFENDING THE DEFENDERS OF THE AMAZON: CLIMATE JUSTICE, HUMAN RIGHTS AND ENERGY TRANSITION

THE AMAZON UNDER PRESSURE: BETWEEN EXTRACTIVISM AND IMPUNITY

The Amazon is one of the most complex and vital ecological systems on the planet. It regulates the global climate, stores billions of tonnes of carbon, and is home to more than 500 Indigenous Peoples who have maintained a balanced relationship with the forest for millennia. However, the dominant extractive model—based on oil, mining, and agro-industrial exploitation—has triggered accelerated degradation that threatens to bring the biome to a point of ecological no return (IPCC 2023).

This crisis is not only environmental but also related to political and human rights-related issues. Violence against environmental defenders reflects a power structure that criminalises the defence of

territory and protects extractive interests. According to Global Witness (2023), at least 177 defenders were killed worldwide in 2022, more than a third of them in the Amazon. In Peru, Mongabay (2023) documented 29 murders of environmental defenders between 2010 and 2022, most of them linked to conflicts over logging, illegal mining, and drug trafficking.

The Amazon region shows common patterns: absence of the state, corruption, and expansion of illicit economies. The clandestine airstrips used for drug trafficking, illegal crops, and intensive deforestation in Indigenous territories reflect the convergence between legal and illegal extractivism (Bebbington et al. 2018). This context places defenders on the front line of risk, especially in frontier areas where institutions are weak and violence acts with impunity.



Jamner Manihuari, peruvian indigenous leader and COICA's Vicecoordinator at 2024 Climate Week protest. New York. *Credit: Coica*

THE DEFENCE OF LIFE IN THE MIDST OF ABANDONMENT

Being a defender or an advocate for the Amazon involves taking vital risks. The Inter-American Commission on Human Rights (IACHR 2022) has pointed out that Indigenous leaders and environmentalists are subject to threats, judicial persecution, and murder for opposing extractive projects. In many cases, those responsible for these acts remain unpunished. Violence also has a structural component: it is embedded in historically marginalised territories where the state's presence is limited to its extractive or military arm.

For the Amazonian Indigenous Peoples, territorial defence is not a political option but a way of life. 'Defending the forest is defending life,' says Jamner Manihuari, Cucama Cucamiria leader and defender of the territory in the Peruvian. The forest is not a resource but a living entity, part of a relational network that sustains existence.

Despite formal recognition of the right to defend rights—enshrined in the United Nations Declaration on Human Rights Defenders (UN 1998)—implementation in the Amazon region remains insufficient. National protection mechanisms are fragile, bureaucratic, and, in many cases, inaccessible to remote Indigenous communities. In Colombia, the Early Warning System has identified persistent risk patterns between 2022 and 2025 (Ombudsman's Office 2023), while in Brazil and Peru judicial criminalisation is used as a strategy to silence dissenting voices.

Of the Amazonian countries, three have so far ratified the Escazú Agreement: Ecuador, Bolivia, and Guyana. Other Amazonian countries (such as Peru and Brazil) have signed the treaty but have not yet ratified it.

ENERGY TRANSITION AND AMAZONIAN JUSTICE

In the context of the climate crisis, states are promoting an 'energy transition' towards cleaner sources. However, when this process ignores the rights of Indigenous Peoples or is built on new forms of extractivism, it becomes a 'transition without justice' (Gudynas 2021). In the Amazon, hydroelectric, mining, and green hydrogen projects are advancing under the banner of sustainability but often involve **territorial dispossession and loss of sovereignty**.

From an Amazonian perspective, a fair energy transition requires going beyond technological replacement. It involves recognising the autonomy and knowledge of the peoples who have protected the forest without relying on fossil fuels. For states, this means gradually abandoning their dependence on oil and gas, which sustain deeply unequal extractive economies (Svampa 2019).

Indigenous peoples offer alternatives based on the bioeconomy, local energy sovereignty, and the protection of the standing forest; these proposals are now being discussed in initiatives such as Amazonia for Life: protect and restore 80% by 2025, led by the Coordinator of Indigenous Organisations of the Amazon Basin (COICA).

DEFENDING THE AMAZON MEANS DEFENDING THE FUTURE

The defence of the Amazon and that of its defenders converge as one and under the same cause. Violence against leaders and territorial guardians is not a marginal phenomenon: it is the most extreme symptom of a development model that conceives nature as a commodity and territories as zones of sacrifice.

Thomas Lovejoy and Carlos Nobre warned that if deforestation exceeds 20 to 25 per cent of the original coverage, the Amazonian system could collapse and turn into a savannah (Lovejoy and Nobre 2018). In 2024, RAISG data indicate that around 28 per cent has already been lost. We have exceeded the threshold at the regional level, but in some regions of Brazil and Bolivia the time for mitigation has passed and the forests have disappeared. Defending the Amazon is literally defending life.

COICA has burst onto the international scene to change not only the narrative but also to focus on the need to protect and restore the Amazon and its peoples as a crucial measure to protect the planet. The era of empty rhetoric and COPs without bind-

ing resolutions is over. At COP30, which will take place in Brazil – with the Amazon as the epicentre of the global conversation – we cannot ignore the tipping points of no return that humanity is facing.

Climate justice will not be possible without territorial justice. Protecting those who defend the forest — **and recognising them as legitimate political actors** — is a minimum condition for avoiding the tipping point. As Escobar (2016) and Kimmerer (2020) point out, it is not just a matter of conserving biodiversity, but of restoring reciprocal relationships between humans and nature. Ultimately, **a living Amazon offers the possibility of keeping all of humanity safe**, and its loss would be an irreversible wound to the planet.



Jamner Manihuari, peruvian indigenous leader and COICA's Vicecoordinator at 2024 Climate Week protest. New York . **Credit:** Coica

About the author



Jamner Manihuari, Deputy Coordinator, COICA. Indigenous leader of the Kukama Kukamiria people, originally from the Achual Tipishca Native Community in the Loreto region of Peru. With more than 27 years of experience, Jamner has dedicated his life to defending the rights of Amazonian Indigenous Peoples and the governance of their territories. He has chaired key organisations such as the Coordinadora Regional de los Pueblos Indígenas (Regional Coordination of Indigenous Peoples, CORPI SL), the Federación de Comunidades Cocama Cocamilla (FEDECOCA, Federation of Coca-ma Cocamilla Communities) and the Asociación Interétnica de Desarrollo de la Selva Peruana (Interethnic Association for the Development of the Peruvian Rainforest, AI-DESEP), coordinating local, national, and international efforts for climate justice, territorial recognition, and organisational strengthening. He is currently studying law at the Technological University of Peru, reaffirming his commitment to the legal and political defence of Indigenous peoples.

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SECTION III

**TOWARDS A
NEW PARADIGM**





ENDANGERED AMAZONIA: DIALOGUE OF KNOWLEDGE SYSTEMS TO PROTECT AND RESTORE AMAZONIA



AMAZONIA VIVA:
PROTEGER +
RESTAURAR
80% 2025
2030
EVITANDO EL PUNTO DE NO RETORNO



COORDINADORA DE LAS ORGANIZACIONES
INDIGENAS DE LA CUENCA AMAZONICA



Deploying research
Sharing science
Transforming the future

Technical Briefing: Key Takeaways

1. Protecting the Amazon requires a new knowledge architecture. We must move beyond the view of the Amazon as a 'green void' managed by external experts and recognise that Indigenous Peoples are diplomats of their own territories.
2. Scientific diplomacy and Indigenous diplomacy must converge: the former provides international legitimacy while the latter provides legitimacy from the territories.
3. The co-construction of knowledge between academia, Indigenous Peoples, and civil society is essential for designing public and community policies capable of protecting and restoring the Amazon. If the dialogue of knowledge aims at having structural effects, it must transcend the symbolic sphere and translate into institutional cohabitation: that is, into the active presence of Indigenous epistemologies within public decision-making frameworks.
4. For the Indigenous Peoples of the Amazon, ancestral knowledge and wisdom are not 'cultural inputs' for science, but a living system of life and governance that sustains health, spirituality, and land management. Therefore, dialogue with science is only legitimate when it occurs between epistemic peers and under rules that recognise the self-determination and governance of knowledge by the peoples.
5. It is not a question of integrating Indigenous knowledge into science, but rather of articulating worlds or systems of knowledge on equal terms, with shared responsibilities for the land and life.
6. Indigenous peoples are not repositories of residual knowledge; they are producers of comprehensive knowledge, whose cognitive, ontological, and normative systems have their own logic, validation, and legitimacy. Talking about epistemic parity does not mean a "equalisation" of epistemes, but the establishment of reciprocal relationships of recognition, where each form of knowledge can be sustained without being subsumed under the other.
7. In a genuine dialogue of knowledge, knowledge cannot be the object of extraction, but rather an ethical and continuous relationship between those who

share it. Epistemic co-responsibility recognises that all research or use of ancestral knowledge must involve processes of consent, co-authorship, return, and community benefit.

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8. Strengthening indigenous autonomy is essential to ensure that traditional knowledge is not subordinated but rather recognised on an equal footing with academic science.
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9. Epistemic governance refers to the ability of peoples to define the rules for accessing, using, and transmitting their knowledge and wisdom, under the recognition that knowledge is part of the territory and not an abstract resource.
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10. Without recognising the autonomy and institutions of Indigenous Peoples, it will be difficult to sustain public conservation policies. Thus, interculturality becomes a principle of epistemic and territorial justice, where Indigenous ontologies are considered legitimate systems of knowledge and not mere complements to Western science.
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Summary

The article explores the processes of dialogue and co-construction of knowledge and wisdom between Amazonian Indigenous communities and academic actors as a way to rethink the ways of producing, sharing, and validating knowledge and wisdom about the Amazon. In contrast to scientific practices that have historically reproduced colonial relations, it proposes recognising Indigenous knowledge systems as ways of understanding the world that are legitimate and situated and closely linked to systems of governance and ancestral self-determination. Based on con-

11. Although interculturality and transdisciplinarity have different origins, in practice they converge. Interculturality contributes to the principle of recognition and redistribution of epistemic power, while transdisciplinarity offers the methods for collaboration between disciplines and with various social and political actors. In the case of the Amazon, this means that climate science, ecology, economics, and anthropology must be coordinated not only with each other, but also with the knowledge systems and technologies of Amazonian peoples. In the Amazon, this convergence is essential to address threats such as deforestation, agricultural expansion, illegal mining, and geopolitical pressures on strategic resources.
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12. This approach is not limited to producing diagnoses but seeks to reduce the epistemic gap and co-construct applicable and legitimate solutions capable of inspiring public policies that recognise local realities.
-

crete experiences of collaboration, the text examines how the encounter between different forms of knowledge can generate spaces for translation, mutual learning, and co-responsibility, contributing to the strengthening of biocultural conservation and the collective rights of Amazonian peoples. More than integrating knowledge, it is about building ethical and horizontal relationships that allow knowledge to be inhabited from a place of reciprocity and respect within the framework of the principles of good living, interculturality, and plurinationality.

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DIALOGUE OF KNOWLEDGE SYSTEMS TO PROTECT AND RESTORE AMAZONIA

INTRODUCTION

The Amazon is one of the most strategic biomes on the planet: it regulates the global climate, is home to unparalleled biodiversity, and is the territory of more than 500 Indigenous Peoples, including dozens of peoples living in voluntary isolation. However, it faces an unprecedented risk of reaching a tipping point, i.e., a critical moment when, due to deforestation and climate change, it loses its capacity for self-regulation and is in danger of transforming from a tropical forest into a savannah. This would mean a drier climate, less rainfall, species extinction, and the impoverishment of Amazonian forests and communities. This situation calls for

halting deforestation and promoting restoration (Jakovac et al. 2024).

In 2021, the Coordinator of Indigenous Organizations of the Amazon Basin (COICA) presented Motion 129 to the International Union for Conservation of Nature (IUCN), proposing to avoid the tipping point by protecting at least 80% of the forest by 2025. In 2025, the organisation is once again insisting on motion 068, an urgent call to adopt a science-based regional goal led by Indigenous Peoples to protect and restore 80% of the Amazon and thus avoid an irreversible point of no return.



Young Sapara people from Ecuador visiting the herbarium of the Pontifical Catholic University of Ecuador (PUCE). Botanist Thomas Couvreur (IRD) shows the plants identified in the Sapara territory and named after the Sapara people. **Credit:** Anne-Gaël Bilhaut, IRD.

The report *Endangered Amazonia* warns about deforestation, degradation, and fragmentation that threaten to trigger this critical point. The data show that biodiversity conservation is more effective in titled Indigenous territories and protected areas, which reveals the central role of indigenous territorial governance. However, forest fires have even reached large areas within Indigenous territories and protected areas, highlighting the growing external pressure and the limits of current protection mechanisms.

The Amazon is also a disputed space: it is key to global biodiversity and climate stability, but it is equally the scene of political struggles over indigenous autonomy and rights, as well as a place of conflict over the use of underground and terrestrial natural resources due to the appropriation, expropriation, or co-management of territories.

We believe that the co-construction of knowledge between academia, Indigenous Peoples, and civil society is essential for the design of public and community policies capable of protecting and restoring the Amazon.

In this setting, science diplomacy can serve as a tool for cooperation between states, academic institutions, and indigenous organisations. Although it began as a mechanism for dialogue between science and politics aimed primarily at promoting national interests, its most valuable contribution lies in providing scientific evidence to inform foreign policy in the face of global challenges such as infectious diseases, food insecurity, and climate change (Davis and Patman, eds. 2015). Initiatives such as the Science Panel for the Amazon (SPA) fulfil this role by synthesising and disseminating knowledge about the Amazon, integrating both academic science and local and Indigenous knowledge, to accelerate solutions for sustainable and equitable development. Its publications—research papers and policy briefs—seek to guide public policy in Amazonian countries and the international community. Although Indigenous Peoples come from an oral tradition, this type of initiative allows their voices and knowledge systems to be integrated into academia to jointly influence high-level decision-making spaces.

The central matter is how to ensure a horizontal dialogue of knowledge in order to transform mere scientific diagnoses into effective actions through intercultural and transdisciplinary dialogues. We believe that the co-construction of knowledge between academia, Indigenous Peoples, and civil society is essential for the design of public and community policies capable of protecting and restoring the Amazon. The key lies in articulating both scales: only by linking community and public policies can varied forms of land management, natural resources, and community settlements be integrated in a complementary manner, thus ensuring more effective and sustainable protection and restoration strategies.

THE AMAZON AT RISK: SHARED CHALLENGES

It has been confirmed by several recent studies that the Amazon is at a critical juncture. The report *Endangered Amazonia* warns that accelerated forest loss, degradation, and fragmentation of ecosystems threaten to trigger the dreaded tipping point. The report's data confirm that combined degradation and deforestation reach 28%. This is a scenario that we are already facing, and it largely explains the severe drought of 2023-2024 and the spiral of fires in 2024. It also has global repercussions: alteration of the hydrological cycle, reduction of rainfall, loss of biodiversity, and transformation of the tropical rainforest into degraded savannah.

The main drivers of this crisis include agricultural expansion—especially extensive livestock farming and monoculture—legal and illegal mining, hydrocarbon extraction, road and energy infrastructure construction, and forest fires associated with deforestation. These processes not only reduce forest cover, but also generate social conflicts, affect the health of communities, and erode the ways of life and forms of production and knowledge transmission of Indigenous Peoples (Quintanilla et al. 2022); these processes are vital for perpetuating the forest over time.

The environmental consequences are manifold: loss of endemic species, massive carbon emissions, disruption of regional and global weather patterns, and weakening



In the Jandiayaku community, a young Sapara man shows ecologist Olivier Dangles the photos he has uploaded to the iNaturalist app to document the biodiversity of his territory. **Credit:** Anne-Gaël Bilhaut, IRD.

of the ecosystem services on which millions of people depend. On a social level, environmental degradation translates into food insecurity, forced displacement, violence, and the violation of collective rights.

The report *Amazonia Against the Clock* (Quintanilla et al. 2022) shows that the ecological tipping point is already underway: 34% of the Brazilian Amazon, 24% of the Bolivian Amazon, 16% of the Ecuadorian Amazon, 14% of the Colombian Amazon, and 10% of the Peruvian Amazon have undergone transformation. Savannisation is advancing particularly in the south-east of the region, concentrated in Brazil and Bolivia, which are responsible for 90% of deforestation and degradation. Land inva-

sions and the subjugation of communities are the main causes, placing states and their legal frameworks at the centre of the solution

In the face of this situation, data show that conservation is more effective within titled Indigenous territories and protected natural areas (Quintanilla et al. 2022). There, forest cover is better kept, and, in several cases, secondary forests are recovering in previously deforested areas (Baragwanath et al. 2023). This reveals the central role of indigenous territorial governance and reinforces the urgency of guaranteeing legal, physical, and financial security for collective land rights as factors for the recovery of forests and biodiversity (Baragwanath et al. 2023).

Talking about interculturality implies more than just celebrating cultural diversity: it means recognising historical relationships of inequality and opening up a space for dialogue; it means accepting Indigenous Peoples as political actors and epistemic peers capable of generating knowledge and proposing solutions.

CO-CONSTRUCTION OF KNOWLEDGE: UNDER WHAT CONDITIONS?

Interculturality: beyond recognition

The Amazon is a space where multiple worlds converge: indigenous worldviews, peasant practices, state policies, private interests, global scientific knowledge, and the lives and thoughts of non-humans. Talking about interculturality implies more than just celebrating cultural diversity: it means recognising historical relationships of inequality and opening up a space for dialogue; it means accepting Indigenous Peoples as political actors and epistemic peers capable of generating knowledge and proposing solutions.

In Latin America, interculturality has taken two approaches: one limited, focused on bilingual educational programmes or symbolic recognition; another one transforma-



Family gathering in Sapara territory, Ecuador. **Credit:** Anne-Gaël Bilhaut, IRD.

tive, which seeks to redistribute power and rethink the governance of territories. This second approach is essential in the Amazon: without recognising the autonomy and institutions of Indigenous Peoples, it will be difficult to sustain public conservation policies. Interculturality thus becomes a principle of epistemic and territorial justice, where Indigenous ontologies—as comprehensive systems of knowledge and practice that articulate the ecological, social, and spiritual, recognising the interdependence between humans, non-humans, and territories—are considered legitimate systems of knowledge and not mere complements to Western science.

To protect, produce, and distribute Indigenous knowledge and wisdom, the self-determination and self-government of Indigenous Peoples are fundamental (Dudgeon et al. 2024). The United Nations Declara-

tion on the Rights of Indigenous Peoples (UN 2007) recognises the individual and collective rights of Indigenous Peoples as mechanisms to ‘maintain, control, protect, and develop’ their knowledge systems, together with ‘intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions’.

Transdisciplinarity: beyond academia

Transdisciplinarity has established itself as a necessary approach for addressing complex socio-environmental challenges. Unlike multidisciplinary (where each discipline works in parallel) or interdisciplinary (which seeks to integrate academic fields), transdisciplinarity incorporates non-academic actors into the production of knowledge: local communities, governments, civil society, etc.

In the Amazonian case, climate science, ecology, economics, and anthropology must be coordinated not only with each other, but also with the knowledge systems and technologies of the Amazonian peoples, who produce and possess in-depth knowledge about forest management, hydrological cycles, biological cycles, phenological cycles, and the sustainable use of biodiversity (Martinez-Medina et al. 2020).

This approach is not limited to producing diagnoses; it seeks to reduce the epistemic gap and co-construct applicable and legitimate solutions capable of inspiring public policies that recognise local realities. Indigenous Peoples cease to be mere informants: they become co-researchers and co-designers of conservation and restoration strategies, actively participating in the implementation of what is being planned.

In the Amazonian case, climate science, ecology, economics, and anthropology must be coordinated not only with each other, but also with the knowledge systems and technologies of the Amazonian peoples.

When interculturality and transdisciplinarity meet

While interculturality and transdisciplinarity have different origins, in practice they converge: interculturality contributes the principle of recognition and redistribution of epistemic power, while transdisciplinarity offers the methodology for collaboration between disciplines and with various social and political actors.

In the Amazon, this convergence is essential to address threats such as deforestation, agricultural expansion, illegal mining, and geopolitical pressures on strategic resources. Genuine dialogue between different knowledge systems requires conditions of interculturality, and transformative science needs transdisciplinary practices that transcend academia.

Some concrete examples include participatory monitoring projects, where satellite images and remote sensors are combined with Indigenous knowledge of the territory, or territorial governance initiatives that link customary norms with national and international legal frameworks. But how can intercultural and transdisciplinary dialogues be translated into state and regional action?

Towards public policies inspired by plural knowledge

To achieve this, it is necessary to move beyond the view of the Amazon as a 'green void' managed by external experts and recognise that the representatives of Indigenous Peoples are diplomats for their own territories. In this context, scientific diplomacy and Indigenous diplomacy must converge: the former provides international legitimacy, and the latter provides legitimacy from within the territories. Strength-

ening Indigenous autonomies is essential so that traditional knowledge is not subordinated but rather recognised on an equal footing with academic science.

Only an approach that combines interculturality and transdisciplinarity will allow the designing of policies co-created with the communities that have cared for the forest, rather than imposing them “from above.” This dialogue not only protects the Amazon, but also inspires a new paradigm of global sustainability, where the plurality of knowledge becomes a driver of innovation and justice.

A concrete example is the work we are currently doing in the Ecuadorian Amazon with a Sapara community. In its man-

agement plan, the Sapara nation plans to create a biodiversity conservation institute and strengthen its culture and language. Through a *living lab*, understood as a space for the shared production of knowledge and learning, and with the support of digital applications, participatory monitoring of biodiversity linked to oral culture and language is conducted. Researchers from various disciplines (botany, ecology, anthropology, archaeology) and community members of all ages participate. This approach allows for the integration of traditional and scientific knowledge, the co-design of conservation strategies, the strengthening of the cultural autonomy of Indigenous Peoples, and the promotion of the transfer of intergenerational knowledge.



Indigenous Peoples of Ecuador. **Credit:** COICA

An example that serves as a model for the articulation between academic science and Indigenous knowledge is the Sentinel-VIPs project. Although it is being developed in the Indo-Pacific region, it illustrates how Indigenous peoples can participate as research partners and authorities in their territories, identifying key species and cultural resources that function as bioindicators of ecosystem health. This knowledge contributes to more effective, culturally appropriate, and legitimate conservation policies, reinforcing the active participation of key stakeholders. These experiences show how the co-construction of knowledge can inspire scalable and replicable regional policies, effectively integrating academic science and Indigenous knowledge.

The translation of dialogues of knowledge into public policy involves coordinating lo-

cal, national, and regional levels of action. The effective participation of Indigenous Peoples as actors and co-designers allows for the implementation of co-management agreements, the integration of ancestral knowledge and wisdom into climate adaptation plans, and the strengthening of intercultural education.

Legitimacy and guidance for these policies are provided by international frameworks such as ILO Convention 169, the Sustainable Development Goals (SDGs), and the Regional Agreement on Access to Information, Public Participation and Access to Justice in Environmental Matters in Latin America and the Caribbean (Escazú Agreement). Emerging experiences in Bolivia, Ecuador, Brazil, Colombia, and Peru show that indigenous governance can become a cornerstone of public policy through the



Chicha in Kichwa community, Ecuador. **Credit:** COICA.

recognition of territorial rights, prior consultation mechanisms, and the strengthening of structures for autonomy and co-management of protected areas.

FROM THE VOICE OF THE PEOPLE: CONDITIONS FOR A DIALOGUE OF KNOWLEDGE BETWEEN EQUALS

For Amazonian Indigenous Peoples ancestral knowledge and wisdom are not a ‘cultural inputs’ for science, but a living system of life and governance—with its own authorities, protocols, and validation criteria—that sustains health, spirituality, and land management. Therefore, dialogue with science is only legitimate when it occurs between epistemic peers and under rules that recognise the self-determination and governance of knowledge by the peoples (Art. 31 of the UNDRIP, UN 2007). This standard implies moving from ‘gathering’ knowledge to co-creating decisions about how, for what purpose and with whom such knowledge is used, published or circulated. In the words of this approach, it is not a question of how to integrate Indigenous knowledge into science, but of how to articulate worlds of knowledge on equal terms, with shared responsibilities for the territory and life (UN, 2007; Lacey, 2019).

The possibility of genuine dialogue between knowledge systems—academic and ancestral—requires more than a willingness to exchange ideas: it involves building an ethic of epistemic parity. This concept involves the recognition of Indigenous Peoples not as repositories of residual knowledge, but rather as producers of comprehensive knowledge, whose cognitive, ontological and normative systems have their own logic, validation, and legitimacy (Fricker, 2007; Santos, 2018). Talking about epistemic parity does not mean

‘equalising’ epistemes, but rather establishing reciprocal relationships of recognition, where each form of knowledge can be sustained without being subsumed under the other.

Epistemic governance and legal recognition of knowledge

Epistemic governance refers to the capacity of peoples to define the rules for accessing, using, and transmitting their knowledge and wisdom, under the recognition that knowledge is part of the territory and not an abstract resource. In this context, the right to maintain, control and develop their own knowledge and knowledge systems, recognised by Article 31 of the United Nations Declaration on the Rights of Indigenous Peoples (UN, 2007), establishes a minimum legal standard for epistemic self-determination. However, this right only materialises when research, health, biodiversity, or education policies translate it into concrete mechanisms of community control.

Epistemic governance refers to the capacity of peoples to define the rules for accessing, using, and transmitting their knowledge and wisdom, under the recognition that knowledge is part of the territory and not an abstract resource.

The recent WIPO Treaty on Genetic Resources and Associated Traditional Knowledge (2024) represents an important step forward; it requires disclosure of origin in patents that use knowledge or resources from Indigenous Peoples, thereby strengthening traceability and transparency. However, Indigenous peoples warn that there is still a need to move from a logic of ‘protection’ to a logic of living governance, where knowledge systems are recognised as sources of normativity. In the Amazon, experiences of COICA, AIDESEP in Peru and CONFENIAE in Ecuador show that community registries, biocultural protocols, and schools of wisdom are contemporary expressions of this cognitive sovereignty, in which the community defines how its knowledge is preserved and transmitted.

In a genuine dialogue, knowledge cannot be extracted but rather must be an ethical and ongoing relationship between those who share it. Epistemic co-responsibility recognises that all research or use of ancestral knowledge must involve processes of consent, co-authorship, return, and community benefit.

Methodological autonomy and semiotic pluralism

Methodological autonomy is the recognition that indigenous epistemologies have their own ways of checking stuff out, their own times for watching things, and their own symbolic languages. They are not just ‘empirical knowledge’ in a simplistic way, but whole systems of knowledge where nature, spirit, and community come together in one place for learning. In this sense, the dialogue of knowledge should not attempt to translate indigenous epistemology into the standards of Western science, but rather open spaces for semiotic coexistence: that is, accepting that ways of narrating, singing, sowing, or healing are also legitimate methodologies for producing knowledge.

The Two-Eyed Seeing (Etuaptmumk) approach formulated by Mi'kmaq scholars (Bartlett, Marshall & Marshall, 2012) provides an inspiring paradigm for this relationship. Seeing with ‘two eyes’ — that of Indigenous knowledge and that of Western science — does not seek to merge perspectives, but rather to uphold their complementarity and generate situated interpretations. In the Amazon, initiatives such as medicinal gardens, indigenous territorial monitoring, and cultural cartography applied by COICA are examples of this ‘intermethodology’: they combine scientific observation and relational knowledge of the territory, achieving more holistic results than either of the two approaches separately.

Co-responsibility and epistemic reciprocity

In a genuine dialogue, knowledge cannot be extracted but rather must be an ethical and

ongoing relationship between those who share it. Epistemic co-responsibility recognises that all research or use of ancestral knowledge must involve processes of consent, co-authorship, return, and community benefit. The CARE Principles of Indigenous Data Governance (Global Indigenous Data Alliance, 2018; Carroll et al., 2020)—developed in response to the limitations of the FAIR principles of open science—establish an ethical foundation for indigenous data sovereignty. These principles (Collective Benefit, Authority to Control, Accountability, and Ethics) emerged from the collaborative work of the Global Indigenous Data Alliance (GIDA), which seeks to ensure that all information generated about or by Indigenous Peoples is used under conditions of self-determination, free, prior, and informed consent, and reciprocity. The original publication in the Data Science Journal (Carroll et al., 2020) formalises this framework, which has now been adopted in intercultural research, open data policies, and Indigenous knowledge platforms globally.

From a practical intercultural perspective, co-responsibility also involves returning translated knowledge to community contexts: in local languages, through workshops, rituals, or educational materials designed by the communities themselves. In the Ecuadorian Amazon, for example, the AMUPAKIN association of Kichwa midwives has systematised its ancestral health knowledge through training processes for young midwives, ensuring that the knowledge remains community-based without being captured by technical intermediaries.

Incidence and institutional cohabitation

For the dialogue of knowledge to have structural effects it must transcend the symbolic realm and translate into institu-

tional cohabitation: that is, into the active presence of indigenous epistemologies within public decision-making frameworks. This implies that ancestral knowledge participates in the design of policies, indicators, and budgets, and that Indigenous Peoples have a decisive voice in planning and control bodies. Epistemic parity requires reconfiguring spaces for deliberation so that participation is not merely decorative but constitutive.

The influence of Indigenous peoples on contemporary governance structures has opened up unprecedented spaces for dialogue, although these are still beset by structural asymmetries. In different contexts—from the creation of co-managed protected areas to participation in multilateral frameworks—Indigenous peoples have driven a silent transformation of public policy: moving from consultation to institutional cohabitation, where their voice has decision-making power. Examples

For the dialogue of knowledge to have structural effects it must transcend the symbolic realm and translate into institutional cohabitation: that is, into the active presence of indigenous epistemologies within public decision-making frameworks.

such as the shared management of the Edézhíé territory in Canada or the incorporation of Indigenous representatives in international organisations reflect a gradual shift towards epistemic co-responsibility, in which legitimacy is also measured by cultural continuity, self-determination, and the health of the territory (Government of Canada & Dehcho First Nations, 2018; IW-GIA, 2023).

But these advances coexist with mechanisms of symbolic participation that reproduce inequality in new forms. Processes such as the consultations in Chile (2019) and Mexico, which sought to incorporate Indigenous voices into reforms and mega-projects, revealed that without free, prior, and informed consent, participation becomes instrumental and powerless (Albert, 2019; Cruz Rueda, 2024). Practice shows that “inclusion” without financial, legal and cognitive autonomy maintains epistemological subordination: peoples are invited to speak, but not to decide.

Even in more advanced experiences—such as the territorial co-governance models in New Zealand—tensions persist between the aspiration for self-determination and state structures that continue to mediate resources, legal definitions, or recognition (Equal Justice Project, 2022). These limitations show that institutional parity is not achieved through representation alone, but through the redistribution of epistemological and normative power. Genuine cohabitation involves reforming institutions so that Indigenous knowledge is not consulted as an addendum but integrated as a framework for decision-making.

Ultimately, the challenge of institutional cohabitation lies not only in creating spaces, but also in transforming the rules of knowledge: who asks, who interprets, and who validates. Recent global experiences show

that epistemic justice cannot be decreed but built through daily collaboration, when public policy recognises that Indigenous Peoples not only participate in knowledge, but are knowledge in action.

CHALLENGES TOWARDS FULL EPISTEMIC JUSTICE

While progress has been made, epistemic justice remains a contested frontier. Academic and funding systems continue to prioritise quantitative evidence over qualitative evidence, and projects with an intercultural focus tend to have lower budgetary priority. The persistence of epistemicide—the systematic delegitimization of non-Western forms of knowledge—forces us to rethink the role of science in this era of climate collapse. Santos (2018) argues that the end of the “cognitive empire” will only be possible when science accepts that its universality is partial and contextual, and that the situated knowledge of peoples offers civilisational alternatives to the extractive paradigm.

From an indigenous standpoint, authors such as Davi Kopenawa (Kopenawa and Albert 2013) and Ailton Krenak (2025) remind us that knowledge cannot be separated from life: ‘we do not think about the forest, we are the forest’. This idea sums up the heart of epistemic justice: recognising that peoples not only contribute information, but also worldviews that are essential for the continuity of the planet. Consequently, the ethics of epistemic parity does not seek to merge epistemologies, but rather to create a meeting ground where each form of knowledge retains its voice, its territory, and its temporality. Only in this way can knowledge fulfil its deepest function: to weave the continuity of life on a planet that needs all the intelligences that inhabit it.

Conclusion: Towards a living Amazon

The co-construction of knowledge in the Amazon faces persistent structural obstacles: historical inequalities, lack of political will, fragmented funding, and contemporary forms of epistemic racism. Compounding these are complex methodological challenges—such as building trust among heterogeneous actors, harmonising different cultural timescales, and ensuring equitable participation in land management—which assess the limits of existing institutional frameworks.

However, the processes analysed reveal that co-construction is not only a technical instrument of cooperation, but also an ethical and political project of decolonisation of knowledge. Epistemic parity and institutional cohabitation do not arise from discursive consensus, but from the real redistribution of cognitive and normative power: when Indigenous Peoples are recognised not only as sources of knowledge, but as subjects of governance, capable of defining their own conceptual, legal, and methodological frameworks. This transformation redefines the very notion of Amazonian sustainability: no longer as an environmental goal, but as a living practice of autonomy and co-responsibility between worlds.

This horizon for the protection of the Amazon requires a new knowledge architecture capable of articulating intercultural dialogues, territorial practices, and binding public policies. Co-governance initiatives, Indigenous knowledge platforms, and intercultural research networks show that it is possible to build shared legitima-

cy between science and ancestral knowledge. But true sustainability is achieved when knowledge becomes action: when communities, institutions, and nature engage in dialogue on equal terms, transforming theory into practice and practice into ethics.

A living Amazon will only be possible if the production of knowledge contributes to keeping its diversity alive—biological, cultural, and spiritual. Knowledge is not an abstract entity: it is a way of life that regenerates territories and strengthens the autonomy of the peoples who inhabit them. Therefore, moving towards a living Amazon implies sustaining the dialogue of knowledge as a political, epistemological, and civilisational principle: a fabric in which science, memory, and territory are intertwined to care for the common future of humanity.

Knowledge is not an abstract entity: it is a way of life that regenerates territories and strengthens the autonomy of the peoples who inhabit them.

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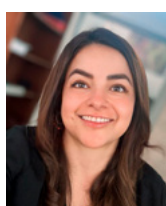
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ENDANGERED AMAZONIA

FROM KAWSAK SACHA TO CHASKA KAUSAY: POLICIES FROM THE TERRITORY FOR THE AMAZON AND THE PLANET



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

1. The existence of Amazonian Indigenous Peoples is at risk. We have shown that we can live with dignity by growing our own food, fishing, and hunting for our sustenance. However, we stand now at the front line of defense against deforestation, pollution, and extractivism.
2. The case of the Sarayaku people at the Inter-American Court of Human Rights (IACHR) demonstrates the ongoing resistance to extractivism in the territory. Indigenous Peoples activate their governance systems and rely on existing national legal frameworks to defend their rights and territories. Vis-à-vis non-compliance, the Sarayaku people have forged a path beyond national borders to defend their rights. Nonetheless, the lack of mechanisms to enforce national and international decisions and rulings leaves a landscape of subjugation and destruction. The reverse is also true: the Resolutions from the UN Permanent Forum (UNPFII) urging governments to protect at least 80% of the Amazon have remained merely on paper. These two examples illustrate the breakdown in the chain of decision-making from the territory to the national, regional, and global levels, and from the global level back to the territory.
3. While the rulings of the IACHR, the Constitutional Court of Ecuador, and the UNPFII resolutions to protect 80% of the Amazon remain unenforced, Ecuador seeks financing through debt to compensate the companies that violated the rights of the Amazonian Indigenous Peoples and polluted the water, soil, and air of vast Amazonian territories in Ecuador.
4. The Ecuadorian State's response to the Sarayaku people's case remains insufficient and fails to meet international standards. Despite more than two decades of litigation and the binding ruling of the Inter-American Court of Human Rights (IACHR) in 2012, the Ecuadorian State has not fully implemented the ruling in favor of the Sarayaku people. Meanwhile, international arbitration awards are strictly enforced against oil and mining companies.

Photo: Sarakayu children playing soccer at Sarayaku's central square. **Credit:** Heriberto Gualinga.

5. Free, prior, and informed consultation must be carried out on the terms of Indigenous Peoples and in co-creation with them. Its purpose is consent, although this may or may not be granted. **Consent must be understood as an ongoing negotiation, subject to the conditions and compliance of those seeking to intervene in the territory.**

6. The Kawsak Sacha or “living forest” concept of the Sarayaku People offers an alternative to commodified conservation models and can be scaled up to the planetary level as Chaska Kausay or living planet. It is a plan based on self-organization, internal consultation, and comprehensive defense of the territory. Amid ecological collapse and climate emergency, this approach reminds us that Amazonian nature is a vital condition of our existence and must be expanded into a way of life, a holistic vision for Pachamama (Mother Earth).

7. Resolutions 18 and 19 of the UN Permanent Forum on Indigenous Issues (2023) urge Amazonian states to protect 80% of the Amazonian territory by 2025 and to prioritize the legal recognition of 100 million hectares of indigenous territories. These resolutions are not being implemented as quickly as international arbitration awards and remain only on paper.

8. Just as individual rights and the rights of peoples can only be exercised within the framework of the same rights of other human beings and all peoples, individual and collective rights can only be exercised if governments commit to taking the decision that in 2025, at a historic COP30, 80% of the Amazon will be protected and restored to guarantee life and cultural and biodiversity heritage as a mechanism for the survival of humanity.

Summary

The intention behind the presentation of the process and the 2012 ruling of the Inter-American Court of Human Rights in favor of the Sarayaku People, along with the 2023 ruling of the Constitutional Court of Ecuador, serve to illustrate how international bodies are neither activated nor binding when the petitioners are civil society and, in this case, Indigenous Peoples. On the other hand, where oil and mining companies exploit resources and pollute our territories, international awards are strictly enforced. Similarly, the 2023 UNPFII Regional

Resolutions to protect 80% of the Amazon by 2025 are included as examples of policies adopted within a global body that are also non-binding. Both examples contrast with the amounts of international arbitration awards imposed on the Ecuadorian State, which compromise a large part of our national budget. Finally, the proposal is to scale up the Kawsak Sacha (living forest) initiative of the Sarayaku people to Chaska Kausay (living planet), grounded in their own worldview, and through the implementation of the UNPFII Resolutions.

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FROM KAWSAK SACHA TO CHASKA KAUSAY: POLICIES FROM THE TERRITORY FOR THE AMAZON AND THE PLANET

THE AMAZON BIOME IN EMERGENCY

We are Indigenous Peoples who live on the banks of the Amazonian rivers. We have shown that we can live with dignity by cultivating what we eat, fishing, and hunting to feed ourselves. However, for several decades now, we have also been peoples at the frontlines, who find ourselves defending our territories, nature, and our rights, because the Amazon has become a territory of sacrifice justified by economic and market justifications.

The impacts we are seeing are severe. The rivers have become highly irregular in their cycles: for long periods, they can be ex-

tremely dry, causing a drop in water levels that makes them unnavigable. At other times, we suffer the effects of devastating floods. With dry rivers, fish no longer migrate upstream. With the floods, our villages, settled along the riverbanks, are terribly affected by the massive destruction of our gardens, homes, and all kinds of infrastructure. All of this literally threatens our right to feed ourselves. Our very existence as Peoples is at risk.

Moreover, we are feeling the effects of climate imbalance with increasing intensity. Because we live on the edge of the forest,



Sarayaku woman with her face painted to participate in the Sarayaku festival. **Credit:** Heriberto Gualinga

temperature variations are extremely drastic: we go from intense cold to unbearable heat. The change is so brutal that we have seen hailstorms in the middle of the Amazon. We are not used to dealing with such a cold, as we live in open-sided houses, so the most we can do is light a fire to keep warm. Let us remember that we are talking about areas where humid heat is —or used to be— the norm.

We watch with anguish the impacts on the Amazonian territory, as the forest burns in Brazil, Peru, Bolivia, thousands of kilometers of primary forest are deliberately set on fire for perverse purposes: to take over these spaces while all the species in that habitat become extinct.

We are peoples marginalized from the State, often at odds with the state and governments when they try to impose extractive activities on us. As I write this article, Ecuador is in the midst of a national strike whose clashes have already claimed the life of a young indigenous person.

Indigenous Peoples who live on the banks of the Amazonian rivers. We have shown that we can live with dignity by cultivating what we eat, fishing, and hunting to feed ourselves.

RESPONSE OF STATES AND MULTILATERAL ORGANIZATIONS

It has been 30 years since governments and large multilateral organizations began meeting and discussing global and sustainable solutions to combat climate change. Yet the resolutions and agreements reached in these forums are not considered binding within countries, and there is no political will to address the critical situation facing the Amazon ecosystem. However, international lawsuits against States that once granted concessions to oil companies that entered the Amazon and our territories and polluted the soil, water, and air are binding despite rulings in favor of Indigenous Peoples by the Inter-American Court of Human Rights, the Constitutional Court of Ecuador, and other subnational, national, and international bodies.

Ecuador is one of the 20 countries with the most investment arbitration cases, with nearly 50 proceedings —mostly related to mining, oil, and gas (Coba 2022). The extended 2025 **General State Budget** allocates \$2.425 billion to settle **arbitration awards** lost by the country to multinational companies (El Oriente 2025), of which \$2 billion would correspond to Chevron.

To speak of Chevron is to go back to the beginning of oil exploitation in Ecuador. Texaco, in consortium with PETROECUADOR, operated between 1964 and 1990 in the Lago Agrio area of the Ecuadorian Amazon. Texaco dumped more than 80,000 tons of toxic waste and crude oil in an area of about 500,000 hectares, affecting local indigenous populations (Orozco 2025). In 1993, these peoples filed a lawsuit against Texaco on behalf of 30,000 affected individuals in a U.S. court. Chevron purchased Texaco in 2001 and inherited the lawsuit with the communities.

The 2018 ruling in favor of Chevron, issued by a court based in The Hague, rejected the claim by Amazonian indigenous peoples and the ruling by the Court of Sucumbíos, which had ordered Chevron to pay USD 9.5 billion for environmental damage in 2013, arguing that the Ecuadorian ruling was “unenforceable under international law” and dismissed the environmental charges against the oil company (Orozco 2025). In this way, the court in The Hague undermined the rule of law in Ecuador to benefit Chevron, disregarding 20 years of Amazonian Indigenous Peoples of Ecuador to defend their rights and ignoring the Ecuadorian legal framework.

While the case of the Sarayaku people marks a milestone in the defense of territories by the Amazonian Indigenous Peoples of Ecuador—and the 2023 Resolutions of the UN Permanent Forum on Indigenous Issues (UNPFII) to protect 80% by 2025—the lack of concrete action to defend nature and human and indigenous rights by courts such as The Hague, by Amazonian states, and by the home states of oil and mining companies perpetuates destruction. Furthermore, these same actors now seek to compensate corporations that have committed ecocides with revenues even greater than their original investment.

The case of the Sarayaku people demonstrates the ongoing resistance from within the territory against extractivism.

Indigenous peoples activate their governance systems and rely on existing national legal frameworks to defend their rights and territories. Faced with repeated non-compliance with these frameworks, they have opened a path beyond national borders to uphold their rights. However, the lack of binding mechanisms to enforce national and international decisions and rul-

The case of the Sarayaku people demonstrates the ongoing resistance from within the territory against extractivism.

ings leaves behind a landscape of dispossession and destruction. The reverse is also true: the resolutions of the UN Permanent Forum urging governments to protect at least 80% of the Amazon have remained on paper. These two examples highlight the breakdown in the chain of decision-making from the territory to the regional and global levels, and from the global to the territorial level.

The intention behind presenting the process and the 2012 ruling of the Inter-American Court of Human Rights in favor of the Sarayaku people, as well as the 2023 ruling of Ecuador’s Constitutional Court, is to understand how international bodies do not take action and are not binding when the petitioners are civil society and, in this case, Indigenous Peoples. On the other hand, when it comes to oil and mining companies that exploit resources and pollute our territories, international rulings are executed to the letter.

In the following section, I first present a summary of the case of the Sarayaku People v. Ecuador, taken from the June 27, 2012 ruling of the IACHR since its inception in 2002 (IACHR 2012, 45). I sup-

plement this section with Judgment 60-19-AN/23 of the Constitutional Court of Ecuador of December 20, 2023, to date. Subsequently, I present the regional resolutions of the UNPFII to understand their scope and non-compliance.

THE CASE OF THE SARAYAKU PEOPLE V. ECUADOR

Background

The territory inhabited by the Sarayaku People is difficult to access. Since 1979, the Sarayaku People have had a Statute registered with the then Ministry of Social Welfare, which includes authorities such as a President, Vice President, Secretary, and Members. Since 2004, Sarayaku has been legally recognized as the Kichwa Indigenous People of Sarayaku. Currently, decisions of special importance to the People are made in the traditional community assembly, known as *Tayja SarutaSarayacu*,

which is also the highest decision-making body. In addition, it is organized under a Governing Council composed of traditional leaders from each community (kurakas or varayuks), community authorities, former leaders, elders, traditional wise people (yachaks), and groups of community advisors and technicians. This Council has decision-making power over certain internal and external matters, but its main role is to serve as an intermediary with external actors on the basis of decisions made by the assembly.

On May 12, 1992, the State, through the Institute of Agrarian Reform and Colonization (IERAC), awarded an undivided area in the province of Pastaza, known as “Block 9,” covering 222,094 ha or 264,625 ha. (IACHR 2012, 2), to the communities of the Bobonaza River, including the Kichwa people of Sarayaku. Block 9 includes 135,000 hectares of Sarayaku territory.

In 1996, one year after the 8th Oil Round that included “Block 23” in the Amazon region of the province of Pastaza, a participation contract was signed for the exploration of hydrocarbons and exploitation of crude oil in this Block between the State Oil Company of Ecuador (PETROECUADOR) and the consortium formed by Compañía General de Combustibles S.A. (CGC) and Petrolera Argentina San Jorge S.A. (later “Chevron Burlington”). The area covered by the contract with CGC comprised 200,000 ha, where several associations, communities, and Indigenous Peoples live: Sarayaku, Jatun Molino, Pacayaku, Canelos, Shaimi, and Uyuimi. Among these indigenous peoples, **the Sarayaku** are the largest in terms of population and territorial extension, as their **ancestral and legal territory covered around 65% of the territories included in Block 23.**

The Sarayaku are the largest in terms of population and territorial extension, as their ancestral and legal territory covered around 65% of the territories included in Block 23.

On May 15, 1998, Ecuador ratified Convention No. 169 on Indigenous and Tribal Peoples in Independent Countries of the International Labor Organization (ILO), which entered into force for Ecuador on May 15, 1999.

On June 5, 1998, Ecuador adopted its 1998 Constitution, which recognized the collective rights of Indigenous and Afro-Ecuadorian peoples.

The Sarayaku People v. CGC

- On April 13, 2002, the Sarayaku Association sent a communication to the Ministry of Energy and Mines express-

ing its opposition to the entry of oil companies into its ancestral territory.

- On November 22, 2002, the Vice President and members of the Sarayaku Rural Parish Council filed a complaint with the Ombudsman's Office; five days later, the Ombudsman of Ecuador issued a "defensive statement" establishing that the members of the Sarayaku People were under the protection of his authority.
- On November 28, 2002, the President of the OPIP, representing the 11 associations of the Kichwa people of Pastaza, filed a constitutional appeal.



Traditional dance of Sarayaku, the man dancing and the woman shaking her hair. **Credit:** Heriberto Gualinga.

- On December 4, 2002, a meeting was held in Quito with the participation of Sarayaku, the Governor of Pastaza, PETROECUADOR, the Undersecretary of Environmental Protection of the Ministry of Energy and Mines, the CGC, the OPIP, Canelos, and the CGC Coordination Committee of the Pastaza Governor's Office, at which a halt to activities in Block 23 was demanded. No agreement was reached.
- Between October 2002 and February 2003, the oil company's work advanced 29% within Sarayaku territory. During that period, CGC loaded 467 wells with approximately 1,433 kilograms of "pentolite" explosives, both at the surface and at greater depths in Block 23.
- On February 6, 2003, the Ecuadorian Hydrocarbon Industry Association reported that CGC had declared a state of "force majeure" and suspended seismic exploration work.
- The company opened seismic trails, built seven heliports, destroyed caves, water sources, and underground rivers necessary for the community's water consumption, and cut down trees and plants of great environmental, cultural, and food subsistence value to Sarayaku.
- On December 1, 2003, the Kichwa Association of Sarayaku called for a march. The state sent a security contingent of 10 police officers. Several Sarayaku members were injured in the clashes.
- Between February 2003 and December 2004, a series of alleged threats and acts of harassment against Sarayaku leaders, members, and a lawyer were reported.



Girl surprised to see a giant karachama. **Credit:** Heriberto Gualinga.

- In December 2003, the Kichwa Association of Sarayaku, the Center for Economic and Social Rights (CDES), and the Center for Justice and International Law (CEJIL) filed a complaint with the Inter-American Court of Human Rights (IACHR) against the Republic of Ecuador for granting a permit in the 1990s to a private oil company to carry out oil exploration and exploitation activities in the territory of the Kichwa Indigenous People of Sarayaku without prior consultation and without their consent. In October 2004, the IACHR Commission approved Admissibility Report No. 62/04.
- Between the filing of the complaint and the judgment, other proceedings took place. On August 3, 2007, an Inter-institutional Cooperation Agreement was signed between the Ministry of Mines and Petroleum and the National Police, with the aim of removing the pentolite from the territory of Sarayaku.
- The 2008 Constitution of Ecuador, which entered into force on October 20 of that year, established in Article 57 that “the collective rights of indigenous communes, communities, peoples, and nationalities shall be recognized and guaranteed, in accordance with the Constitution and with international human rights covenants, conventions, declarations, and other instruments.”
- On April 20, 2009, the Board of Directors of PETROECUADOR decided to lift the suspension of activities in blocks 23 and 24, decreed on February 6, 2003.
- On October 2, 2009, an Inter-institutional Cooperation Agreement was signed between the Ministry of Non-Renewable Natural Resources and the Na-

PETROECUADOR signed with the company CGC a Termination Agreement by mutual consent of the participation contract for the exploration and exploitation of crude oil in Block 23.

- tional Police for the removal of pentolite from the territory of Sarayaku, both on the surface and buried deep in Block 23.
- Six and a half years after the complaint was filed, on July 9, 2010, the Commission in charge of the case at the IACHR requested that the Court order the Ecuadorian State to take certain measures of reparation for the violation of the right to private property, the right to life, judicial guarantees and judicial protection; the right to freedom of movement and residence; the right to personal integrity and the right to personal liberty; and the right to culture.
- On November 19, 2010, by public deed, PETROECUADOR signed with the company CGC a Termination Agreement by mutual consent of the participation contract for the exploration and exploitation of crude oil in Block 23.
- On April 21, 2012, for the first time in the history of the IACHR’s judicial practice, a delegation of judges conducted an on-site investigation at the scene of a contentious case submitted to its juris-

diction. At the assembly of the People (Tayjasaruta), where the judges were received by Mr. José Gualinga, President, the kurakas, the yachaks, and other authorities, the Legal Secretary of the Presidency, Dr. Alexis Mera, acknowledged the responsibility of the State. On May 15, 2012, after the proceedings in the territory and the acknowledgment of responsibility, the State stated that “the public statement [by the Secretary of Legal Affairs of the Presidency] is in itself and in advance a formula for the restoration of human rights, within the framework of the provisions of Article 63.1 of the American Convention.”

- The IACHR’s ruling, in summary, calls for: i) neutralizing, deactivating, and **removing the pentolite from the territory of the Sarayaku people**; ii) **to consult the Sarayaku people** in advance, adequately, and **effectively in the event that any activity or project involving the extraction** of natural resources **is to be carried out** in their territory; and iii) **to adopt the legislative**, administrative, or other **measures** necessary to

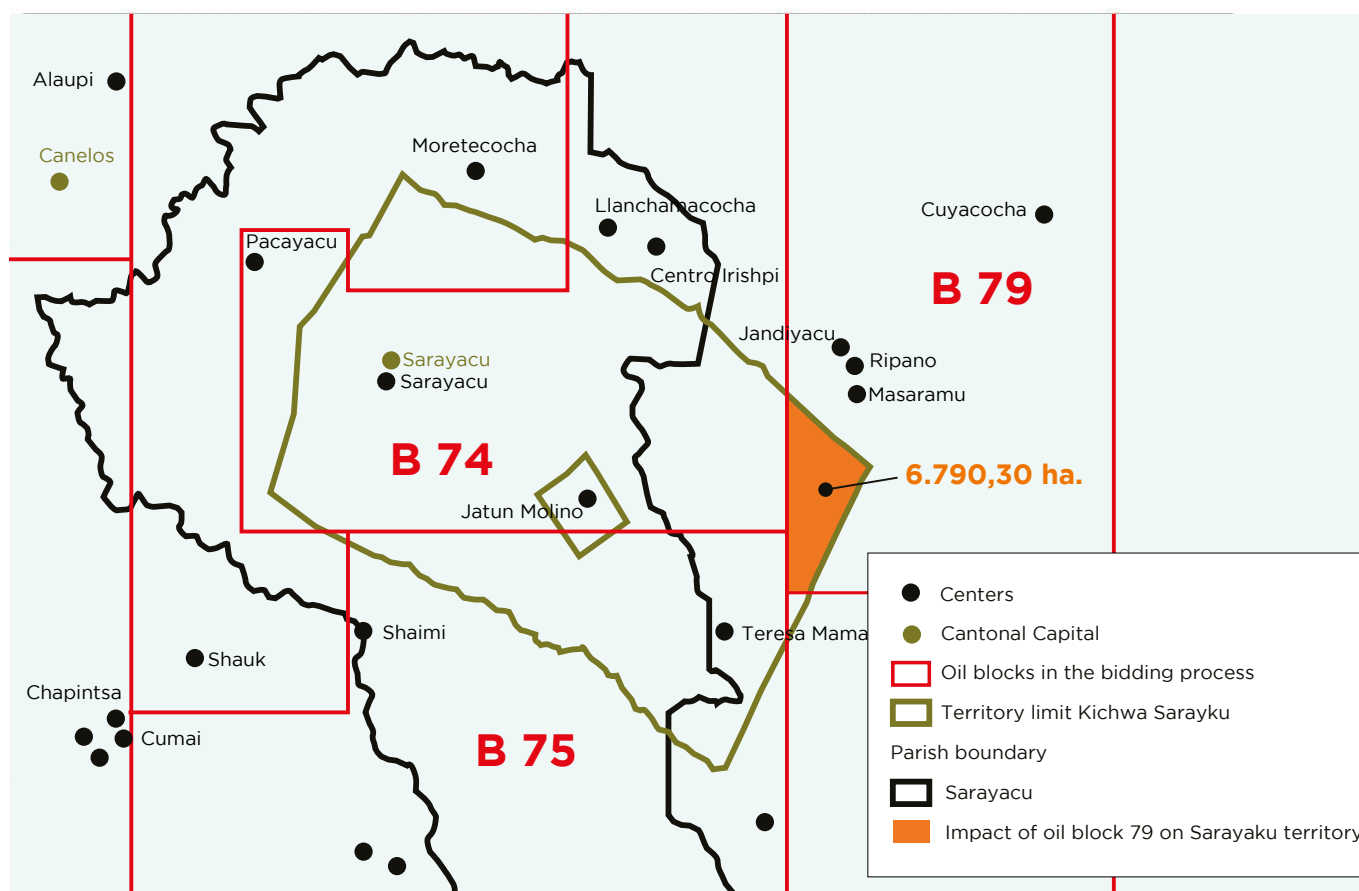
implement and give effect to **the right to prior consultation of indigenous and tribal peoples and communities**.

- On November 13, 2019, Mirian Cisneros, in her capacity as “Tayak Apu” and legal representative of the Sarayaku People, filed a lawsuit for failure to comply with the ruling.
- On June 4, 2020, the Admissions Chamber of the Constitutional Court admitted case 60-19-AN for processing.
- On June 17, 2022, the plaintiffs stated that: The Sarayaku territory is crossed by Blocks 10, 74, 75, and 79 (see Map 1). To date, Blocks 74 and 75 are assigned to the company Petroecuador EP, while Block 79 is concessioned to a Chinese consortium (Constitutional Court of Ecuador 2023, 45). Blocks 74 and 75 affect 68% of the surface area of the Sarayaku territory.
- The bidding process for Blocks 74, 75, and 79 has not been subject to consultation mechanisms in any of the seven communities that make up the Kichwa People of Sarayaku (Constitutional Court of Ecuador 2023, 26). In 2023, an attempt was made to carry out a consultation process, but the Sarayaku People refused, since the blocks were awarded in 2015 and 2016, respectively, and the consultation must be prior, not ex post. The Constitutional Court concludes that “the opacity and contradictory versions surrounding the prior consultation processes do not allow us to take for granted that the obligation examined in the terms set forth by the Inter-American Court of Human Rights has been fulfilled, that is, in a prior, adequate, effective, and fully compliant manner with the international standards applicable to

The Secretariat for Human Rights, acknowledged that the reparations measures claimed by the plaintiffs have not yet been fully complied with.

the matter” (Constitutional Court of Ecuador 2023, 28). The ruling concludes in its final paragraphs that “the fundamental right of indigenous peoples to free, prior, and informed consultation should not be seen solely as a regulatory requirement, but as an essential component in guaranteeing the protection of their collective rights” (Constitutional Court of Ecuador 2023, 32). Therefore, **it declares non-compliance with obligations 2, 3, and 4 derived from the judgment issued by the IACHR in the case of the Kichwa Sarayaku Indigenous People v. Ecuador**, in the terms set forth in this judgment, and stipulates deadlines for compliance, in addition to ordering the Ministry of Women and Human Rights to issue a public apology to the plaintiffs.

- The Secretariat for Human Rights, in its capacity as the body responsible for promoting compliance with the obligations and decisions of international human rights bodies, acknowledged in a letter submitted to this Court on **June 22, 2022, 25 that the reparations measures claimed by the plaintiffs have not yet been fully complied with** (Constitutional Court of Ecuador 2023, 22).
- Judgment 60-19-AN/23 establishes non-compliance with Judgment No. 001-10-SIN-CC in relation to the regulation of the right to pre-legislative consultation; partial non-compliance with Judgment No. 001-10-SIN-CC in relation to the regulation of the right to prior consultation.



Map 1. Territory of the Kichwa People of Sarayaku in relation to the parish of Sarayaku and Block 79, 2013. **Source:** Constitutional Court of Ecuador, Ruling 60-19-AN/23, December 20, 2023, 54.

Conclusion

The Kichwa People of Sarayaku waited 19 years for a ruling from Ecuador's Constitutional Court. Unfortunately, they are not the only ones. All the actions taken in national and international courts and tribunals have not yet been reflected today in decisions that can compensate for the damage and pollution inflicted on these people's waters and territories. As of the writing of this article at the end of 2025, Ecuador still lacks a legal framework that guarantees Indigenous Rights, including our right to free, prior, and informed consultation.

In an Amazon on the brink of irreversible destruction, the defense of human rights, indigenous rights, and the rights of nature is vital for the survival not only of hundreds

of Indigenous Peoples but of humanity as a whole. International arbitration has undermined not only the attempts of Indigenous Peoples to obtain compensation for the damage to their territories, but also those of States. Therefore, the IACHR's ruling in favor of the Sarayaku People is a milestone for Indigenous Peoples throughout the Amazon. Likewise, the Constitutional Court's recognition of the failure to comply with the IACHR's 2023 ruling is not the solution, but it represents an important step toward initiating remediation and reconciliation.

UNPFII REGIONAL RESOLUTIONS 18 AND 19 IN 2023

The Regional Resolutions 18 and 19 of the United Nations Permanent Forum on



Aerial view of the community of Kushillu Urku. **Credit:** Heriberto Gualinga.

Indigenous Issues (UNPFII), adopted in 2023, not only set the goal of protecting 80% of the Amazon, but also include clear and concrete recommendations urging Amazonian governments to safeguard 80% of the Amazonian territory by 2025. Furthermore, they call for prioritizing the legalization of 100 million hectares of indigenous territories. These resolutions must be respected with the same urgency and seriousness given to international arbitration awards that indebt our countries.

The reality within our Amazonian nations is different and contradictory: rounds of oil negotiations and mining concessions are announced to ensure greater extraction in indigenous territories and even protected areas where the most preserved primary forests are located and which are fundamental to the planet's balance. To this is added repression, criminalization, and attempts to silence the voices of those who demand rights and defend nature.

Defending the Amazon is a difficult task. Hundreds of indigenous and non-indigenous defenders have lost their lives and continue to do so to defend the world's largest forest with all its biodiversity and cultural wealth. Maintaining our maloca has cost blood, tears, and much sacrifice, and yet it remains a biome whose contribution to the world is immeasurable.

There is a framework approved by the Permanent Forum of Indigenous Peoples, not only from the Amazon but from all Indigenous Peoples around the world, whose territories represent more than 20% of the planet, are home to around 80% of the world's biodiversity, and whose forests are not only standing but healthy. COP30 must link these resolutions to life in our Amazon. The resources from the awards

must become the resources to implement an Amazon Plan for the recognition of our territories, to provide legal, physical, and financial security to our already recognized territories, to the protected areas themselves, and to create community management systems in territories that do not have a territorial management regime that prioritizes life.

The ACTO must become the platform for achieving compliance with the resolutions of the IACHR, the UNPFII, and the United Nations in our countries, rather than upholding a *status quo* that annihilates all of us who live in this great basin.

Decolonizing and acting from the Indigenous worldview for a Living Amazon.

The Amazon has been a forest sustained through our systems of knowledge and governance; it is our laws that have ensured the survival of this great forest and its waters. What the Western world defines as conservation, for Indigenous Peoples, is

International arbitration has undermined not only the attempts of Indigenous Peoples to obtain compensation for the damage to their territories, but also those of States.

a cosmovision —a way of understanding life through respect for *Pachamama* as a living being, not as something that exists for our service. Faced with an advancing tipping point, states and the international community must recognize our enormous contribution to the conservation of the Amazon rainforest. The validity of the rules that we as peoples have developed communally must be guaranteed, and the legal frameworks that allow destruction must be transformed in line with the vision that has enabled us to preserve the Amazon for millennia.

All information must be clear, adequate, and transmitted in the cultural code of each people so that it can be understood, valued, and processed. Since its origins more than 500 years ago, colonization has used complex —or rather, deliberately complicated—terms to ensure that most peoples do not understand how they were violated and subjugated, all in the name of the law.

It is not concessions to destructive industries or budget allocations that keep us and the forests alive, but our systems of knowledge and governance.

The State, and its multilateral bodies such as ACTO, must guarantee real knowledge, as well as transfer, and transparency of all information. Discussions must be horizontal, always respecting the form of community organization that existed prior to the State, whose results in conservation are evident and palpable. It is not concessions to destructive industries or budget allocations that keep us and the forests alive, but our systems of knowledge and governance.

There must be adequate consultation aimed at obtaining consent, and it must be carried out on our own terms and in co-creation. Consultation, however, may or may not result in consent, and consent must be understood as an ongoing negotiation depending on the conditions and compliance of those who enter into the use of the territory. The State must guarantee the self-determination of peoples. If the people freely decides not to accept any form of consultation—especially understanding that all extractive activity threatens their essence and fundamental principles, making them natural defenders of the Amazonian ecosystem— that decision must be enshrined in law.

We, the Sarayaku, an Amazonian people of Ecuador to which I belong, are building our path in our own way, guided by our life plans. It has been difficult, but we are making progress, exercising our sovereignty, monitoring, zoning, and even measuring how much oxygen we contribute from our territory and how much carbon our territory absorbs. We do not consider ourselves the only ones, but we will not waver in our efforts.

Conclusions and Recommendations: from Kawsak Sacha to Chaska Kausay

1. The State must guarantee that there is no impunity for the violation of the rights of Indigenous Peoples, for the murder of Indigenous leaders and defenders, and for the systematic destruction and contamination of our territories, which has led to a massive loss of biodiversity, water sources, food, and knowledge that sustain life.
2. Amazonian governments are guarantors of our human and indigenous rights. As peoples who existed long before colonization, we demand recognition of our systems of governance, from which our life plans emerge. It is the duty of the State to support this construction from its own perspective in accordance with the territory to understand the priorities of the peoples and their lands. On our side, it is our responsibility to educate the decision-makers who shape the future of our children. It is crucial to build a shared path where life prevails, where the vision is of a living Amazon, and which eliminates the colonial legacy of parallelisms that have left only destruction.
3. The Sarayaku people have not only demonstrated through the rulings of the IACHR and the Ecuadorian Constitutional Court, that the conditions under which concessions are granted in Ecuador violate human and indigenous rights, as well as the Ecuadorian Constitution itself. This is a landmark case that must be disseminated, so that the legal mechanisms used can guide other peoples whose territories have been harmed by oil, mining, or other extractive concessions.
4. We, the Sarayaku, have developed our own proposal to respond to the climate crisis, grounded on our own worldview and understanding of life. It is based on a system of resource allocation, not a market-driven approach, but one rooted in the perspective of the living rainforest, rooted in love for nature and ecosystems, and in the profound contribution of Indigenous Peoples to the world.
5. Our view is holistic. We are a small people, but we are dignified and committed to all of humanity and Mother Earth, which says: "This form of conservation—the commercial one—is not working, and we want you to listen to this alternative—the Kawsak Sacha or living forest—and this concept, and see this unique approach that needs to expand to other areas because it stems from our own vision of the planet." This is what we want to do, this is what we propose from our territories: a plan that addresses climate change, the return on investment, and how to solidify change within the context of our territory.
6. It is a plan built upon strict organization and our own self-consultation with the territory.
7. It has been complex because paternalism and colonialism marginalize all Indigenous Peoples, assuming that we cannot organize ourselves and that we

are incapable of proposing national or global solutions. It has been perverse because of the persistence of patriarchy in all areas of national life, including within our own communities.

8. To conclude, I will mention that, amidst the climate emergency and ecological collapse, it is high time to understand Amazonian Nature as a fundamental condition of our existence and, therefore, also as the basis of collective and individual rights. Just as individual and collective rights of peoples can only

be exercised within the framework of the same rights of other human beings and all peoples, they can only fully be exercised if governments commit to taking the decision that in this year 2025, at the historic COP30, 80% of the Amazon will be protected and restored to guarantee life and cultural and biodiversity heritage as a mechanism for the survival of humanity. We propose that the Sarayaku vision be extended to the entire planet as Chaska Kausay.

About the author

Patricia Gualinga is a leader of the Kichwa people of Sarayaku in the Ecuadorian Amazon. For decades, she and her people have been fighting against extractivism and deforestation, even expelling an oil company from their territory. Her actions today are an example in international law, and she proposes the concept of “Kawsak Sacha,” the living forest, as a cross-cutting theme in the struggle for existence. Patricia Gualinga is one of the eight members of the UN Permanent Forum on Indigenous Issues for the period 2026-2028, becoming the first Amazonian woman to assume this position.

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ENDANGERED AMAZONIA: HOW TO TALK ABOUT SAVING AMAZONIA



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA

Technical Briefing: Key Takeaways

1. In an information ecosystem shaped by parasocial relationships and partisan cues, who says something often matters as much as what is said. This is not an aesthetic point; it is a theory of change.
2. Doom demobilizes. The communications task is to keep the full truth in view while shrinking part of the problem to a human scale where action feels plausible.
3. Indigenous leaders are essential stewards and credible narrators of what works on their lands; they must be at the editorial table, with budgets, authorship, and languages of their choice.
4. A differentiated approach is therefore necessary: match messages and messengers to the audiences with the greatest leverage in each context, while ensuring that Indigenous voices remain central to legitimacy and design.
5. If the constituency must widen, the production table must widen too. Co-production is not a workshop at the end; it is a budget line at the start. Contract Indigenous and community media houses to co-design series; hire editors and translators.
6. Free, prior and informed consent (FPIC) must be a schedule item, not a footnote. Safety, credit, and compensation are part of the plan, not afterthoughts.
7. Borrow reach by partnering with creators and organizations whom target audiences already trust, across ideologies.
8. Choose a few plain themes that can be spoken credibly by many messengers, then repeat them across a network until they become common sense. So that wherever people turn, they encounter the same logic expressed in voices they trust.

Photo: Yadiko Ceremony, Jitogamaro Clan, La Chorrera-Amazonas, Colombia. **Source:** Mauricio Granados

9. Governments are tightening enforcement; markets are moving toward deforestation-free supply chains; science and technology have lowered the cost of seeing what is happening; and Indigenous leadership is more visible than ever. These are not guarantees of success. They are clues to strategy.
10. For every investigative piece on a land-grab, plan a companion story on an Indigenous-led restoration, a municipal enforcement model, or a market reform that works.
11. Protecting and restoring Amazonia is not a boutique moral project but basic self-interest—words, maps, and well-told stories do not merely describe power. They move it.

Summary

The Amazon is not only a forest; it is a communications problem. Four years after Indigenous organizations helped carry a landmark motion through the world's largest conservation congress—an appeal to protect 80% of Amazonia by 2025—the region has endured its worst drought in more than a century and fires on a continental scale. Given the current scenario, the coalition behind that regional target now argues for an emergency pivot that also includes restoring ecological integrity by 2030 as well as protection in a new IUCN Resolution 068. The science is urgent. So, increasingly, is the storytelling. If the world is to act at the speed physics demands, the message—and the messengers—must change.

This essay makes four arguments about how communications can help save Amazonia.

First, communications must move from broadcasting at people to co-creating with them—especially with Indigenous Peoples whose territories hold much of what remains intact. Second, the work must replace doom with disciplined optimism, pairing problems with usable responses. Third, it must elevate trusted, local voices and languages across the channels that matter, from community radio to WhatsApp to policy briefings. And fourth—most important for political reality—it must broaden the constituency for Amazonia beyond its traditional champions. Farmers, traders, truckers, urban consumers, mayors, nurses, clergy, and small-business owners need to hear, in their idiom, how the forest keeps crops viable, cities livable, and economies stable. The task is not to make everyone an environmentalist. It is to make the forest relevant to people's daily calculations.

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HOW TO TALK ABOUT SAVING AMAZONIA

THE MESSENGER MATTERS - AND MUST BE MATCHED TO THE AUDIENCE

Environmentalists have long believed that evidence wins debates. But facts rarely change minds on their own. In an information ecosystem shaped by parasocial relationships and partisan cues, who says something often matters as much as what is said. A conservation NGO might deliver identical information to two audiences and get opposite results. A local agronomist, a pastor, or a nurse could carry the same frame across a boundary an outsider cannot cross.

This is not an aesthetic point; it is a theory of change. If the constituency for Amazonia must expand, then the repertoire of messengers must expand faster still. Indigenous leaders are essential stewards and credible narrators of what works on their

lands; they must be at the editorial table, with budgets, authorship, and languages of their choice. But the political coalition that will decide the forest's future includes many who do not identify with Indigenous causes or have limited exposure to them. A differentiated approach is therefore necessary: match messages and messengers to the audiences with the greatest leverage in each context, while ensuring that Indigenous voices remain central to legitimacy and design.

FROM DOOM TO AGENCY

Doom demobilizes. Faced with planetary-scale problems, many people retreat or conclude their choices are too small



Venezuelan Amazon rainforest. **Source:** Juan Carlos Amibilia/ Provita

to matter. The communications task is to keep the full truth in view while shrinking part of the problem to a human scale where action feels plausible. That is not saccharine optimism; it is disciplined optimism. It pairs the diagnosis with the “how,” shows trade-offs, and names limits. In practice, that means solutions journalism and accountability journalism working together: testing whether agroforestry delivers what it promises; checking if deforestation-free procurement clauses are enforced; verifying whether enforcement surges actually deter land-grabs.

A ledger of specific, small wins—titled hectares, cancelled illegal tenders, and restored streamflows—does more than lift morale. It supplies evidence for funders, arguments for policymakers, and momentum for coalitions. As small wins accumulate, they create the preconditions for larger shifts in budgets, laws, and norms.

MAKE INFORMATION INTO INFRASTRUCTURE

Well-told stories can move opinion. Public, durable information can move systems. Modern newsrooms and civic-tech outfits can turn diffuse harms into observable patterns: concession registries that show overlaps with protected areas; satellite-validated maps of new clandestine runways; price-exposure dashboards that reveal which supply chains are most at risk from trade rules. Publish the datasets, not just the story. Equip Indigenous federations, prosecutors, municipal planners, farm co-ops, and journalists with the same shared maps, glossaries, and evidence packs. Good information lowers the cost of coordination. It can also raise the cost of corruption.

BUILD FOR IMPACT, NOT CLICKS

If advertisers pay for pageviews, any attention will do. If the goal is outcomes, attention from the right audiences matters more than mass. That argues for syndication agreements, open licensing, newsletters for decision-makers, explainers written in committee-room prose, and editions in the languages where leverage sits—Portuguese for Brasília, Spanish for Lima, and Indigenous languages for the places where protection is lived rather than lobbied. Measure results not only in impressions but in replications, citations in rulings or tenders, policy changes, budget shifts, titling decisions, and supplier exits.

WHAT TO SAY - AND TO WHOM

Grand messages often miss. Better to segment audiences, choose frames that travel across values, and recruit messengers those audiences already trust. Below is an expanded, differentiated map of priority audiences, with suggested frames, messengers, and channels. None of these are mutually exclusive; the same campaign can carry several strands in parallel if it maintains message discipline.

The communications task is to keep the full truth in view while shrinking part of the problem to a human scale where action feels plausible.

1. Smallholders, ranchers and agribusiness operators

Frame: Rainfall, risk, and market access. Standing forest stabilizes local climate and water cycles, supporting yields and livestock health. Deforestation increases heat stress and drought risk; it also courts trade barriers as markets pivot to deforestation-free rules. Compliance is not ideology; it is insurance.

Messengers: Local agronomists, co-op leaders, and respected ranchers who have adopted pasture intensification or integrated crop-livestock-forest systems; municipal ag secretaries; farm-credit officers.

Channels: Ag radio; WhatsApp groups for co-ops; bulletins at input retailers; field-day videos; simple calculators showing profit-and-risk comparisons between business-as-usual and low-deforestation models.

Products: “Five-minute brief for your farm accountant”; forecast maps showing rainfall resilience in municipalities that kept forest cover; step-by-step guides for accessing compliance finance.

2. Urban voters and consumers

Frame: Heat, health, and pocketbook. Trees are shade, moisture, and clouds as well as carbon. Deforestation raises urban temperatures, burdens hospitals and raises food prices by disrupting rainfall. Protecting the forest is a public-health and cost-of-living policy.

Messengers: Pediatricians, nurses, teachers, urban mayors, neighborhood leaders, athletes, and entertainers who are trusted but not identified with environmental politics.

Channels: Local TV and radio; short video explainers; transit ads on heat-risk



Venezuela. **Source:** Alberto Blanco/Provita

days; school curricula; supermarket shelf tags that illustrate deforestation-free sourcing.

Products: City-level “heat avoided” dashboards; short PSAs that show how forest-fed rivers keep hydropower reliable and electricity bills stable.

3. Mayors, governors and municipal planners

Frame: Stability and investment. Forest protection underpins water security, disaster resilience and eligibility for green finance. It reduces firefighting costs and keeps schools and clinics open during heat waves.

Messengers: Civil-defense chiefs, water-utility managers, treasury officials from municipalities that have secured climate-aligned finance, and governors who have won investment by reducing deforestation.

Grand messages often miss. Better to segment audiences, choose frames that travel across values, and recruit messengers those audiences already trust.

Channels: Policy briefings; peer-to-peer networks; template ordinances and procurement clauses; GIS dashboards integrated into planning software.

Products: “City kit” with pre-drafted by-laws on deforestation-free procurement; financing roadmaps; case studies with numbers on avoided emergency expenditures.

4. National policymakers and enforcement agencies

Frame: Law and order, sovereignty, and competitiveness. Illegal logging, mining, and land-grabs are organized crimes that erode tax bases and empower violent actors. Cleaning up brings investor confidence and reduces international friction.

Messengers: Former prosecutors, federal police and tax officials; defense analysts; finance-ministry technocrats; chambers of commerce.

Channels: Committee hearings; briefings with visual evidence; trade-press op-eds; private roundtables that surface operational fixes rather than slogans.

Products: Prosecution-ready evidence packs; cross-agency data-sharing templates; short memos linking enforcement performance to spreads on sovereign borrowing and to trade preferences.

5. Faith communities

Frame: Stewardship and duty of care. The forest is a gift; safeguarding creation protects the vulnerable. Emphasize inter-generational responsibility and honesty in commerce.

Messengers: Pastors and lay leaders; Catholic social-teaching scholars; gospel musicians; evangelical agronomists who practice stewardship.

Channels: Sermon guides; church radio; WhatsApp groups; youth-group service projects.

Products: Ready-to-use sermon outlines that connect scripture to local issues like heat risk or illegal mining; testimonies from farmers who prospered with stewardship practices.

6. Health sector

Frame: Prevention. Deforestation drives dangerous heat, smoke, and infectious-disease risks. Protecting the forest lightens hospital loads and saves lives.

Messengers: Nurses, pediatricians, public-health researchers, and hospital administrators.

Channels: Medical-association newsletters; CME (continuing education) mod-

ules; hospital social-media accounts; clinic posters.

Products: Municipal “heat-attributable mortality” snapshots; clinician talking points; short videos for waiting rooms.

7. Business and finance

Frame: Risk management and opportunity. The direction of travel is clear: deforestation-free supply chains, climate disclosure, and due diligence. Compliance reduces risk; early movers capture markets and lower capital costs.

Messengers: CFOs from companies that already comply; insurers; major banks’ risk officers; logistics firms that have cut losses by avoiding conflict zones.

Channels: Trade press; investor notes; industry associations; webinars with export-market buyers.

Products: Supplier toolkits; concise “what to expect” memos on emerging rules; case studies on resilience and cost of capital.



Women’s sustainable ventures in the Ecuadorian Amazon. *Source:* COICA

8. Youth and creators

Frame: Agency and community. Focus on what peers are doing now, not distant targets. Provide credible, remixable assets. Let creators lead.

Messengers: Local creators, student journalists, young athletes, and musicians.

Channels: Short video platforms; live streams; school clubs; challenges that reward community contributions rather than performative outrage.

Products: Content packs with footage, maps and captions cleared for remix; small grants for youth reporting; creator fellowships that pair young communicators with Indigenous and community mentors.

9. International publics and regulators

Frame: Shared interest, not moralizing. Emphasize trade stability, migration pressures, energy reliability, and health. Show how Northern policy and finance can align with Southern priorities and leadership.

Messengers: Trade experts, supply-chain scholars, migrant-support NGOs, and diaspora leaders.

A ledger of specific, small wins does more than lift morale.

Channels: Policy briefs, hearings and trade press; community radio in migrant hubs; and diaspora newsletters.

Products: Side-by-side comparisons of policy options; “myth vs fact” explainers on leakage and unintended consequences.

10. Indigenous Peoples and traditional communities

Frame: Rights, security, livelihoods, and co-governance. Communications should elevate Indigenous authority, knowledge, and languages; report on safety and accountability; and share usable tools for titling, monitoring, and seeking redress.

Messengers: Indigenous journalists, elders, women leaders, and youth monitors; trusted legal advocates; and community health workers.

Channels: Community radio; WhatsApp; assemblies; schools; women’s cooperatives.

Products: Rights explainers in local languages; step-by-step FPIC guides; safety protocols; payment-for-ecosystem-services primers; and co-authored investigations that return data to communities.

The through-line across all ten audiences: credible messengers, short usable products, repetition across channels, and calls to action that match each audience’s locus of control. The Indigenous strand remains central—on principle and because, empirically, rights-respecting Indigenous stewardship is among the best predictors of standing forest. But for coalitions to hold and grow, the portfolio of voices must be broader than one identity, and the repertoire of benefits wider than biodiversity alone.

CO-PRODUCE, DON'T PARACHUTE

If the constituency must widen, the production table must widen too. Co-production is not a workshop at the end; it is a budget line at the start. Contract Indigenous and community media houses to co-design series; hire editors and translators in Arawak-family and Tupi-Guarani languages; fund field time and caretaking of relationships; share ownership of data and visuals; publish in the languages of origin and syndicate outward. Free, prior and informed consent (FPIC) must be a schedule item, not a footnote. Safety, credit, and compensation are part of the plan, not afterthoughts.

BORROW TRUST; EARN IT OVER TIME

Building large institutional followings is slow and uncertain in an era of platform throttling and news avoidance. Borrow

reach by partnering with creators and organizations whom target audiences already trust, across ideologies. Provide them with verified assets that fit their formats—short videos, Q&As, sermon guides, farm bulletins, and committee memos—and with clear, non-performative calls to action. Over time, as people see that acting on this information earns them real-world benefits (a lower power bill, a sturdier harvest, a safer town), trust accrues to the message itself.

NARRATIVE DISCIPLINE: FEWER, CLEARER, REPEATED

Politics teaches what conservation too often forgets: repetition is a feature, not a bug. Choose a few plain themes that can be spoken credibly by many messengers, then repeat them across a network until they become common sense.



Community river transport in the Colombian Amazon. **Source:** Mauricio Granados

- Protecting the forest protects rainfall.
- Law and order in the Amazon is law and order at home.
- Standing forest is a competitive edge that attracts investment.
- Healthy forests save lives by lowering dangerous heat and smoke.

These lines are not slogans to be printed once on a banner. They are cues to organize content, briefings, creator posts, sermon guides, farm bulletins, and committee memos around, so that wherever people turn, they encounter the same logic expressed in voices they trust.

A BLUEPRINT FOR AMAZONIA-CENTERED COMMUNICATIONS

If communications are to help deliver on the region's goals, they should be organized like a campaign: disciplined, distributed and durable.

1. **Governance and budget.** Create an Amazonia editorial board with Indigenous and community leaders as voting members; fund Indigenous newsroom roles, not just story grants; institute a standing safety fund; and write FPIC into every commissioning contract.
2. **Audience segmentation (operationalized).** For each of the ten audiences above, maintain a live playbook: priority frames, recommended messengers, channel plans, product templates, and metrics. Update quarterly based on testing.
3. **Channel strategy.** Treat radio, WhatsApp, and church networks as first-or-

As small wins accumulate, they create the preconditions for arger shifts in budgets, laws, and norms.

der channels in the basin; newsletters, trade press, and legislative briefings for policy audiences; creator partnerships for mass-market reach. Maintain message discipline so the same frame recurs across mediums and languages.

4. **Content mix.** Pair crisis with competence. For every investigative piece on a land-grab, plan a companion story on an Indigenous-led restoration, a municipal enforcement model, or a market reform that works. Publish datasets and “how-to” sidebars so others can replicate.
5. **Languages.** Budget for production (not just translation) in Portuguese, Spanish, and priority Indigenous languages. Commission original reporting where leverage sits—Brasília, Lima, Leticia—and syndicate back into English and other languages for global amplification.
6. **Data as civic tech.** Build shared registries, maps, and trackers—concessions, titling, enforcement actions, and supply-chain exposure—that legislators, prosecutors, federations, and journalists can all use. Announce them with stories, but maintain them as public goods.

- 7. Metrics that matter.** Track replications, citations in court or committee, policy changes, budget shifts, titling decisions, supplier exits, and community safety outcomes. Clicks count; consequences count more.
- 8. Influence networks.** Recruit creators across ideologies to carry Amazon stories that match their audiences' values—security for some, stewardship for others, entrepreneurship for still others. Provide verified assets, on-the-ground guides, and clear, specific calls to action.
- 9. Feedback loops.** Establish channels for communities, farmers, nurses, pastors, and mayors to flag what the messaging gets wrong, what it misses, and where it lands. Treat critique as an input, not an attack.
- 10. A wins ledger.** Document small victories—where, when, who, and evidence—and return credit to communities. Share the ledger with funders, officials, and creators to demonstrate progress and keep coalitions motivated when the news is bleak.

WHY INDIGENOUS COSMOVISIONS REMAIN CENTRAL—WITHIN A BROADER COALITION

Communication that aims to save Amazonia cannot be merely procedural. It must also be cultural. Indigenous cosmovisions—ways of understanding the world that bind people to place, kin, river, and sky—offer not only moral clarity but practical sense: they foreground reciprocity, care, and limits in systems that otherwise reward extraction. When programs adopt those logics, they design for relations, not

just transactions: monitoring that builds community institutions as well as datasets; restoration that revives food systems as well as canopy; enforcement that protects defenders as well as hectares.

But if these cosmovisions are to influence the broader coalition, they must be communicated in ways that others can hear without feeling preached at. That is where differentiated messaging matters. A rancher sympathetic to stewardship may still respond first to numbers about rainfall and market access; an urban voter may respond to heat avoided at a child's school; a finance minister may respond to risk premiums and export revenues. None of that dilutes Indigenous authority. It multiplies its reach by translating principles into benefits that different audiences already value.



Preparations for the Yadiko Ceremony, Jitogamaro Clan, La Chorrera-Amazonas, Colombia. **Source:** Mauricio Granados

PROOF THAT INFORMATION MOVES POWER

Skeptics may ask whether any of this matters against entrenched interests. It does. When a community in northern Gabon (Congo Basin in Africa) could not stop a logging concession alone, journalism and organizing amplified their case; the minister in charge revoked the permit, and the government moved to protect the forest at the community's request. In Peru, methodical stories that assembled satellite images, interviews, and dates helped prosecutors build cases against clandestine airstrips used by traffickers. Years of patient reporting on supply chains helped to usher leather into Europe's anti-deforestation rule. None of these results belonged to journalists alone. They did, however, exploit a constant: truth placed where it can be used still moves systems.

THE PRIZE FOR GETTING IT RIGHT

There is momentum to build on. Governments are tightening enforcement; markets are moving toward deforestation-free supply chains; science and technology have lowered the cost of seeing what is happening; and Indigenous leadership is more visible than ever. These are not guarantees of success. They are clues to strategy.

The communications piece is to knit those clues into a public common sense: that protecting and restoring Amazonia is not a boutique moral project but basic self-interest—security, health, prosperity, and pride. When a village wins time for its forest because a minister cannot ignore facts; when prosecutors can find illegal runways because a newsroom and an Indigenous federation share a map; when a trade rule tightens because persistent reporting made a loophole indefensible—these are reminders that words, maps, and well-told stories do not merely describe power. They move it.

The ask from Indigenous leaders and their allies is clear: protect what remains and restore what is needed to avoid cascading tipping points. That requires money, law, and muscle. It also requires messages that people will carry because they feel like their own. Put Indigenous Peoples in the newsroom and at the commissioning table. Pair crisis with competence. Build information as infrastructure. Recruit and equip messengers across society—farmers, nurses, pastors, mayors, and creators—so that each can speak credibly to their own. And measure what matters.

Get that right and the odds improve—not because a headline saves a forest, but because a thousand well-aimed signals, repeated by voices that count, can still change outcomes—in the basin and beyond.



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ENDANGERED AMAZONIA

COMMUNICATING IS RESISTANCE: AMAZONIAN MILITANCY AND THE EMERGENCE OF NEW NETWORKS OF INDIGENOUS COMMUNICATORS



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

1. Amazonian communication is a political and epistemological practice that defends life, territories, and ancestral knowledge in the face of the climate crisis and the coloniality of knowledge.
2. Communicating from the Amazon is an act of resistance and self-govern-
- ment: it decolonizes the word, reorders the gaze, and reaffirms the indigenous worldview.
3. Networks of indigenous communicators are territories of thought that articulate climate justice, collective healing, and rebuilding the bond with nature.

Summary

Communication in the Amazon transcends the simple act of informing: it is a tool for resistance, self-determination, and social transformation. In the face of the climate crisis and media hegemony, indigenous peoples communicate in order to exist, claiming their knowledge and worldviews. The word becomes a territory and a political act, expressing a living relationship with nature. Networks of indigenous communicators—especially those led by women—emerge as

spaces for healing, climate justice, and defence of territory. Although they face technical limitations, their credibility and territorial roots allow them to dispute global narratives and build alternatives to the dominant media paradigm. Campaigns such as *Amazonia for Life: protect 80% x2025* show that indigenous communication not only makes struggles visible but also redefines the meaning of the world and promotes a new pact between peoples and the Earth.

Photo: Amazon Basin Women's Summit - Cundinamarca, Colombia. **Credit:** César David Martínez.

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COMMUNICATING IS RESISTANCE: AMAZONIAN MILITANCY AND THE EMERGENCE OF NEW NETWORKS OF INDIGENOUS COMMUNICATORS

Communication in the Amazon cannot be a neutral act. It is a political and epistemological practice that emerges from the urgency of defending life, territories, and knowledge that have sustained the balance of the planet for millennia. In a context marked by the climate crisis, the advance of extractivism and the systematic invisibilisation of indigenous voices, communicating becomes an act of resistance.

It is not only a matter of transmitting information, but of disputing meanings, of building horizons of understanding that reaffirm the collective existence of the Amazonian peoples.

Territorial indigenous communication constitutes a field of symbolic confrontation in the face of media hegemony. Boaventura de Sousa argues that coloniality not only oppresses bodies and territories, but also knowledge, establishing an epistemological hierarchy that defines what knowledge is valid and what is denied. In this scenario, the Indigenous Peoples of the Amazon—by narrating themselves and from their own worldviews—exercise an act of justice: they communicate to exist and exist to communicate.

Communication, in this sense, is also part of **indigenous self-government**, “decoloniz-



Amazon Indigenous woman in Peru. **Credit:** Segundo Chuquipiondo

ing the word implies reordering the gaze and recognizing the multiplicity of ways of knowing that coexist beyond modern rationality” (Rivera, 2010). Communicating from the Amazon means, then, recovering **the word as a territory and as an expression of a living relationship with nature**, where language not only represents the world, but also co-creates it and keeps it in balance.

Historically, indigenous communication processes have accompanied the struggles for self-determination and the defence of territory. From oral storytelling and community assemblies to community radios and now, digital networks, communication has been the fabric that sustains the continuity of collective memory and political action.

Thus, indigenous communication not only makes injustices visible, but also **reorders the meaning of the world**, opening spaces for a new fabric of knowledge. From this perspective, the word ceases to be an instrument of domination to become an intercultural bridge that enables dialogue between historically subordinate systems of knowledge (Santos, 2014). In times of civilizational crisis, communicating from the Amazon is an act of hope: **an affirmation that life, the word, and the forest are intertwined**.

The recently emerged networks of indigenous communicators consolidate this horizon. More than organizational structures, they are territories of thought and action where communication is exercised as a practice of collective healing, climate justice, and reconstruction of the bond with the Earth. In their convergence, the possibility is glimpsed of a new communication-pact that reconciles human beings with nature and restores the balance between peoples and the planet.

NETWORKS OF COMMUNICATORS: TERRITORIES THAT SPEAK

In recent years, key organizational experiences have been formed. The **CONFENIAE Network of Communicators**, promoted under the leadership of Tony Chimbo with technical support from COICA, emerged to articulate territorial communication processes from Amazonian grassroots organizations. Its purpose is clear: to collect local narratives and project them towards international scenarios, transferring the denunciations and proposals of Indigenous Peoples to global public opinion.

In parallel, the **Network of Women Communicators of the Amazon Basin** is a milestone in the fight against patriarchal structures that have historically silenced indigenous women. With a board of directors made up of women leaders from Suriname, Colombia, and Peru, this space seeks to ensure that Amazonian female voices produce and disseminate their own content, with political and financial autonomy.

Indigenous communication not only makes injustices visible, but also reorders the meaning of the world, opening spaces for a new fabric of knowledge.

It is not only a communicational network, but an act of historical justice: women who narrate their territories from their own perspective, resisting and reinventing communication.

Voices from Amazonia: The Strength of Indigenous Communicators' Networks in the Struggle for Rights and Sustainability

Between 2019 and 2020, in a global context marked by the COVID-19 pandemic, Brazil faced an even more serious reality: the Bolsonaro government contributed to the decimation of more than 30% of the indigenous population. Lack of information, neglect of public health, and shortages of medical care and supplies created a vital communication vacuum.

In response to this humanitarian crisis, the Coordination of Indigenous Organizations

In a global context marked by the COVID-19 pandemic, lack of information, neglect of public health, and shortages of medical care and supplies created a vital communication vacuum.

of the Brazilian Amazon (COIAB) and its grassroots organizations launched a training process with young people from the nine Amazonian states. The objective was to strengthen indigenous communication through the training of indigenous youth, who developed a unique communication process to inform their communities about the seriousness of the situation, in addition to coordinating the distribution of hygiene materials, basic foodstuffs, and medicines.

To strengthen local autonomy, the delivered equipment allowed young people to initiate their own processes of monitoring the context. After the most critical period of the pandemic, this group remained active, consolidating solid and interconnected communication networks in all regions.

Strategies and actions of the networks of communicators

Through a general coordination group, the networks carry out vital strategic actions for the strengthening of indigenous communication:

Intercultural virtual trainings and meetings: promoting the strengthening of technical and narrative capacities, combining traditional knowledge with modern communication tools and platforms, in addition to aligning the general activities of the network.

Autonomous content creation: ensuring that narratives about the indigenous Amazon, climate, biodiversity, and indigenous peoples' struggles are produced and controlled by the peoples themselves, through initiatives such as Minuto COIAB, podcasts, independent videos, photographs, and event coverage.

Dissemination of opportunities: functioning as an information centre on calls, scholarships, events and alliances, strengthening indigenous participation in decision-making and debate spaces, such as COP 30 itself.

Face-to-face meetings: in addition to the virtual trainings, face-to-face meetings are

held that allow a valuable exchange of experiences between the different Amazonian indigenous communicators.

Distribution of materials and equipment: the networks also provide materials and equipment to improve the work of communicators already working in the territory.

Kaianaku Kamaiurá

Coordenadora da Rede de Comunicadores da Coiab

ACTIVISM AND COMMUNITY COMMUNICATION

Community communicators assume the word as a form of resistance. Their work, often sustained without remuneration or with minimal support, responds to a deep ethical commitment. This practice, more than a profession, is a territorial vocation. In the words of Freire (1970), “no one liberates anyone, nor does anyone free themselves: men liberate themselves in communion”, an affirmation that materializes in the communicative action that is born from the Amazonian communities as an expression of liberation and self-government.

In this sense, Amazonian indigenous communication is intimately linked to the defence of human and collective rights. The **Amazon Defenders Program (PDDD)** of the Coordinator of COICA recognizes communicators as defenders of the territory, located in an area of high risk from threats from state, business, or criminal actors. As the Inter-American Commission on Human Rights (IACHR, 2021) warns, environmental and territorial defenders in Latin America face a context of “structural violence and systematic criminalization,” which makes it urgent

to strengthen differentiated protection mechanisms.

This practice can be understood as a form of **emancipatory community communication**, which does not seek to reproduce



Fifth Amazonian Summit of Indigenous Peoples - Lima, Peru.

Credit: César David Martínez

dominant industrial or media models, but rather to strengthen processes of horizontal dialogue, memory, and cultural self-determination. In the Amazon, communicating does not only imply disseminating information: it means weaving links, recovering orality, narrating from the territory, and articulating the indigenous worldview with digital tools.

The values that guide this communication—orality, interculturality, horizontality, and linguistic identity—configure an alternative epistemological model to the hegemonic paradigm of the mass media. Linda Tuhiwai Smith (2012) argues that Indigenous Peoples communicate to “reclaim the power to tell their own stories” and reconstruct their presence in the world from their own epistemology. Thus, Amazonian narratives not only denounce extractive violence, but also preserve memory and project visions of the future where life, the forest, and the word are inseparable.

The values that guide this communication—**orality, interculturality, horizontality, and linguistic identity—configure an alternative epistemological model to the hegemonic paradigm of the mass media.**

In this framework, communicational militancy becomes a form of collective political action. The community communicators of the Amazon are, at the same time, chroniclers of life, guardians of the territory, and architects of hope.

PARTICULARITIES OF COMMUNICATING FROM AMAZONIA

The advantages of this communication are obvious. These are **legitimate** voices, capable of transmitting with immediacy the events that occur in the territory. Credibility is built from community practice and is reinforced with information protocols and early warnings that seek to guarantee veracity.

However, there are deep challenges. **Connectivity** is intermittent; communities must travel to nearby cities to access electricity or internet; **technical resources and specialized training** are scarce, as international projects often prioritize biodiversity, reforestation, or land rights, but rarely focus on **communication and digital rights**. This perpetuates the technological gap and limits the reach of indigenous communication, leaving the Amazon exposed to external narratives that often damage reality.

PROJECTION OF AMAZONIAN COMMUNICATION

Networks of communicators aim to consolidate structures capable of **financial self-sufficiency**, guaranteeing the continuity of campaigns beyond political conjunctures or isolated projects. It is not only a matter of making the struggle and resistance visible, but also of **telling the positive experiences**: ancestral knowledge, indigenous bioeconomy models, community value

chains, autonomous governance practices, and proposals for self-education.

The challenge is twofold: to strengthen communication capacity in the territories and, at the same time, to dispute narratives in the international spaces where the future of climate and biodiversity is defined.

ADVOCACY EXPERIENCES

Amazonian communication has demonstrated its capacity to influence the global political and media arena. The COICA-led “**Amazonia for Life: protect 80% by 2025**” Initiative is a paradigmatic example of how Indigenous Peoples articulate communication strategies to transform the perception and policies of their common home (the Amazonia). Through multilingual digital campaigns, international declarations, and alliances with global civil society networks, this initiative placed the urgency of avoiding the Amazon’s ecological tipping point on the global climate agenda (COICA, 2023). Communication, in this case, operated not only as a tool for visibility, but also as a **mechanism for transnational political advocacy** (Santos, 2014).

Similarly, the campaign “**A resposta somos nós**” (“**The answer is us**”), promoted by the Coordination of Indigenous Organizations of the Brazilian Amazon (COIAB) in the run-up to COP 30 in Belém, reaffirms a central principle of contemporary indigenous thought: peoples are not passive recipients of environmental policies, but **political subjects with concrete proposals and historical practices for the preservation of the Amazon biome** (COIAB, 2024).

These experiences show that when indigenous peoples communicate from their own territories and worldviews, the Ama-

The challenge is twofold: to strengthen communication capacity in the territories and, at the same time, to dispute narratives in the international spaces where the future of climate and biodiversity is defined.

zon ceases to be a passive scenario or an object of external intervention: it becomes a **global political subject**.

Communicating from the Amazon, therefore, is an act of resistance, but also of **building the future**. Networks of indigenous communicators—with their approaches to militancy, horizontality, and community communication—expand the frontiers of political action, transforming not only the narratives about the Amazon, but also the decisions that determine its destiny.

Between technical precariousness and spiritual strength, between the scarcity of resources and the ancestral legitimacy of the word, **Amazonian communication** stands today as **a pillar to face the triple crisis of the planet: climate, biodiversity, and inequality**. In the face of a media ecosystem saturated by disinformation and digital manipulation, Amazonian indigenous communication reminds the world of an elementary and urgent truth: **to fight for the Amazon is to fight for life**.

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ENDANGERED AMAZONIA

THE ECONOMIC ACCOUNTS BEYOND THE TYRANNY OF GDP: A MECHANISM TO SAFEGUARD MEGADIVERSITY



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



Technical report: Key Takeaways

1. Gross Domestic Product (GDP) ignores the environmental cost of economic growth, which can lead to erroneous public policy decisions. In contrast, the Net Ecological Domestic Product (PINE) discounts environmental costs, offering a more realistic and sustainable measure of the national income of megadiverse countries.
2. Between 2018 and 2023, the CTADA in Mexico ranged between 4.1% and 4.6% of GDP, with air emissions as the main component. These data reflect considerable environmental damage that is not reflected in the traditional economic metrics of several megadiverse countries.
3. Although the CTADA exceeds 4% of GDP, public spending on environmental protection has remained below 0.7%. Moreover, actual climate spending is barely 0.15 -- 0.18% of GDP, revealing a disconnect between the climate discourse and actual allocation of resources. Although the CTADA exceeds 4% of GDP, public spending on environmental protection has remained below 0.7%. Moreover, actual climate spending is only 0.15–0.18% of GDP, revealing a disconnect between climate discourse and actual resource allocation.
4. Despite methodological advances and the implementation of tools such as georeferencing, CEEMs are still not used effectively in fiscal planning and evaluation, which limits their transformative impact.
5. The accounts allow for valuing ecosystem services and quantifying the impacts of climate change by region. This is essential for guiding adaptation investments, evaluating energy subsidies, and aligning the budget with the commitments of the Paris Agreement.

Summary

This paper analyzes the evolution and relevance of the Economic and Ecological Accounts of Mexico (CEEM) as an instrument for integrating environmental information into macroeconomic analysis. The methodological framework of the System of Environmental-Economic Accounting (SEEA), promoted by international organizations, as well as its adoption and application by INEGI in the Mexican context, is presented as a basis for understanding its operation and potential scaling in Amazonian countries. Through the review of the main indicators published between 2018 and 2023, trends are identified in the costs of environmental depletion and degradation (CTADA), as well as public spending

on environmental protection. The results show that while the CTADA has remained between 4.1% and 4.6% of GDP, government spending on environmental protection remains low, averaging less than 0.7% of GDP. In addition, the inadequacy of effective climate spending, which accounts for less than 0.2% of GDP, despite significantly higher labeled budget allocations, is discussed. The text concludes that, although Mexico has been a pioneer in Latin America in the incorporation of environmental statistics in its national accounts, important challenges persist in terms of effective investment, design of sustainable public policies and strengthening budget labeling for climate change

Keyword

Climate Change, National Accounts, Climate Finance, Ecological Accounts, Mexico, megadiverse countries, GDP

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THE ECONOMIC ACCOUNTS BEYOND THE TYRANNY OF GDP: A MECHANISM TO SAFEGUARD MEGADIVERSITY

INTRODUCTION

National accounts are a unified statistical accounting conceptual framework that organizes the totality of the economic activity of institutional and productive sectors. This system allows us to understand the structure and evolution of the economy through key indicators such as Gross Domestic Product (GDP), national income, consumption, investment, savings, and foreign trade. National accounts derive from the methodological framework of the System of National Accounts (SNA), promoted by international organizations such as the United Nations (UN), the International Monetary Fund (IMF), the World Bank (WB), and the the Organization for Economic Cooperation and

Development (OECD), with its most recent version being the SNA 2008 (United Nations et al., 2009).

In Mexico, the National Institute of Statistics and Geography (INEGI) is the agency in charge of generating Mexico's National Accounts (SCNM), which include products such as goods and services accounts, quarterly accounts, regional accounts, by institutional sectors, and satellite accounts. These allow governments, researchers, and analysts to evaluate economic performance, formulate public policies, make international comparisons, and design strategies for sustained economic development.



Credit: Rhett Ayers Butler/Mongabay

Mexico's **System of Economic and Ecological Accounts (SCEEM)** is an extension of traditional national accounts that integrates environmental information into macroeconomic analysis. This integration aims to make visible the environmental impacts of economic growth and the costs of natural resource depletion. The SCEEM was developed by INEGI based on the recommendations of the System of Environmental-Economic Accounting (SEEA), promoted by the UN and multilateral organizations since the 1990s (UN et al., 2012). And the objective of the SEEA is to cover the critical gap left by traditional economic indicators such as GDP by integrating environmental data, allowing countries to monitor the natural resources depletion and environmental degradation along with economic activity. Therefore, it is a crucial

tool for sustainable development because it reveals how environmental assets, such as forests and water, contribute to the economy and how economic activities impact those assets.

The origin of the SCEEM is linked to global efforts to construct macroeconomic indicators that incorporate the environmental effects of productive activity. From the report "Our Common Future" (1987) and Agenda 21 (1992), consensus was generated on the need to go beyond GDP as a measure of development. In 1993, the UN published the first methodological manual for integrated accounts, which inspired the development of national systems such as the SCEEM (United Nations et al., 1993). Mexico was a pioneer in this effort, being one of the first countries to publish inte-



Credit: Rhett Ayers Butler/Mongabay

grated environmental accounts. The first pilot exercise was carried out in 1990, and the first published series covers the period from 1985 to 1990. Since then, INEGI has worked in continuous series, improving thematic coverage and methodology, with a significant leap in the 2003-2007 series (INEGI, 2008). The experience of Mexico, also a megadiverse country like Brazil, Peru, Ecuador, Colombia, and Venezuela, can provide guidelines on how the application of the SCEEM has the potential to present national statistical data beyond only growth and guide more assertive public policies.

In Mexico, the development of the SCEEM began with the measurement of the depletion of resources such as oil, natural gas, and forest resources, as well as the estimation of air, water, and soil degradation. Over time, new dimensions were incorporated, such as environmental protection expenditures, water accounts, emissions accounts, and material flows.

In 2018, INEGI made a change of base year that profoundly renewed the methodological structure of the SCNM and the SCEEM. The change to 2018 incorporated improvements such as: Update of industrial classifications (SCIAN 2018); Inclusion of new sources such as 2019 economic censuses; Improvements in the monetary valuation of natural capital; and the adjustment to international SEEA and SNA 2008 standards.

This article includes the measurements of the Economic and Ecological Accounts of Mexico (CEEM), analyzes the evolution of the CEEMs between 2018 and 2023, examines their link with climate financing mechanisms, and proposes a research and public policy agenda to strengthen their impact in regions of high ecosystem and biodiverse value, such as the Amazon (INEGI, 2023).

WHAT DO THE CEEM MEASURE?

The SCEEM aims to measure costs, expenditures, balances, and flows in the following manner:

- 1. Costs of depletion:** They represent the monetary value of the use of non-renewable assets such as crude oil, natural gas, groundwater, and forest resources. They are equivalent to a form of depreciation of natural capital (INEGI, 1999).
- 2. Environmental degradation costs:** These include the necessary cost to remedy the deterioration of air (emissions), water (pollutant discharges), and soil (erosion, solid waste).
- 3. Ecological Net Domestic Product (PINE- by its acronym in Spanish):** It is obtained by subtracting environmental costs from GDP. It reflects the real net income that can be maintained without compromising the country's natural capital (INEGI, 2008).

Effective climate expenditure—that is, that which truly contributes to addressing climate change—is much lower. For 2023, only 47 billion pesos meet this criterion, representing only 0.15% of GDP.

4. Environmental protection expenditure:

Measures public and private investments aimed at preventing, reducing, or remediating pollution and ecological deterioration.

5. Physical balances: These are presented in natural units (deforested hectares, tons of emissions, cubic meters of water extracted) and allow non-monetary trends to be observed.

6. Material flows: These indicate the total amount of materials extracted, transformed, consumed, or exported by the Mexican economy.

In the context of the SCEEM, total environmental costs include two main components:

- **Depletion Costs:** represent the loss of value due to the use of non-renewable natural resources. It is a form of depreciation of natural capital that must be considered if sustainable net income is to be measured (INEGI, 1999).
- **Environmental Degradation Costs:** quantify the environmental damage caused by economic activity, such as air, water, and soil pollution, and involve environmental restoration costs.

These two types of costs are added together to obtain a measure of the total impact of economic activity on the medium environment.

Although GDP and PINE have shown similar trajectories in nominal terms between 2000 and 2015 (both tend to grow), PINE

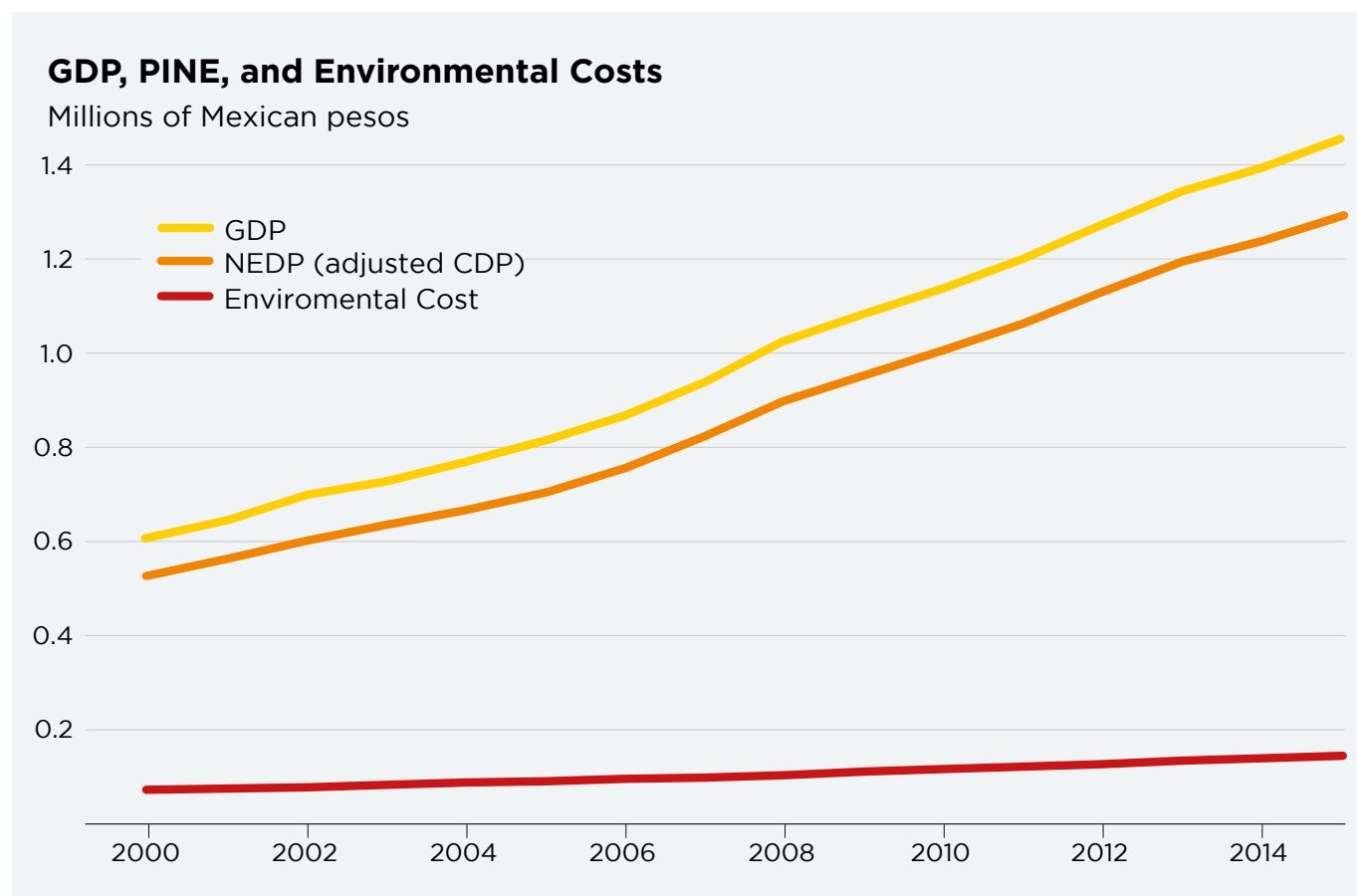


Figure 1: GDP, PINE, and Environmental Costs. **Source:** Martínez Guzmán, A. (2000) e INEGI (2019)

is systematically lower because it discounts the effects of environmental deterioration. The difference between both curves represents the **“invisible cost” of economic growth**: the negative impacts on natural capital that GDP does not capture (see Figure 1).

This difference is crucial. GDP can grow even when natural resources are depleted or the environment is degraded, which means that it overestimates real economic well-being. In contrast, the PINE shows the income that can effectively be maintained without compromising the future. Therefore, the PINE does not contradict the GDP trend but adjusts it to reflect the sustainability of development. This correction makes it possible to identify whether economic growth has been environmentally viable.

The economic and ecological accounts are fundamental for several reasons, since they integrate a comprehensive vision of development because the SCEEM allows evaluating whether economic growth is sustainable over time, incorporating environmental deterioration as a critical variable. They are a tool that supports informed decision-making, as they provide inputs to design public policies that balance economic growth with social equity and environmental conservation.

On the other hand, they allow monitoring international objectives by tracking indicators related to the Sustainable Development Goals (SDGs), particularly SDG 12 (responsible production and consumption) and SDG 15 (life on land). International comparability is relevant because they adopt the SEEA framework that allows Mexico to compare itself with countries that have implemented similar accounts, such as Norway, the Netherlands, Costa Rica, or the

SCEEM contributes to building an economy that is more conscious, balanced, and accountable for future generations.

Philippines. These accounts foster public awareness of the economic value of natural capital and strengthen accountability on environmental issues.

Mexico’s System of Economic and Ecological Accounts represents a pioneering and robust effort to integrate the environmental dimension into economic statistics. Its usefulness goes beyond the academic field: it constitutes a critical tool for assessing the sustainability of national development. By incorporating the costs of environmental deterioration and natural resources depletion into traditional macroeconomic indicators, the SCEEM contributes to building an economy that is more conscious, balanced, and accountable for future generations.

MEXICO’S ECONOMIC AND ECOLOGICAL ACCOUNTS 2018-2023 (INEGI (2023))

As of 2018, the CEEM entered a new methodological and conceptual stage. This evolution is part of the advances of the System of Environmental and Economic Accounting (SEEA) promoted by the United Nations, as well as the national need to align economic planning with the climate com-

mitments established in the Paris Agreement. Among the most significant advances is the updating of methodologies for valuing the depletion of natural resources, the incorporation of ecosystem services in official accounting, and the strengthening of links with traditional national accounts. This stage of expansion stage allowed for greater integration between economic, environmental, and social statistics, laying the foundations for evidence-based environmental governance.

During the period 2018–2023, the CEEMs have addressed a wide range of topics, ranging from the use and availability of water, energy, and polluting emissions, to the physical and monetary accounting of forest and water ecosystem services. INEGI has published annual technical reports that include not only data but also comparative analyses between environmental costs and economic benefits, highlighting the regions, sectors, and productive activities that present greater ecological impacts.

An indicator that adjusts the GDP by discounting the costs of environmental depletion and degradation, and which has been proposed as a more appropriate measure of long-term sustainable income (INEGI 2023).

These analyses make it possible to calculate the Ecological Net Domestic Product (PINE), an indicator that adjusts the GDP by discounting the costs of environmental depletion and degradation, and which has been proposed as a more appropriate measure of long-term sustainable income (INEGI 2023).

In recent years, the CEEMs have also included georeferencing and mapping tools to spatially represent the relationship between land use, economic activities, and environmental pressure. These methodological innovations have opened up the possibility of carrying out much more precise territorial analyses, allowing local governments to identify priority areas for conservation, environmental restoration, or productive reconversion. In addition, they have facilitated the identification of synergies and conflicts between sectoral public policies, such as those linked to energy infrastructure, agricultural development, or urban expansion.

One of the most notable advances in this period has been the publication of the first estimates of the economic cost of climate change in Mexico. Through modeling methodologies and vulnerability analysis, the CEEMs have managed to quantify the potential impact of extreme weather events and changes in temperature and precipitation patterns on the national economy. These estimates have been presented as a proportion of GDP by states, which has made it possible to identify regions that are particularly exposed to climate risks, such as the Southeast of the country, the Yucatan Peninsula, and the Pacific coastal areas. This information is fundamental for guiding the allocation of resources for adaptation, resilient infrastructure, and climate insurance.

The role of CEEMs in energy planning has also become relevant. By integrating emissions from fossil fuels use, hydrocarbon reserves depletion, and the ecological impacts of energy production, these accounts offer a comprehensive view of the real costs of the current energy model. This information is key to substantiating the urgency of an energy transition towards renewable and low-environmental impact sources. It allows for a more objective assessment of the benefits and costs of energy subsidies, proposing a framework for ecological fiscal reforms that incentivize more sustainable practices.

Table 1 presents a summary of the main results of Mexico's Economic and Ecological Accounts of Mexico (CEEM) for the period 2018–2023 period. It shows that the **Total Costs of Environmental Depletion and Degradation (CTADA)** as a percentage of GDP remained relatively stable, ranging between **4.1% and 4.6%**, with the highest value in 2020. This indicator quantifies the economic impact of the loss of natural resources and environmental degradation. Within the CTADA, **air emissions** represented the highest environmental cost in the reported years, reaching up to **2.8% of GDP**. On the other

hand, public sector spending on **environmental protection**, although lower in proportion, showed a positive trend stabilizing at around **0.7% of GDP** in recent years (INEGI, 2020).

CLIMATE AND ENVIRONMENTAL FINANCES

The relationship between the CEEMs and climate finances is particularly relevant in the context of growing investment needs for climate change mitigation and adaptation. Various studies have estimated that Mexico would need to mobilize between **2% and 4% of its annual GDP** to meet the climate commitments established in its Nationally Determined Contributions (NDCs). These resources should be directed not only to low-carbon infrastructure projects but also to ecological restoration policies, reforestation, water management, coastal areas protection, and institutional strengthening. The CEEM offers key inputs to prioritize these resources based on empirical evidence.

Mexico's federal budget, however, shows structural limitations to address these challenges. According to the analysis of the Center for Economic and Budgetary

Año	CTADA (% GDP)	CTADA (Millions of Current Pesos - MDP)	Depletion (% GDP)	Degradation (% GDP)	Air Emissions (% GDP)	Environmental Protection Expenditure (% GDP)
2018	4.3	1,019,751	0.5	3.8	2.8	0.60
2019	4.5	1,096,970	0.6	3.9	2.8	0.50
2020	4.6	1,066,853	0.7	3.9	2.6	0.46
2021	4.6	1,177,969	0.7	3.9	2.6	0.45
2022	4.1	1,210,848	0.5	3.6	2.5	0.70
2023	4.2	1,337,515	0.5	3.7	2.5	0.70

Table 1. Key Indicators of the CEEMs. *Sources:* INEGI. (2019–2024)

Research (CIEP) for the 2023-2024 period, the energy transition and climate change indicate a significant difference between federal spending labeled in Cross-Cutting Annexes and spending that actually contributes to the fight against climate change. Although official budget annexes report 252 billion pesos for 2023 and 271 billion for 2024, the CIEP analysis shows that these amounts include programs that do not necessarily have a clear climate focus. Many of these allocations are directed towards conventional energy infrastructure or present ambiguity in their environmental objective, which casts doubt on their real impact on mitigation or adaptation (CIEP, 2023).

Based on a qualitative analysis of the programmatic content, the CIEP estimates that **effective climate expenditure**—that is, that which truly contributes to addressing climate change—is much lower. For

2023, it is estimated that only **47 billion pesos** meet this criterion, representing only **0.15% of GDP**. In 2024, the estimate rises slightly to **62 billion**, equivalent to **0.18% of GDP**. These figures reveal that, despite the official discourse and budget labeling, the concrete financial effort to address the climate crisis in Mexico remains limited, fragmented, and highly dependent on large-scale infrastructure projects that do not always have verifiable positive ecological impacts. Furthermore, a substantial part of public spending continues to be allocated to **fossil fuel subsidies**, which contradict the principles of sustainability and generate high opportunity costs in terms of green investment (INEGI, 2023).

CEEMs can play a key role in correcting these budgetary distortions. By quantifying environmental costs by economic sector, they make it possible to identify



indigenous peoples *Credit: COICA*

those activities that generate the greatest ecological damage without a proportional economic counterpart. Similarly, by valuing ecosystem services, they provide a solid basis for justifying investments in environmental conservation and restoration. This information can be integrated into budget impact assessment systems and contribute to fiscal planning that is more aligned with climate objectives. In other words, CEEMs can act as a bridge between national accounting, environmental management, and financing for sustainable development.

In this sense, various lines of action are proposed to strengthen the role of CEEMs as an instrument of public policy. First, it is essential to **consolidate the institutional framework of ecological accounts**, guaranteeing their permanence over time and their articulation with policy planning, budgeting, and evaluation processes.

This requires not only political will but also sufficient financial and human resources to maintain, update, and disseminate them. In addition, it is essential that the CEEMs are actively used by the different government agencies, instead of being seen as a merely statistical or academic exercise.

Second, progress must be made towards **greater territorial and sectoral disaggregation** of the information contained in CEEMs. Ecological and economic dynamics vary substantially between regions and productive activities, so having more specific data will allow for the design of more effective, equitable, and contextualized policies. This is particularly important in a country with a geography as diverse as Mexico or the Amazonian countries, where environmental pressures and response capacities are highly differentiated.



Bonito. **Credit:** Rhett Ayers Butler/Mongabay

Third, it is suggested to **strengthen transparency and public participation mechanisms** around the CEEMs. The availability of environmental and economic information is a prerequisite for accountability and for the empowerment of civil society. Therefore, open data platforms, accessible reports for non-specialized audiences, and public consultation processes that integrate local knowledge and social concerns in the design and monitoring of environmental and fiscal policies should be promoted.

Finally, it is recommended to **deepen the link between the CEEMs and Mexico's international commitments** and those of the Amazonian countries regarding climate change, biodiversity, and sustainable development. Ecological accounts can serve as a tool for reporting, monitoring, and evaluating progress in implementation of the Agenda 2030, the Paris Agreement, and other multilateral treaties. This will not only strengthen the Mexico's position and

that of other megadiverse countries in international forums but will also contribute to attracting international climate finance based on results and transparency.

In an era of environmental and climate crisis, having solid technical instruments like the CEEMs is not a luxury, but an urgent necessity to guarantee the ecological, economic, and social viability of different countries.



Ecuadorian jungle. *Credit: Rhett Ayers Butler/Mongabay*

Conclusion

In conclusion, Mexico's Economic and Ecological Accounts represent an institutional innovation of great value for the construction of a truly sustainable development model throughout the region and especially in the Amazon. Its evolution between 2018 and 2023 has shown significant progress in methodological, thematic, and useful terms for public policy. However, its transformative potential will only be realized if it is fully integrated into decision-making and effectively linked to government finance, planning, and evaluation mechanisms. In an era of environmental and climate crisis, having solid technical instruments like the CEEMs is not a luxury, but an urgent necessity to guarantee the ecological, economic, and social viability of different countries (INEGI, 2023).

To achieve high-impact policies to address the critical state of the Amazon, it is necessary to transform the way in which countries keep their national accounts. Growth measured through GDP distorts the real state of the economy by omitting the inputs to obtain an output such as GDP. This means that only half of the story is made known, and it is on that half that policies are built; that is, **GDP is a tyrannical measure that prevails over and despite environmental issues**. Safeguarding the environmental heritage in megadiverse countries with a high density of biocultural diversity should start with national accounts and be linked as part of planning at all levels. In Amazonia, the implementation of the Economic and Ecological Accounts is essential for States to be able, through their policies, to avoid an irreversible tipping point throughout the region.

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CIEP: We are a non-profit civil society research center with no partisan agenda, which provides accessible, relevant, and technically sound information and analysis to influence, improve, and democratize discussions and decision-making in economics and public finance, with the purpose of giving sustainability to the tax system for the benefit of present and future generations.

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ENDANGERED AMAZONIA

DIRECT FINANCING TO INDIGENOUS ORGANIZATIONS: A CRUCIAL PILLAR IN RESTORING AMAZONIA FROM WITHIN ITS TERRITORIES



AMAZONIA ALIVE:
PROTECT +
RESTORE
80% 2025
2030
AVERTING THE TIPPING POINT



Technical Briefing: Key Takeaways

- 1. Direct Financing Empowers Communities.** The Amazonia Forever program introduced a transformative approach by channeling funds directly to Indigenous, Afro-descendant, and traditional community organizations.
- 2. Co-Creation and Ownership are key for sustainability.** Co-design projects with indigenous communities and implement their own projects, ensure cultural relevance, autonomy, and alignment with local priorities.
- 3. Bioeconomy and Organizational Strengthening Are Central.** The current portfolio of projects focuses on promoting sustainable bioeconomy initiatives and strengthening the institutional capacities of grassroots organizations.
- 4. Fondo Amazonia para la Vida sets a New Standard.** Fund is the first regional co created fund exclusively for Indigenous Peoples in Amazonia, supporting self-determined development through direct project design and implementation.

Summary

One of the main challenges for inclusive and sustainable development in the Amazon is ensuring that financial resources reach the communities that live in the forest. The Inter-American Development Bank (IDB) launched Amazonia Forever, a program built on five pillars: fighting deforestation, promoting bioeconomy and creative industries, supporting local communities, developing resilient cities and infrastructure, and advancing sustainable agriculture. The program emphasizes inclusion of Indigenous Peoples, Afro-descendants, women, and youth.

A key innovation of the program is a strategy for direct financing to Indigenous, Afro-descendant, and traditional community organizations (IP.AD.TC). The strategy enables grassroots organizations to co-design, implement, and manage projects di-

rectly, ensuring relevance and community ownership. The IDB-MINGA team supports these organizations throughout the project cycle, from design to evaluation, promoting transparency, efficiency, and autonomy.

Additionally, the IDB, in collaboration with COICA, launched Fondo Amazonia para la Vida, the first regional fund exclusively for Indigenous Peoples in Amazonia. With an initial pledge of \$10 million, the fund supports projects in bioeconomy, territorial management, institutional strengthening, and entrepreneurship. These projects are designed and implemented directly by Indigenous organizations, reinforcing self-determination and cultural relevance. The fund also integrates gender and generational perspectives, highlighting Indigenous youth leadership.

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DIRECT FINANCING TO INDIGENOUS ORGANIZATIONS: A CRUCIAL PILLAR IN RESTORING AMAZONIA FROM WITHIN ITS TERRITORIES

INTRODUCTION

One of the biggest challenges in promoting inclusive and sustainable development in Amazonia is being able to build mechanisms where the financial resources can reach the places and people that need it the most.

Scaling investment and financial innovation are key elements in the quest to stop - a social and environmental- tipping point in Amazonia. The InterAmerican Development Bank (IDB) has put forward an innovative institutional program “Amazonia Forever”, that aims to coordinate internally and lead external cooperation towards an

inclusive and sustainable development for PanAmazonia.

Based on five pillars - (1) Combating deforestation and strengthening environmental institutions; (2) Bioeconomy and creative economy; (3) Peoples; (4) Cities and resilient infrastructure; and (5) Sustainable agriculture and regenerative protein production - with the transversal axis of inclusion of indigenous organizations, afro descendents, women, youth, and the strengthening of institutions in the region - understands that a multi-scalar and multimodal form of investment is needed to



Meeting between COICA and IDB Vice President Jordan Schwartz at COP16, Cali-Colombia. **Credits:** COICA

maintain climate and biodiversity conservation.

Amazonia Forever has been able to, through its funds and donor partners, create innovative finance and support diverse projects that have an impact on the ground. One of the most significant changes in terms of institutional and financial innovation has been launching an innovative strategy to work directly with Indigenous Peoples, afrodescendants, and traditional communities (IP.AD.TC) organizations and to start direct financing which basically means that instead of using regular cooperation channels where the funding is for now, funneled through national accounts, the resources are delivered directly to grassroots organizations on the ground. In this first phase, the goal is to build capacities to sustain this new scheme.

Although Indigenous Peoples make vital contributions to forest and biodiversity conservation, they receive minimal re-

Although Indigenous Peoples make vital contributions to forest and biodiversity conservation, they receive minimal resources from both their own governments and international sources.

sources from both their own governments and international sources. Between 2011 and 2020, for example, less than 1% of international climate funding was directed toward issues related to land tenure and forest management for indigenous communities, globally. Furthermore, while national budgets cover management costs of protected areas, indigenous territories lack national or international support.

To close this funding gap, *Amazonia Forever* has structured a strategy and team called MINGA. MINGA means collaborative work in Kichwa, an indigenous language in the Ecuadorian Amazonia. This name was chosen by a team of mostly indigenous professionals at the IDB and are appointed to work closely with IP.AD.TC organizations to codesign projects, identify financing opportunities, include them in IDB's pipeline, and provide support in the execution and monitoring of these projects.

How does it work: together with Indigenous Peoples, Afrodescendant, and traditional communities, the specialized IDB-MINGA team develops project proposals through a co-creation process. These organizations define the priorities and components of each project and are also responsible for their direct implementation. This approach ensures that interventions effectively respond to the real needs of the communities, drawing on their traditional knowledge, deep understanding of their territories, and sociocultural context. The MINGA methodology not only increases the relevance and effectiveness of projects but also recognizes and strengthens the autonomy and management capacity of the communities themselves.

MINGA is involved throughout the entire project cycle—from identification and

co-design to implementation and evaluation. During the design phase, it ensures that projects meet the technical, legal, and fiduciary standards required by donors and the Inter-American Development Bank (IDB), managing their validation and approval by the relevant areas. This enables organizations to manage and execute funds directly, standing for a significant shift from traditional intervention models by reducing intermediaries and promoting community-led management from within the territories. During implementation, MINGA provides ongoing support to ensure compliance with key principles such as transparency, equal opportunity, efficiency, and integrity, while also assisting in addressing operational challenges. Finally, it plays an active role in the evaluation phase, fostering collective learning and continuous improvement of the projects.

This process means that the teams work with all regional and national IP.AD.TC organizations in the Amazon to codesign projects, prioritizing projects that will be executed directly by these organizations starting direct financing.

Additionally, IDB, in coordination with the Coordinator of Indigenous Organizations of the Amazon Basin (COICA), co-created, with the support of the Green Climate Fund, and launched the Amazonia for Life Fund (ALF). In 2023, pledging \$10 million for development projects exclusively benefiting Amazonian Indigenous Peoples. The goal of this fund is to strengthen the capacities of Indigenous Peoples' organizations to design and implement bioeconomy projects directly in their territories. Key funding areas include bioeconomy, institutional strengthening, knowledge generation and management, territorial management and



Fany Kuiru, COICA's General Coordinator and Juan Pablo Bonilla (IDB). Launch of the Fund Amazonia for Life at COP 28, Dubai - United Arab Emirates. **Credits:** COICA.

The fund promotes consultation, participation, and the use of Indigenous decision-making mechanisms and traditional knowledge, ensuring that the voices of the communities are heard and respected.

conservation, value-added partnerships for collective entrepreneurship, and environmental and social risk management. In this way, the fund supports the historical aspiration of Indigenous Peoples to directly manage international funds for the sustainable development of their territories with their vision.

AMAZONIA FOR LIFE FUND ADDED VALUE

The ALF is the first regional fund exclusively for the Indigenous Peoples of the Amazon region, aimed at leveraging empowerment, self-determination, and self-sufficiency. Projects financed by ALF are designed and proposed directly by national indigenous organizations, ensuring the sustainability and cultural relevance of the initiatives. The direct implementation of projects by these organizations contributes to local capacity building. Moreover,

the fund promotes consultation, participation, and the use of Indigenous decision-making mechanisms and traditional knowledge, ensuring that the voices of the communities are heard and respected.

The processes incorporate a gender and generational approach, highlighting the talents of Indigenous youth. The IDB and COICA will technically support this entire process to ensure proper monitoring of the projects. The IDB has committed to supporting this fund by financing Technical Cooperations (TCs) that benefit Indigenous organizations.

MINGA CHALLENGES

It sounds easier than it is, in fact. A multilateral bank has a series of processes that have not been put into place to respond to direct implementation by indigenous organizations, but at the same time, these processes are key to maintaining the standards of the bank, which allows it to manage funds coming from different partners and donors. It is a hard equation to solve, but IDB has managed to solve it, and there have been key aspects which are important to highlight.

To start with is the trust relationship between the Amazonia Forever team and COICA. Building a trust relationship is a long process and must have goodwill by both sides. IDB has recognized COICA as the representative of the indigenous organizations in PanAmazonia and has supported COICA financially and technically in the past 4 years.

Once trust is established, a new window of opportunities can be created. The *Amazonia Forever* team was closely hearing

and understanding the concerns regarding direct access of Indigenous Peoples to financial resources that have been directed to Amazonia, including in IDB. Internally to IDB, there was an understanding that to develop a direct implementation line, it would be necessary to create a dedicated team with different expertise that would support the indigenous organizations. *Amazonia Forever* created the MINGA.

With the MINGA structured and with an opportunity through the Green Climate Fund (GCF) in Bioeconomy, *Amazonia Forever* and COICA launched the **Amazonia para la Vida Fund**, jointly coordinated by IDB and COICA. This has been an interesting process where both sides – IDB and the indigenous organizations – have learnt how to work together through co-creation and close collaboration. In the *Amazonia For-*

ever team, we understand that this is the way that impact will reach the region, diverging from all its tipping points.

Also, in the future it will be important to create mechanisms so smaller subnational indigenous organizations and communities can access direct financing.

Currently, there is already a portfolio of projects in design, approved, and under implementation within this strategy. These projects are mainly focused on promoting bioeconomy initiatives and strengthening organizations. Some of the organizations with which projects are already underway include: AIDSEP, CONFENIAE, COIAB, ORPIA, and OPIAC. Under the Amazonia for Life Fund, projects will be developed with all national Indigenous organizations from all Amazonian countries.

Policy Recommendations

Institutionalizing Direct Financing for IP.AD.TC Organizations. Direct financing to IP.AD.TC organizations should be established as a permanent modality within cooperation programs and multilateral funding. This approach not only enhances the effectiveness, sustainability, transparency, and cultural relevance of projects, but also allows for better monitoring and understanding of the dynamics of interventions in the territories, facilitating the continuous improvement of processes throughout the project lifecycle.

Strengthen Institutional Capacities. Invest in capacity-building programs for IP.AD.TC organizations to enhance their ability to design, manage, and monitor development projects aligned with their cultural and territorial priorities.

Support Co-Creation and Participatory Planning. Institutionalize co-design methodologies like MINGA in development cooperation frameworks to ensure projects reflect the real needs and knowledge of local communities.

Ensure Legal and Fiduciary Adaptability. Adapt legal and fiduciary frameworks to accommodate community-led project management, ensuring compliance while respecting traditional governance systems.

Create Dedicated Regional Funds. Replicate and scale funds like the Amazonia for Life Fund (ALF) to provide exclusive, flexible, and culturally relevant funding for Indigenous-led sustainable development.

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ENDANGERED AMAZONIA

THE AMAZON DOES NOT WAIT: A PACT OF LIFE FOR A NEW LATIN AMERICAN SOVEREIGNTY



AMAZONIA ALIVE:
**PROTECT +
RESTORE**
**80% 2025
2030**
AVERTING THE TIPPING POINT



COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA

Technical Briefing: Key Takeaways

1. The Amazon biome is one of the most complex and strategic ecological systems on the planet.
2. From an ecological perspective, the biome cannot be understood as fragmented by state boundaries. Their sovereignty lies not only in governments, but in the collective capacity to safeguard their vital functions.
3. The contemporary panorama reveals a triple threat that erodes the future of the Amazon: the advance of organized crime, the expansion of extractivism, and the dispossession of communities.
4. The political process that we began with the Declaration of Belém do Pará (2023) and that we reaffirmed in the Declaration of Bogotá (2025) represents, for me, a determined effort to revitalize the Amazon Cooperation Treaty (ACTO) as a true instrument of regional integration.
5. The challenge is to transfer Amazonian policy “from paper to action”, which implies rebuilding state capacities, strengthening intercultural research and education systems, and reconnecting diplomacy with territorial realities.
6. The fate of the Amazon is the fate of Latin America. In the midst of a global context of climate crisis and geopolitical reconfiguration, the region has the opportunity to build a new architecture of environmental cooperation and shared sovereignty.
7. Time is running out. Avoiding the point of no return requires a continental and planetary alliance for the Amazon, an agreement of immediate action that transcends governments and is sustained by the moral strength of the peoples. The Amazon needs an immediate global response: scientific cooperation, fair climate financing, and binding decisions in international forums.

Photo: Paragua, Venezuelan Amazonia. **Credit:** Franklin Rojas/PROVITA

Summary

The Amazon is facing a civilizational crisis that puts at risk its ecological integrity and the survival of the peoples who inhabit it. The combination of extractivism, organized crime, and territorial dispossession has eroded the foundations of environmental sovereignty in the region. Based on the political and ecological reflection developed within the framework of the report *Amazon in danger of extinction* of the 80x2025 Initiative promoted by COICA and RAISG, this article proposes to rethink the Amazon

biome as a living, cross-border, and political unit. It addresses the challenges of regional governance, the urgency of restoring “flying rivers” as arteries of the climate, and the centrality of indigenous, peasant, and Afro-descendant peoples as guardians of the territory. Finally, the need to build a Latin American social and political front for the Amazon is raised, capable of translating the defence of the biome into a new pact of cooperation, sovereignty and environmental justice.

Keywords

Environmental sovereignty, tipping point, Amazon biome, Amazon Cooperation Treaty

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THE AMAZON DOES NOT WAIT: A PACT OF LIFE FOR A NEW LATIN AMERICAN SOVEREIGNTY

ENVIRONMENTAL JUSTICE: BETWEEN THE POINT OF NO RETURN AND SHARED HOPE

1. THE AMAZON BIOME AND ITS SOVEREIGNTY

The Amazon biome is one of the most complex and strategic ecological systems on the planet. It covers more than 7.4 million square kilometres, shared by eight countries and one French territory, and is home to about 10% of global biodiversity. But beyond its biological numbers, the Amazon represents a historical, cultural, and political unit that transcends national borders.

From an ecological perspective, the biome cannot be understood as fragmented by state boundaries. Their sovereignty lies not only in governments, but in the collective

capacity to safeguard their vital functions: the water cycle, carbon sequestration, climate regulation, and the cultural and economic flows that sustain it. This vision is aligned with the approaches of Enrique Leff, who states that “environmental sovereignty is the right of peoples to decide on their modes of existence in relation to nature” (Leff 2019).

The concept of the **tipping point** sums up the existential risk facing the biome. This is not just an ecological frontier, but a **civilizational alert**: if the Amazon collapses,



Fifth Summit of Presidents 2025 in Bogotá, August 2025. 80x2025 Initiative Event. **Credit:** COICA.

so will the climate systems that sustain life on the continent. As the Scientific Panel for the Amazon (SPA 2021) argues, accumulated deforestation could trigger an irreversible climate regime change if it exceeds 20-25% of the Amazon's territory.

In this sense, I believe that the current disputes over the Amazon should not be reduced to territorial or diplomatic issues, but to the sovereignty of life itself. I have said in different scenarios that these breaches are what truly endanger sovereignty: not the sovereignty of the boundaries of each country, but the sovereignty of the Amazon biome, which is that of our peoples, our history, and our common future.

Amazonian sovereignty is not defended with armies but with public policies, scientific knowledge, and ancestral wisdom, with the ability to sustain the ecological and cultural balance of a territory that does not belong to a single State, but to all humanity.

Ecological sovereignty is inseparable from environmental justice: both express

Amazonian sovereignty is not defended with armies but with public policies, scientific knowledge, and ancestral wisdom.

the right of Amazonian peoples to decide about their territory and their collective future.

2. CRIME, EXTRACTIVISM AND DISPOSSESSION: THE TRIPLE THREAT TO THE AMAZON

The contemporary scenario reveals a triple threat that erodes the future of the Amazon: the advance of organized crime, the expansion of extractivism, and the dispossession of communities. According to the Amazon Network of Georeferenced Socio-Environmental Information (RAISG), more than 29% of the biome shows signs of severe degradation, linked to deforestation, illegal mining, and drug trafficking (RAISG 2022).

In my speech in Bogotá (August 2025), I warned that organized crime is well articulated and cross-border, moving billions of dollars under the logic of a global illicit economy that penetrates the heart of the Amazon. I have seen how this dynamic reproduces a coloniality of power that turns the forest into a commodity and the territory into a frontier of profitability. These are not isolated events, but a transnational economic system that feeds on dispossession and impunity.

I agree with Maristella Svampa, who states that Latin American neo-extractivism is not only an economic strategy but a civilizational model that deepens the ecological and political dependence of the Global South. This triple threat – crime, extractivism, and dispossession – is eroding the sovereignty of our peoples and the very possibility of a sustainable future.

According to projections by RAISG and the Scientific Panel for the Amazon, forest

loss has exceeded 85 million hectares and the annual increase in fires has reached historic levels since 2020, evidencing the urgency of a coordinated response.

The dispossession experienced by the Amazon is not limited to the extraction of natural resources: it is also the loss of autonomy of local communities, the criminalization of those who defend the environment, and the fragmentation of the social fabrics that sustain life in the territory. Faced with this reality, I propose a comprehensive response, which articulates scientific research, international cooperation, and the strengthening of state capacities at all levels.

The fight against environmental crimes cannot depend on military interventions, but on ecological intelligence capable of anticipating risks, on public and transpar-

ent monitoring of territories, and on technological sovereignty shared among Amazonian countries. Only in this way will we be able to confront illicit economies with the force of cooperation and not with the logic of war.

3. FROM BELÉM DO PARÁ TO THE HEART OF THE TERRITORIES

The political process that started with the Declaration of Belém do Pará (2023) and that we reaffirmed in the Declaration of Bogotá (2025) represents, for me, a resolute effort to revitalize the Amazon Cooperation Treaty (ACTO) as a true instrument of regional integration. For decades, I watched with concern as ACTO had become a small NGO with no political teeth, no capacity for transformation, no real impact.



Fifth Summit of Presidents 2025 in Bogotá, August 2025. Coalition 80x2025 and the former Minister of Environment of Colombia, Susana Muhammad. **Credit:** COICA.

The debate on the Amazon is, at its core, a debate about democracy: about who decides, with what criteria and for whom the forest is governed.

My critique is not only institutional but also epistemological: the Amazon cannot be governed from distant desks or from a bureaucratic logic disconnected from reality. Their future depends on the living experience of their peoples, their knowledge, their culture, and their ability to build alternatives from the territory.

The challenge is to transfer Amazonian policy “from paper to action”, which involves rebuilding state capacities, strengthening intercultural research and education systems, and reconnecting diplomacy with territorial realities. The preparatory meeting in Leticia (2023) was, in this sense, a turning point: it allowed communities, scientists, local authorities, and indigenous organizations to share diagnoses and strategies in the face of illicit economies, institutional abandonment, and the social crisis.

From the perspective of Latin American political ecology, the reactivation of ACTO should be part of a post-extractivist and plurinational vision, capable of overcoming the fragmentation of nation-states (Gudynas 2020). The Amazon treaty of the 21st century cannot be a declarative document:

it must become a living pact that recognizes the power of peoples and guarantees their binding participation in decisions about their territory.

The debate on the Amazon is, at its core, a debate about democracy: about who decides, with what criteria and for whom the forest is governed. Recognizing this turns Amazonian politics into a politics of life.

4. RESTORING FLYING RIVERS: RESTORING HOPE

The so-called *flying rivers*—atmospheric moisture currents that transport vapour from the Amazon basin to the Andes and the Southern Cone—constitute the climatic heart of South America. Their alteration threatens the water stability of cities such as Bogotá, Lima, and São Paulo. Deforestation and increased fires are altering the circulation of these flows, with consequences that extend beyond the continent’s ecological and political borders (Nobre and Lovejoy 2019).

I have always said that we must restore the ecological connections of the flying rivers, because if we do not do so now, it will take us decades to recover what we have lost, as we have already experienced in Bogotá.

When I talk about restoring flying rivers, I am also talking about restoring hope: returning moisture, vegetation cover, and the ability to sustain the water cycle to the biome. Ecological restoration is not just a technical task but a moral and collective one; it is the act of reconciling ourselves with life.

The COICA and RAISG 80x2025 *Initiative* has shown that in order to avoid reaching

a point of no return, it is necessary to maintain the ecological integrity of **80% of the Amazon rainforest**, which means halting deforestation and restoring degraded ecosystems by 2025 (COICA & RAISG 2022).

This goal, rather than being technical, is civilisational: it proposes a care economy based on regional cooperation, fair climate finance and territorial planning with the people.

The restoration of flying rivers must be understood as a shared diplomatic and scientific task, a public policy that articulates water management, agroecology, and biocultural restoration. As the *Scientific*

Panel for the Amazon points out, restoring atmospheric balance depends on maintaining continuous forests and drastically reducing sources of fire and degradation (SPA 2021).

Halting progress towards this tipping point requires coordinated political action among Amazonian countries, based on public information, open science, and effective social participation. Restoration is not possible without environmental justice and cross-border cooperation.

In this sense, ecological restoration becomes a form of justice: restoring flying rivers is restoring collective hope.



V Summit of Presidents 2025 in Bogotá, August 2025. Former Minister of Environment of Colombia, Susana Muhammad, speech in prelaunch of the Report “Endangered Amazonia” of the 80x2025 Initiative. **Credit:** COICA.

5. INDIGENOUS PEOPLES, PEASANTS AND PEOPLES OF AFRICAN DESCENT: THE GUARDIANS OF THE AMAZON

The Amazon is also a tapestry of diverse cultures, languages, and spiritualities. Intercultural governance is essential for its survival: without indigenous peoples, farmers and Afro-descendants, there can be no Amazon.

It is essential to recognise that indigenous peoples, peasants, and Afro-descendants embody the social and spiritual fabric of the Amazon. Through their practices and knowledge, they have sustained ecological balance for centuries, even in the face of exclusion and violence.

I am convinced that territorial empowerment and autonomy for ethnic peoples, with their traditional processes and ancestral wisdom, are at the heart of any policy to safeguard the Amazon. Without their participation and leadership, there can be no restoration or environmental justice.

From COICA's perspective, the Amazon is not a collection of natural resources

I believe in an international cooperation that recognises the Amazonian peoples as political subjects and not as beneficiaries, capable of making decisions about their territories, their economies, and their common future.

but rather an integral territory of life. Its manifestos, such as *Amazonía viva, humanidad segura* (Living Amazon, Safe Humanity, 2021), reaffirm that defending 80% by 2025 is a struggle for the survival of the planet and for the self-determination of the Amazonian peoples (COICA 2021).

In turn, rural and Afro-descendant communities are expanding the concept of territorial guardianship, demonstrating that conservation can also be achieved through sustainable production, artisanal fishing, agroforestry, and solidarity economies.

However, this defence faces multiple threats: the advance of the agricultural frontier, the expansion of illegal mining, the co-opting of leaders by private interests, and systematic violence against environmental defenders. Therefore, the protection of the Amazon is inseparable from the protection of its peoples.

As Boaventura de Sousa Santos (2018) argues, a new ecology of knowledge requires recognising the validity of local and community knowledge and placing it in dialogue with modern science.

That has always been my political and ethical proposal: to build multilateralism from the grassroots up, where environmental justice is not an abstract concept, but a concrete practice expressed through effective participation, territorial autonomy, and direct financing for communities.

I believe in an international cooperation that recognises the Amazonian peoples as political subjects and not as beneficiaries, capable of making decisions about their territories, their economies, and their common future.

6. CONCLUSIONS: TOWARDS A SOCIAL AND POLITICAL FRONT FOR THE AMAZON

The fate of the Amazon is the fate of Latin America. Within a global context of climate crisis and geopolitical reconfiguration, the region has the opportunity to build a new architecture of environmental cooperation and shared sovereignty.

I have always maintained that it is not war that will save the Amazon, but rather a political agreement to save it, set as a common goal by the eight countries above all other differences.

I firmly believe that the Amazon should become the civilisational hub of the 21st century: the meeting point between peoples, governments, universities, and social movements to rethink the relationship between humanity and nature.

That is why I call on all Latin Americans to form a social and political front for the Amazon, a grand coalition for life that transcends borders, ideologies, and electoral calendars. This front must have the moral strength of the people and the political will of the states to recognise that saving the Amazon means saving ourselves.

This front must be based on three fundamental principles:

1. **Shared ecological sovereignty:** understood as the collective capacity to protect common goods and vital flows within the biome.
2. **Environmental and climate justice:** redistribution of power and resources in favour of those who have historically cared for the territory.

3. **Solidarity-based regional integration:** strengthening ACTO as a living, binding, and participatory treaty, guided by science and ancestral knowledge.

In this sense, the Amazon ceases to be peripheral and becomes the centre of a new ethic of international cooperation. Restoring its forests and rivers means restoring the very meaning of planetary community.

As COICA stated in its Leticia Manifesto (2023): ‘Without the Amazon, there is no life; without life, there is no future; and without the Amazonian peoples, there is no hope.’

The task is political, scientific, and spiritual. Building a social and political front for the Amazon is not an option: it is the most profound act of defending life.

Time is running out. Avoiding the tipping point requires a continental and planetary alliance for the Amazon, an agreement for immediate action that transcends governments and is sustained by the moral force of the peoples. The Amazon needs an immediate global response: scientific cooperation, fair climate financing, and binding decisions in international forums. The defence of the biome cannot wait for new summits; it must become the most urgent political action of our generation.

As COICA stated in its Leticia Manifesto (2023): ‘Without the Amazon, there is no life; without life, there is no future; and without the Amazonian peoples, there is no hope.’

About the author



Susana Muhamad González is an environmentalist, political scientist, and former Minister of Environment and Sustainable Development of Colombia. She is renowned for her leadership on issues of climate justice, ecological transition, and Latin American environmental diplomacy. Her work combines science, politics, and the ethics of care, promoting ecological sovereignty and the defence of the Amazon biome as the common heritage of humanity.

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ENDANGERED AMAZONIA

A REGIONAL PERSPECTIVE ON DEBT, THE CLIMATE CRISIS AND EXTRACTIVISM IN AMAZONIAN COUNTRIES



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COORDINADORA DE LAS ORGANIZACIONES
INDÍGENAS DE LA CUENCA AMAZÓNICA



Red Latinoamericana y del Caribe por Justicia Económica, Social y Climática

Technical Briefing: Key Takeaways

1. The Amazon region faces a vicious cycle of debt, climate crisis, and extractivism, which deepens the vulnerability of its peoples and ecosystems. Breaking this cycle requires comprehensive solutions, systemic reforms, and political will.
2. A new model of climate finance is needed that is fair, agile, debt-free, and directly accessible, especially for indigenous and vulnerable communities.
3. Bilateral and multilateral creditors, dominated by countries in the North, are also historically responsible for the climate and ecological crisis. From a climate justice perspective, indebted Amazonian countries should be recognised as creditors of climate and ecological debt.
4. Governments are urged to halt fossil fuel and extractive investments in areas of high biodiversity and to promote alternative economies based on agroecology and sustainable forest use.
5. The regional call is to build an Amazon free of debt and extractivism, with fair financing, climate reparations, and respect for the rights of peoples.

Photo: Cattle under a burned chestnut tree in a stretch of forest that was illegally exploited near the city of Novo Progresso, Pará State, Brazil. **Credit:** Lalo de Almeida, 2014.

Summary

The climate crisis is accelerating, and although almost 30 years of international negotiations have elapsed, the crucial issue still pending is who will finance the necessary transition in low- and middle-income countries. This is complicated by the high levels of debt in the South, the failure of countries in the Global North to meet their climate finance commitments, the limitations of existing financial mechanisms, the United States' withdrawal from the Paris Agreement, and the little time humanity has left to halt the climate crisis.

Therefore, different solutions are needed that respond to real needs, are agile, and guarantee access to FAIR FINANCING. This means demanding that COP30, to be

held in Brazil in November 2025, promote a clear path for increasing climate finance flows from the Global North to the Global South, but also for reforming the current climate finance architecture by prioritising the provision of public finance that is debt-free and offers direct, simple, and agile access, mainly for populations that are most vulnerable to climate change.

It must also be recognised that there is a vicious circle between debt, the climate crisis, and extractivism, which affects many countries in the region, for example in the Amazon. Breaking this vicious circle will require comprehensive solutions and systemic reforms, as well as political will.

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A REGIONAL PERSPECTIVE ON DEBT, THE CLIMATE CRISIS AND EXTRACTIVISM IN AMAZONIAN COUNTRIES

INTRODUCTION

There is a close relationship between the climate crisis affecting the planet and the growing external debt of countries in the global south. This relationship must be made visible and addressed for the well-being of the population, especially Indigenous Peoples and other communities that inhabit highly important ecosystems such as the Amazon. This mega-diverse region plays a fundamental role in regulating the global climate and providing water and is home to hundreds of Indigenous Peoples. However, it is endangered by the advance of extractive activities, deforestation, and the growing impacts of the climate crisis.

During 2024 and 2025, the Latin American and Caribbean Network for Economic, Social and Climate Justice (LATINDADD), together with the Bolivian Platform Against Climate Change – PBFCC (Bolivia), the Citizen Movement Against Climate Change – MOCICC (Peru), the Centre for Economic and Social Rights (CDES) (Ecuador), the Popular Training Institute (IPC) (Colombia) and Projekta (Suriname) implemented a project to highlight the relationship between debt, the climate crisis and extractivism in five Amazonian countries, with the aim of proposing comprehensive solutions that address these three prob-



Sikuani women in Vichada, Colombia. **Credit:** Corporación Ciasé Colombia

lems jointly. Brazil was not included in the project because its main problem is internal debt rather than external debt.

By means of national diagnoses in each country, it became clear that there is a **vicious circle between debt, the climate crisis and extractivism** that directly affects historically unprotected and discriminated populations, and the alarm was sounded about the environmental and social risks of allowing this vicious cycle to grow, with a process of awareness-raising, communication and advocacy among the population and decision-makers having been initiated.

This initiative also emphasises the historical climate and ecological debt that industrialised countries in the global North owe to the planet and humanity, under the narrative and question: ‘Who owes whom?’ While there are financial debts owed by

the South to the North—many of them illegitimate and unfair—it is the industrialised countries that fail to meet international commitments in the face of the climate crisis, block or delay transformative proposals in global negotiations, and impose unfair rules in the international financial and trading system, always in favour of their own interests and those of their corporations.

Given this problem, and based on the project’s results, we will continue to demand an Amazon free of debt and extractivism; greater access to fair, agile, debt-free or highly concessional public climate finance, and reparations for population groups that, while being the least responsible for the climate crisis, are the most distressed by its impacts. This situation reflects the structural crisis of the capitalist system and its predatory logic, which is affecting the region and the entire world.

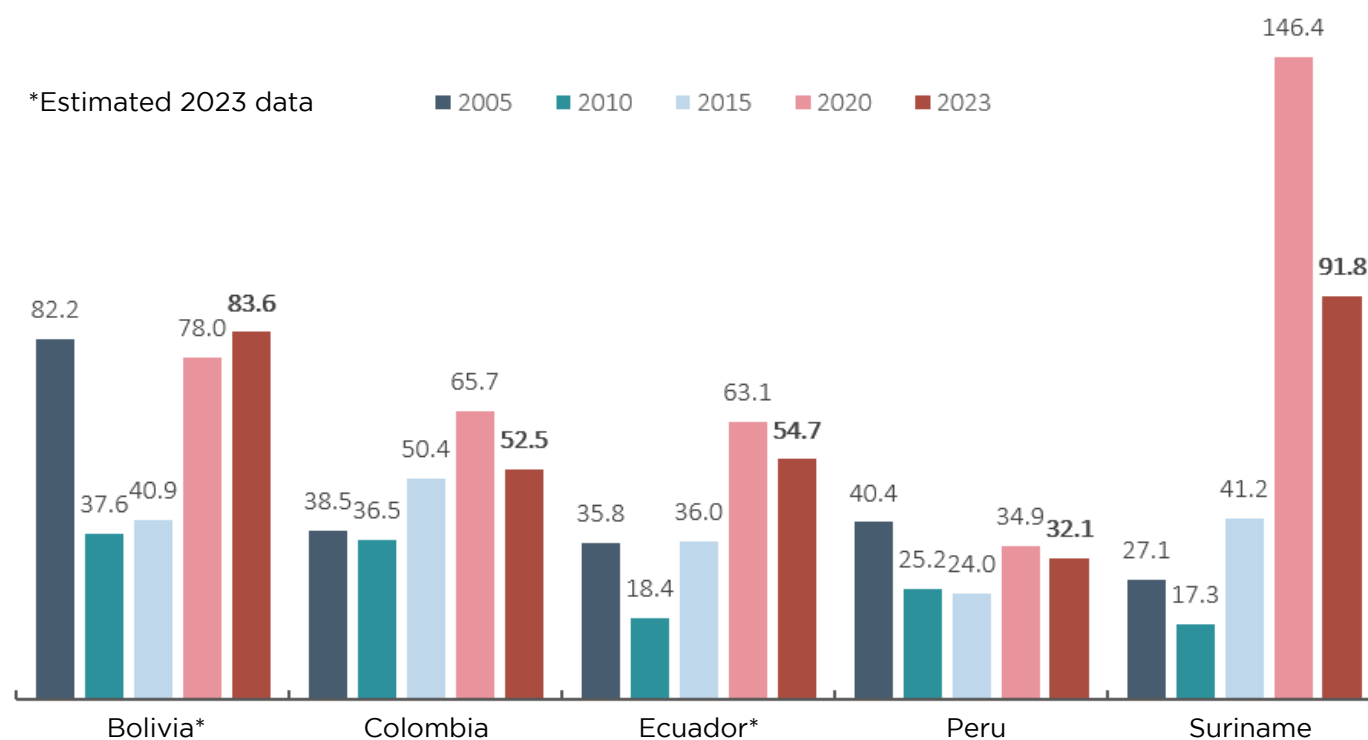


Figure 1. General Government Gross Debt (% of GDP) 2005-2023.

Source: IMF, WEO April 2024

Country	Contribution of extractive sectors to GDP	Reference year
Suriname	25% - 30%	2022
Bolivia	23,4%	2022
Ecuador	17%	2022
Peru	16%	2023
Colombia	7,6%	2022

Table 1. Contribution of extractive sectors to GDP.

Source: prepared internally based on national reports available at: <https://bit.ly/4emx3Jc>

EXTERNAL DEBT PROBLEMS IN AMAZONIAN COUNTRIES AND ECONOMIC DEPENDENCE ON EXTRACTIVE INDUSTRIES

Although the public debt problem differs among the five Amazonian countries analysed over a five-year period, between 2005 and 2010, all countries recorded a decrease in their respective debts. However, there has been a considerable increase in all countries since 2010, with a sharp rise in 2020 due to the COVID-19 pandemic, as can be seen in the graph 1.

THE LINK BETWEEN EXTERNAL DEBT AND EXTRACTIVISM

When external debt reaches critical levels, debtor countries are forced to expand extractive industries—hydrocarbons, mining,

agribusiness—to guarantee debt repayment and avoid default. This comes at the expense of biodiversity and local communities.

Dependence on extractivism delays economic diversification, limits compliance with international climate commitments, and postpones a fair transition in the Global South.

Among the five countries analysed, Bolivia is the country with the most critical economic outlook. With fiscal and trade deficits, falling international reserves, a shortage of dollars, and the depletion of its gas reserves, it has intensified gold mining and expanded agribusiness; these practices led to the loss of 14 million hectares of forest to fires in 2024, affecting many indigenous communities living in the forest and very important ecosystems.

Country	Debt Service	Environmental expenditure
Colombia	20%	0.50%
Peru	10%	<1%
Suriname	18%	1.70%

Table 2. Comparison between Debt Service Expenditure and Environmental Expenditure.

Source: Prepared internally based on national reports.

Also important is the case of Suriname. Despite maintaining forest cover that makes it a carbon sink, the country was forced by its debt to renegotiate commitments with creditors, who made restructuring conditional on the start of petroleum exploitation and the payment of royalties until 2050.

Studies also reveal that external debt limits countries' ability to increase their environmental spending. For example, it was found that countries such as Colombia, Peru, and Suriname allocate more than 10% of their public budget to repaying their debts and less than 1% to environmental issues (Table 2).

BIODIVERSITY AND LIFE AT RISK FROM THE ADVANCE OF EXTRACTIVISM

Deforestation, extractive activities, and climate change are altering the Amazon's capacity to absorb carbon dioxide and resist the impacts of global warming. This puts all of humanity at risk and threatens the survival of multiple species. The main cause of deforestation is land use change for agribusiness, mining, and fossil fuel extraction.

Hydrocarbon extraction and mining activities are encroaching on territories inhabited by indigenous communities, who bear the environmental and social impacts but do not receive proportional economic benefits.

According to Earth Insight:

- Almost 170 million hectares (more than 33% of intact tropical rainforests) overlap with active and potential mining concessions.

- More than 70 million hectares of indigenous territories overlap with these concessions.
- In an extreme scenario, more than 16,000 settlements and 27 million people are located in areas with active or inactive mining concessions.

With regard to hydrocarbons:

- An estimated 65 million hectares (almost 13% of intact tropical rainforests) overlap with petroleum and gas exploration and production blocks.
- More than 31 million hectares of indigenous territories are located within these blocks.
- More than 23% of Amazonian settlements are located within petroleum exploration and production areas.

An estimated 65 million hectares (almost 13% of intact tropical rainforests) overlap with petroleum and gas exploration and production blocks.

Of the total petroleum extracted in the Amazon, 67% is imported by the United States, the world's largest climate and ecological debtor.

Ecuador also remains the leading petroleum exporter among Amazonian countries, with much of its production going to the United States, a country that—despite being one of the main contributors to the climate crisis—withdrew from the Paris Agreement under a climate change deni-
alist administration, weakening global action against climate change.

An alarming statistic is the high rate of murders of environmental defenders in the region. In 2023, Colombia recorded 79 murders, topping the global list.

While extractivism has been the dominant model since colonial times and promoted by state policies, there have recently been milestones that set important precedents:

- Colombia's accession to the Fossil Fuel Non-Proliferation Treaty in 2023, and the announcement of a summit on this issue in 2026.

- The referendum in Ecuador on Yasuní, where the majority voted to keep the petroleum in Block 43 underground.
- We can also mention the ruling of the Inter-American Court of Human Rights, which ruled in 2012 that the Ecuadorian State failed to consult the Sarayaku people of Ecuador, which affected their cultural identity.

THE LINK BETWEEN DEBT AND THE CLIMATE CRISIS

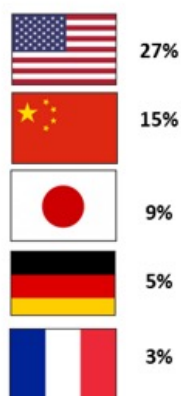
The main bilateral and multilateral creditors of Amazonian countries are also historically the most responsible for the climate and ecological crisis.

Under this narrative and from a climate justice perspective, indebted Amazonian countries should be recognised as creditors in terms of climate and ecological debt.

This reinforces the demand for fair, agile, and debt-free financing to tackle the climate crisis, as well as the need for debt

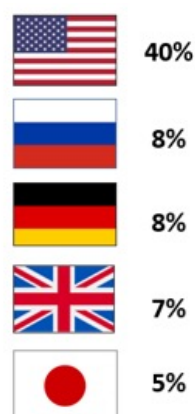
Ranking of ecological debtors

Ecological debtors and % contribution (as of 2017)

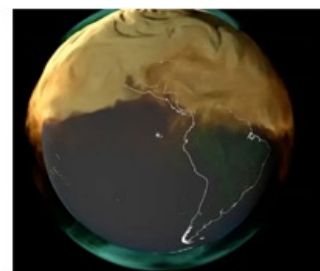


Source: Jason Hickel report, 2023

Main climate debtors



Global North: primarily responsible for 92% of excess GHG emissions



Source: NASA (2021 data)

relief mechanisms that free up fiscal resources for adaptation, mitigation, and repair of damage and losses.

Currently, two-thirds of climate finance to countries in the Global South is provided in the form of loans, further increasing debt. For example, the United States has a 15.5% vote in the World Bank and 30% in the Inter-American Development Bank, while Bolivia has only 0.13% and 0.9%, reinforcing this structural injustice.

Studies in Bolivia, Colombia, Peru, and Suriname show that all of these countries allocate more resources to debt repayment than to climate action. Eighty-one per cent of climate finance received in the region comes from loans. Added to this are economic losses due to climate impacts, which are often covered by taking on even more debt.

At the international level, those countries historically responsible for climate change are failing to meet their commitments to reduce emissions and provide financing and are promoting false solutions such as carbon markets. This is evident when we observe that the total level of greenhouse gas (GHG) emissions in the atmosphere continues to increase rather than decrease. On the other hand, in terms of climate finance, although the countries of the North committed in 2009 to mobilise USD 100 billion annually as climate finance for the Global South, for many years they failed to meet that goal, as shown in the following graph, which also reveals that most climate finance is allocated to mitigation rather than adaptation, which should be a priority issue in Southern countries, which, without being highly responsible for the climate crisis, are highly vulnerable to its impacts (Figure 2).

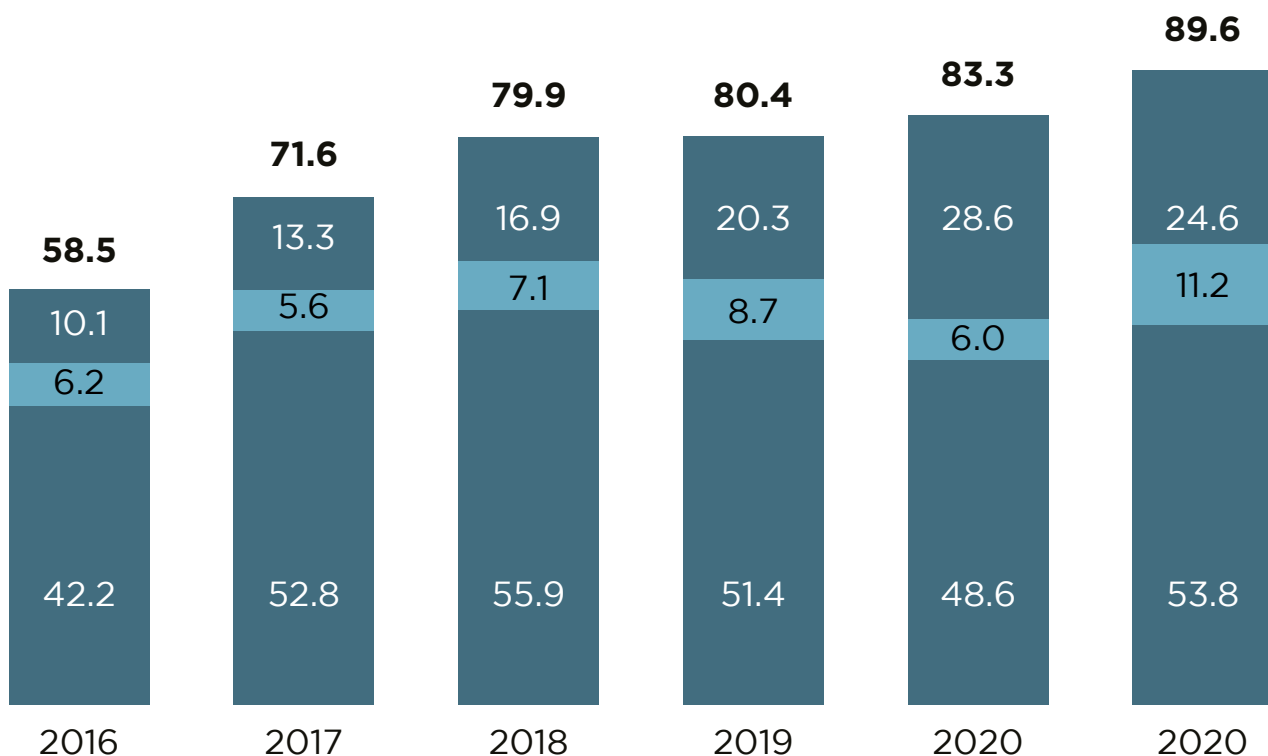


Figure 2. Climate finance 2016–2021 (in billions of dollars). **Source:** OECD Climate Finance Report, |2022

PROPOSALS AND DEMANDS TO BREAK THE VICIOUS CIRCLE

Considering the enormous financing gap faced by Amazonian countries and the interconnection between debt, extractivism, and the climate crisis, the following measures are proposed:

To governments at the international level, mainly in the Global North:

- Increase international public financing that does not generate debt, prioritising conservation, adaptation to climate change, and damage and loss, with more direct access windows and simplified application processes for Indigenous Peoples and other groups highly vulnerable to the climate crisis.

Increase international public financing that does not generate debt, prioritising conservation, adaptation to climate change, and damage and loss.



Community assembly of the Sikuani people, Vichada, Colombia. Ciase Corporation. **Credit:** Corporación Ciase

- Stop the promotion of false solutions based on market mechanisms and new extractivist models that do not include Indigenous Peoples and local communities.
- Fulfil effectively climate and biodiversity financing commitments.
- Establish a debt relief that includes public and private creditors, taking advantage of the 2025 Jubilee.
- Cancel debts or establish a relief for countries affected by climate disasters, with immediate access to debt-free resources to cover economic damage and losses, without conditions.
- Create a debt arbitration mechanism under the UN.
- Reform the international financial system, with equitable and democratic governance.
- Make financing flows transparent.
- Create green taxes on fossil fuel corporations and wealth taxes, under the principle of historical responsibility and reparations.

To regional and national governments:

- Halt new investments in fossil fuels and extractive industries in areas of high biodiversity such as the Amazon and develop economic alternatives based on agroecology and the sustainable use and exploitation of forests, among other options.



Fires on the way to Baures, Iténez Province, Beni Department, in northern Bolivia. **Credit:** Luis Céspedes

- Include climate and environmental variables in national budgets with increased allocations for climate action and conservation.
- Move towards an economic transition that overcomes high dependence on extractive sectors, for example by diversifying productive sectors and supporting initiatives linked to alternative economies, as well as reviving ancestral knowledge.
- Implement progressive green taxes, especially on highly polluting sectors, and eliminate fossil fuel subsidies.
- Apply taxes on large fortunes to channel resources to finance the climate agenda.
- Strengthen regional integration to bring joint proposals to climate negotiations.
- Ensure that the energy transition does not exacerbate extractivism.
- Promote mechanisms for public consultation, such as in the case of Yasuní, and respect their results.

Conclusions

In conclusion, we must acknowledge that the historical debt owed by the industrialised countries of the global North to the planet and humanity in terms of human rights, climate, and environment is one of the most glaring contemporary truths of our time.

In addition to this already shameful circumstance, it is the industrialised countries that most flagrantly fail to comply with international commitments in the face of the climate crisis, that block or delay transformative proposals in global negotiations, and that impose unfair rules on the international financial and trading system, always in favour of their own interests and those of their corporations.

We also know that we want and are fighting for an Amazon that cares for its people and nature, free from debt and

extractivism; with greater access to fair, agile, and debt-free or highly concessional public climate finance; and reparations for population groups that, while being the least responsible for the climate crisis, are the most affected by its impacts.

The call to take the Tipping Point in the Amazon seriously and with the importance it deserves is decisive for its future as a region and for the climate future of the world.

The transformations of this process of transition as a civilisation include breaking the vicious circle between debt, the climate crisis, and extractivism, which directly affects historically unprotected and discriminated populations. Its transformation is vital in the processes of transition from the civilisational crisis.

About the authors

Carola Mejía. Bolivian economist, graduated from the Bolivian Catholic University of San Pablo and with a master's degree in Economic Development, specialising in Sustainable Development and the Environment from the Institute of Social Studies (ISS) in the Netherlands. She has more than 15 years of experience as an advisor and consultant to public, private, and international cooperation organisations, providing technical support to various environmental projects and advising on issues related to climate change, sustainable urban development, financing, and climate justice. She has coordinated several regional networks linked to climate change. She has also taught on issues related to climate change and sustainable development on several occasions. She currently works as coordinator of the Climate Justice, Transitions and Amazonia area of the Latin American Network for Economic and Social Justice (LATINDADD).

Angela Zegarra. A graduate in Social Communication from the National University of San Marcos, specialising in Audiovisual Production. She is currently studying for a master's degree in Gender and Development. She has experience in creating campaigns and audiovisual content for the public and private sectors. She has also worked as a multimedia manager for national media outlets.

German Niño. Coordinator of LATINDADD's Alternative Economies Group, member of the FOSPA International Committee and the World Social Forum for Transformative Economies (FSMET) Promotion Group.

LATINDADD. The Latin American and Caribbean Network for Economic, Social and Climate Justice (LATINDADD) is made up of institutions and social organisations from Latin American countries working to solve the problems arising from the systemic crisis and to create conditions that allow for the establishment of an economy that serves the people, in which economic, social, climate, and cultural rights are upheld. The Network aims to facilitate the exchange of information among its members, engage in joint advocacy, contribute to the international citizen movement, and contribute to regional integration and democratic change in North-South relations.

IUCN RESOLUTION 129:

Avoiding the point of no return in the Amazon protecting 80% by 2025



REGRETTING the deaths of thousands of indigenous people and their leaders in the Amazon during the pandemic, and those defenders consistently killed for protecting their territories and their livelihoods;

RECOGNISING the on-going legacy of dispossession of indigenous peoples and local communities through the imposition of some protected areas without their free, prior and informed consent;

AWARE that there have been claims by indigenous leaders that the dismantling of environmental policies and/or violations of indigenous rights amount to either crimes against humanity or ecocide;

RECALLING Resolution 5.097 Implementing the UN Declaration on the Rights of Indigenous Peoples (Jeju, 2012), which calls for ensuring that the principles of UNDRIP are observed in the work of the Union;

CONSIDERING that fires in the Amazon in 2019 and 2020 alone burned at least 3 million hectares of forest, causing serious damage to the integrity of the ecosystems;

DEEPLY CONCERNED about the increase in deforestation since, during the 2020 pandemic, at least 2.3 million hectares of primary forest were lost in nine countries in the Amazon Basin, which means a 17% increase in deforestation compared to 2019;

RECOGNISING that the latest scientific consensus established the point of no return for the Amazon within a range of between 20–25% of deforestation and degradation combined;

OBSERVING that the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and the Intergovernmental Panel on Climate Change (IPCC) (IPCC 2018, IPBES 2019, IPBES-IPCC 2021 and IPCC 2021) emphasise the fact that the climate crisis and biodiversity loss are accelerating rapidly and are closely interlinked;

CONSIDERING that the IUCN Programme 2021–2024 recognises that the trends in biodiversity loss are still reversible through urgent transformative change;

RECOGNISING that maintaining the ecosystem integrity of the Amazon biome is vital in order to prevent catastrophic biodiversity loss and climate change;

REITERATING that over half of the Amazon Basin is subject to some kind of pressure – fixed or continuous – on land-use change, direct or indirect, including, inter alia, as a result of top-down industrial development, road and energy infrastructure, the expansion of extractive industries and the agro-industrial frontier, as well as illicit and criminal activities;

RECOGNISING that the Amazon is home to at least 178 indigenous groups living in isolation, whose territories of life include some of highest biodiversity areas on the planet, some of which are categorised as protected areas or legally recognised indigenous territories; that some states in the Amazon have already established national policies that confirm their duties to protect their isolation, respect their integrity and well-being; and that these groups are high-

ly vulnerable and increasingly threatened by many pressures. It is urgent that the measures, policies and actions throughout the Amazon Basin are introduced to effectively protect their rights in full;

CONSIDERING that the data published in the peer-reviewed study “A Global Safety Net” indicate the need for a regional target of 85% for the protection of the Amazon biome by 2030; **HIGHLIGHTING** the fact that in 2007 WWF projected for 2030 that “Current trends in agriculture and livestock expansion, fire, drought and logging could clear or severely damage 55% of the Amazon rainforest by 2030”, making the 2030 horizon too late for the Amazon; and

RECOGNISING that the UN-backed Science Panel for the Amazon (SPA), which included 200 scientists, has found that 18% of the Amazon Basin’s forests has been deforested, with an additional 17% undergoing degradation; that the SPA warns that in crossing the 20–25% threshold of deforestation and degradation the system will reach an irreversible tipping point that can translate into the dieback of the entire ecosystem; and that this would result in massive carbon dioxide emissions with rapid and catastrophic consequences for global climate stability; **The IUCN World Conservation Congress 2020, at its session in Marseille, France:**

CALLS ON the Director General and Members to support the area-based conservation targets, in order to protect, conserve and sustainably manage at least 80% of the Amazon by 2025, in partnership with and recognising the leadership of indigenous peoples in the Amazon, ensuring their free, prior and informed consent, and with the full recognition of their rights, as set out in UNDRIP, to their lands, territories and waters, as a measure to ensure ecosystem integrity, halt deforestation, biodiversity

loss and land-use change, and prevent the point of no return being reached;

- 1. URGES** State and Government Agency Members to ensure the full implementation of the Durban Accord adopted by IUCN in 2003 and the Promise of Sydney adopted by IUCN in 2014, in particular its recommendations on quality and diversity of governance of protected and conserved areas;
- 2. CALLS ON** State and Government Agency Members in the Amazon to work with indigenous peoples’ authorities and governance structures to fully recognise and delimit all the ancestral land and territories belonging to indigenous peoples and local communities, and recognising their local governance authorities by 2025;
- 3. ENCOURAGES** State and Government Agency Members in the Amazon to promote efforts to restore at least half of the degraded forest areas in the Amazon Basin by 2025;
- 4. FURTHER CALLS ON** State and Government Agency Members to enact moratoria on industrial activities that are carried out in primary forests;
- 5. ENCOURAGES** governments, the funding agencies, and other resource mobilisation mechanisms, to increase support for direct, sustained and equitable financial and technical support, at least at a level equal to that invested in protected areas, to indigenous peoples to conserve and sustainably manage their territories, including for indigenous-led initiatives for forest protection and just ecological transition such as the Amazon Sacred Headwaters Initiative; and
- 6. CALLS ON all IUCN** Members to support efforts to achieve the actions described above.

IUCN RESOLUTION 068:

Emergency action to restore 80% of ecological integrity in Amazonia by 2030, preventing cascading tipping points

RECALLING IUCN Resolution 7.129 Avoiding the point of no return in the Amazon protecting 80% by 2025 (Marseille, 2020), endorsed by 1,200 organisations globally, adopted by the Government of Colombia, included in two resolutions of the United Nations Permanent Forum on Indigenous Issues (UNPFII), and mentioned in the Declaration of Belem as the utmost regional challenge;

REITERATING that Amazonia's tipping point unravels between 20 and 25% of combined deforestation and degradation, and 4° y 5°C;

ACKNOWLEDGING that deforestation and degradation are rapidly advancing;

NOTING that, in 2024 alone, fires burned 46 million hectares and that, in 2023-2024, Amazonia suffered the worst drought in 122 years, affecting water, food and energy security; extreme droughts spurring massive migrations are expected by 2030;

WHEREAS protected areas and recognised Indigenous territories comprise nearly 50% of Amazonia, exceeding the 30x30 target, and yet these areas amount to 30% less than the threshold needed to prevent a tipping point;

HIGHLIGHTING the comparable environmental performance of protected areas and Indigenous territories in Amazonia despite the fact that less than 1% of climate finance goes to Indigenous peoples;

ALSO RECALLING IUCN Resolution 5.097 Implementation of the UN Declaration on the Rights of Indigenous Peoples (Jeju, 2012), which seeks to ensure that the principles of that Declaration are observed in the work of the Union;

FURTHER RECALLING Target 3 of the Kunming-Montreal Global Biodiversity Framework (KMGBF);

WHEREAS the resolutions of the 22nd session of the UNPFII urged Amazonian countries to protect 80% of the Amazon by 2025, prioritising the recognition of 100 million hectares of Indigenous territories;

STRESSING that legal or illegal pressures covering two thirds of Amazonia threaten Indigenous peoples and Local communities (IPLCs), intact forests and priority areas;

ACKNOWLEDGING ALSO the groundbreaking mechanism of the Inter-American Development Bank and the Coordinator of Indigenous Organizations of the Amazon River Basin to directly finance Amazonian Indigenous peoples;

WELCOMING debt swaps and other mechanisms to protect Amazonia;

CONSIDERING the imminent implementation of the European Union Regulation on Deforestation-free Products to stop deforestation-derived exports; and

CONVINCED that solving the climate and biodiversity crises requires equilibrium in Amazonia;

THE IUCN WORLD CONSERVATION CONGRESS 2025, AT ITS SESSION IN ABU DHABI, UNITED ARAB EMIRATES:

- 1. URGES** the Director General and IUCN Members to support emergency action in Amazonia to restore at least 80% of ecological integrity, to prevent cascading tipping points, to end deforestation and forest degradation by 2030, to restore and protect priority areas, including Key Biodiversity Areas when information is available, to guarantee the legal security of Indigenous and traditional territories, their financial sustainability and that of protected areas;
- 2. REQUESTS IUCN** Members to endorse a geographical exclusion of all extractive industries in intact and high integrity areas;
- 3. CALLS UPON** States and Government Agencies to fully implement the KMGBF Target 3 by including Amazonian Indigenous and traditional territories in National Biodiversity Strategies and Action Plans (NBSAPs) with the free, prior and informed consent of IPLCs;
- 4. URGES** States and Government Agencies to fully implement the regional resolutions of the 22nd session of the UNPFII, to protect 80% of the Amazon by 2025, and to implement the Belém Declaration goal to achieve zero deforestation by 2030;
- 5. FURTHER CALLS** on States to prioritise legal frameworks to protect water and food security, biodiversity, and the lives, the rights and livelihoods of IPLCs instead of extractive industries;
- 6. ENTREATS** Amazonian States to export deforestation-free products and to develop bioeconomy alternatives involving IPLCs;
- 7. ALSO URGES** strengthening existing funds by creating a Pan-Amazonian mechanism that includes IPLCs in the decision-making process, as well as direct funding for restoration, conservation and the bioeconomy, ensuring equitable access to all Amazonian stakeholder, in particular women and youth from IPLCs; and
- 8. ENCOURAGES** international financial institutions to implement debt swaps and other financial mechanisms to protect Amazonia.

The image titled “Water Line” is a photograph of a Ticuna man standing next to a 500-year-old ceiba tree in the Peruvian Amazon rainforest. The tree has a waterline that marks the water level during the rainy season, from April to May. This photograph was taken in May 2024, and by then the water level should have reached its peak; however, rainfall had been scarce. The 2024 drought broke historical records on the Amazon River, with devastating consequences for wildlife and local communities. This photograph by Mateo Borrero won the 2025 Earth Photo contest

Mateo Borrero

A Colombian photographer and engineer, he holds a Master’s degree in Artistic Photography and won the 2025 Earth Photo - Forest Ecosystem award from the Royal Geographical Society and Forestry England. His photographs have been featured in the British newspaper The Guardian, GEO magazine, Vogue, and Frontiers Magazine, where he was named Photographer of the Year. His work has been exhibited in various galleries, including the Royal Geographical Society in London and the Bedgebury National Pinetum & Forest in the UK.

