

Andean Amazonian Indigenous Peoples' Territories, Climate Change, and the Green Economy

Territorios de los pueblos indígenas andino-amazónicos,
cambio climático y economía verde

*Territórios dos povos indígenas andino-amazônicos,
mudanças climáticas e economia verde*

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ABSTRACT:

This article examines the situation of some of the largest Andean-Amazonian Indigenous territories affected by public policies that have historically promoted deforestation for agricultural expansion. These territories represent a strategic opportunity to mitigate climate change, foster sustainable landscapes within a Green Economy framework, and safeguard the well-being of Indigenous peoples and Amazonian populations. Although international law and the domestic legislation of Amazonian countries formally protect Indigenous lands and natural resources, political priorities often override legal safeguards. As a result, institutional and legal frameworks are systematically weakened, limiting effective public action and preventing meaningful policy feedback. The persistence of a colonial-extractive development model—characterized by deforestation, forest degradation, illegal mining, illegal logging, and encroachment on Indigenous territories—restricts access to resources, technical capacity, and political commitment to conservation. While many Amazonian governments continue to promote extractive industries at the national level, provincial and local authorities frequently reinforce deforestation through their own development policies. At the same time, democratic governance requires the effective participation of all stakeholders in decision-making processes, yet Indigenous peoples and other rural populations remain largely excluded or confined to ineffective consultation mechanisms, while Indigenous peoples' Nature defenders are killed. An analysis of forest-cover dynamics reveals significant changes in deforestation patterns, particularly in the southern Andean-Amazon region. The findings suggest that a Green Economy approach can help reduce deforestation, combat environmental crime, and promote the well-being of Indigenous peoples while ensuring the conservation of natural ecosystems. As Arce and Soria (2019) argue, nature favours diversity over homogeneity and penalizes the latter through ecological collapse. In this context, adaptive management can reconcile private, public, and communal land-tenure systems while maintaining essential ecological processes. More broadly, governance and public policies that embrace institutional diversity and protect the interests of producers, Indigenous peoples, citizens, and nature alike can strengthen democratic environmental governance and contribute to more effective conservation.

RESUMEN:

Este artículo analiza la situación de algunos de los mayores territorios indígenas andino-amazónicos afectados por políticas públicas que históricamente han promovido la deforestación para la expansión agropecuaria. Estos territorios representan una oportunidad estratégica para mitigar el cambio climático,

promover paisajes sostenibles en el marco de la economía verde y garantizar el bienestar de los pueblos indígenas y de las poblaciones amazónicas. Aunque el derecho internacional y la legislación nacional de los países amazónicos protegen formalmente las tierras indígenas y los recursos naturales, las prioridades políticas suelen prevalecer sobre las garantías legales. Como consecuencia, los marcos institucionales y jurídicos se debilitan sistemáticamente, limitando la eficacia de la acción pública e impidiendo mecanismos consistentes de retroalimentación de las políticas públicas. La persistencia de un modelo de desarrollo colonial-extractivista —caracterizado por la deforestación, la degradación forestal, la minería ilegal, la tala ilegal y la invasión de territorios indígenas— restringe el acceso a recursos, a capacidades técnicas y al compromiso político con la conservación. Mientras muchos gobiernos amazónicos continúan promoviendo las industrias extractivas a escala nacional, los gobiernos provinciales y locales refuerzan con frecuencia la deforestación mediante sus propias políticas de desarrollo. Al mismo tiempo, la gobernanza democrática exige la participación efectiva de todas las partes interesadas en los procesos de toma de decisiones; sin embargo, los pueblos indígenas y otras poblaciones rurales permanecen en gran medida excluidos o limitados a mecanismos de consulta ineficaces, mientras los defensores indígenas de la naturaleza son asesinados. El análisis de la dinámica de la cobertura forestal revela cambios significativos en los patrones de deforestación, especialmente en la región sur andino-amazónica. Los resultados sugieren que un enfoque basado en la economía verde puede contribuir a reducir la deforestación, combatir los delitos ambientales y promover el bienestar de los pueblos indígenas, al tiempo que garantiza la conservación de los ecosistemas naturales. Como sostienen Arce y Soria (2019), la naturaleza favorece la diversidad frente a la homogeneidad y castiga esta última mediante el colapso ecológico. En este contexto, la gestión adaptativa puede conciliar los sistemas de tenencia de la tierra públicos, privados y comunitarios, garantizando el mantenimiento de los procesos ecológicos esenciales. De manera más amplia, los modelos de gobernanza y las políticas públicas que promuevan la diversidad institucional y protejan los intereses de los productores, los pueblos indígenas, la ciudadanía y la naturaleza pueden fortalecer la gobernanza ambiental democrática y contribuir a una conservación más eficaz.

RESUMO:

Este artigo analisa a situação de alguns dos maiores territórios indígenas andino-amazônicos afetados por políticas públicas que historicamente promoveram o desmatamento para a expansão agropecuária. Esses territórios representam uma oportunidade estratégica para mitigar as mudanças climáticas, promover paisagens sustentáveis no âmbito da Economia Verde e garantir o bem-estar dos povos indígenas e das populações amazônicas. Embora o direito internacional e a legislação nacional dos países amazônicos protejam formalmente as terras indígenas e os recursos naturais, as prioridades políticas frequentemente se sobrepõem às garantias legais. Como consequência, os marcos institucionais e jurídicos são sistematicamente enfraquecidos, limitando a efetividade da ação pública e impedindo mecanismos consistentes de retroalimentação das políticas públicas. A persistência de um modelo de desenvolvimento colonial-extrativista — caracterizado pelo desmatamento, degradação florestal, mineração ilegal, exploração madeireira ilegal e invasão de territórios indígenas — restringe o acesso a recursos, à capacidade técnica e ao compromisso político com a conservação. Enquanto muitos governos amazônicos continuam promovendo indústrias extrativas em âmbito nacional, governos provinciais e locais frequentemente reforçam o desmatamento por meio de suas próprias políticas de desenvolvimento. Ao mesmo tempo, a governança democrática exige a participação efetiva de todas as partes interessadas nos processos decisórios; entretanto, os povos indígenas e outras populações rurais permanecem amplamente excluídos ou restritos a mecanismos de consulta ineficazes, enquanto isso, defensores indígenas da

natureza estão sendo assassinados. A análise da dinâmica da cobertura florestal revela mudanças significativas nos padrões de desmatamento, especialmente na porção sul da região andino-amazônica. Os resultados indicam que uma abordagem baseada na Economia Verde pode contribuir para reduzir o desmatamento, combater crimes ambientais e promover o bem-estar dos povos indígenas, assegurando simultaneamente a conservação dos ecossistemas naturais. Como argumentam Arce e Soria (2019), a natureza favorece a diversidade em detrimento da homogeneidade e penaliza esta última por meio do colapso ecológico. Nesse contexto, a gestão adaptativa pode conciliar sistemas de posse da terra públicos, privados e comunitários, assegurando a manutenção dos processos ecológicos essenciais. De forma mais ampla, modelos de governança e políticas públicas que valorizem a diversidade institucional e protejam os interesses de produtores, povos indígenas, cidadãos e da natureza podem fortalecer a governança ambiental democrática e contribuir para uma conservação mais eficaz.

1. Introduction

The ongoing international disputes among major global powers exert a significant influence on Amazonian deforestation. The Trump administration's withdrawal from the Paris Climate Accord, its partial disengagement from UN agencies, and the termination of USAID programming collectively signal a powerful reaffirmation of business-as-usual development. Against this backdrop, the European Union and the Paris Agreement recede in influence, while the United States and China compete to build infrastructure across South America. Energy transmission lines, ports, highways, and railway networks have become arenas for reproducing this geopolitical contest between superpowers. In Peru, the Northern and Southern Interoceanic Highways were constructed by Odebrecht. Attempts by Chinese corporations to dredge Amazonian rivers have, to date, been rejected in both Brazil and Peru, among other cases.

These developments have severe consequences for international development and sustainability politics. While progressive market forces continue to rely on policy implementation through international conferences, legislation, and administrative and judicial procedures, illegal activities have expanded violently across the South American continent, advancing through frontier dynamics over indigenous peoples' lands and protected areas. This expansion is sustained by violence that is deeply embedded (Kothari and Harcourt 2022) in urban-rural relations and that exerts a corrosive impact on both policy formulation and compliance¹.

The Bonn Commitment, the Sustainable Development Goals, and the Paris Agreement collectively promote the goals of restoring degraded lands and forests, strengthening ecosystem resilience, integrating landscape management, capitalizing on environmental services, and promoting sustainable forest management and the responsible use of natural resources. The Global Environment Facility (GEF) and the Green Climate Fund support projects aligned with these objectives. However, translating international legal mandates into national policy and, subsequently, into effective local action requires a careful assessment of governance arrangements and the development of ad-hoc instruments, if the goal is to curb the processes currently threatening indigenous peoples and their Amazonian lands and forests.

Indonesia spent over a decade attempting to reduce deforestation through a moratorium on forest harvesting. The initial two-year moratorium, subsequently extended through 2015, created a window of opportunity for critical forest governance reforms. Nevertheless, forestry companies continued to invest in the conversion of secondary forests, generating forest loss outside the targeted areas. Suwarno *et al.* (2016) suggested that a policy combining a forest moratorium with livelihood support and higher farm-gate prices for forest and agroforestry products could increase the benefits that local communities derive from conservation. However, Leijten *et al.* (2021) subsequently confirmed that over 1,000 km² of forest may have been cleared within 10 km of the targeted areas, constituting evidence of significant spillover effects—most pronounced near conservation and protection forests. This experience demonstrates that there are no simple or universal solutions to deforestation; rather, what is required is a deliberate, carefully planned, policy development and feedback process capable of gradually building state capacity across a given territory.

In *Dear Amazonia*, Pope Francis (2020) cites indigenous peoples' testimonies of the damage inflicted by "timber merchants, ranchers and other third parties" through "a model alien to our territories." Amazonian forests are home to a highly diverse indigenous population that is under existential threat from the violent advance of the Amazonian frontier. Deforestation drives population growth and agricultural expansion into newly cleared areas, thereby imperilling the survival of these populations, their livelihoods, and their ancestral lands.

KEYWORDS

Amazon;
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PALABRAS CLAVE

Amazonia;
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economía verde;
cambio climático;
desarrollo
sostenible.

PALAVRAS-CHAVE

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By 2000, approximately 9.7% of the Amazon region had been deforested. Between 2000 and 2013, deforestation rose to 13.3%, representing a 37% increase over just 13 years (RAISG 2015). Between 2001 and 2020, 542,581 km² were lost in the Amazon region, equivalent to 8.7% of the forest that existed in 2000. In 2020, deforestation increased by 34% relative to the previous year, rising from 14,648 km² to 22,335 km² (RAISG 2022).

State capacity to translate international legal mandates into national policy and, subsequently, into local-level action remains minimal. Such translation typically requires external financial and technical support and tends to be limited in scope. These processes are further mediated by national and regional bureaucracies, their respective governance dynamics, and their degree of commitment to promoting sustainability.

It is essential to preserve the largely stable conservation and agricultural landscapes in which indigenous peoples and sustainable rural economic production coexist across many areas of the Amazon—such as the Brazil-nut producing landscapes of Acre (Brazil), Madre de Dios (Perú), and Pando (Bolivia), among others.

Seven large patches of pristine Andean Amazonian forests or Corridors, collectively encompassing nearly 300,000 km² (an area comparable in size to Italy or Poland), constitute the homeland of indigenous peoples living in voluntary isolation and initial contact (IPVI/IC). Each of these landscapes or Corridors is a mosaic of legally categorized zones: indigenous reserves, protected areas, and various types of resource-use concessions. IPVI/IC communities use these interconnected areas as corridors within which they seasonally migrate, harvest resources, and access external goods. These people are acutely threatened by business-as-usual development, and their fate is dire in the absence of decisive action. At the same time, their situation represents a critical opportunity to align the rule of law, sustainable development, human rights, and climate change mitigation. A Green Economy approach to reducing deforestation and combating illegal crime could provide the economic instruments needed to safeguard indigenous peoples' wellbeing and ensure the survival of natural systems.

2. Indigenous Peoples' Territories and Deforestation

Deforestation affects all indigenous peoples, though its impacts are differentiated across individual indigenous territories. It causes forest fragmentation, generates isolated forest patches, threatens biodiversity, and devastates traditional cultures. The negative effects of deforestation on indigenous livelihoods include forest loss, forced dislocation, disruption of biodiversity and human migratory patterns and corridors, reduction in wildlife availability, exposure to unauthorized contact, diminished game population density and reduced hunting success, and the local extirpation of sensitive species. Roads compound the effects of hunting through habitat disturbance, territorial encroachment, and the provision of access to livestock meat at regional markets (Constantino 2016). As a result, indigenous peoples' control over natural resources is progressively eroded while the availability of those resources simultaneously declines, impoverishing indigenous territories and precipitating migration and involuntary exposure to non-indigenous populations.

Amazonia is home to approximately 85 of the world's most vulnerable IPVI/IC communities. In Brazil, 67 peoples are officially identified, while unofficial estimates place the number closer to 100 (Soria 2010). In Peru, 14 peoples are officially recognized; Bolivia recognizes 1, Colombia recognizes 2, and Ecuador recognizes 3. However, Vaz (2017) notes that unofficial registries identify 6 in Bolivia, 14 in Colombia, 4 in Ecuador, and potentially 20 in Peru. These communities inhabit patches of pristine forest surrounded by extractive industries, cattle ranching, and agricultural enterprises. Their situations vary considerably, from people occupying territories of hundreds of thousands of hectares to those confined to a few dozen. The majority of these territories are threatened by the encroachment of extractive industries and illegal activities from their peripheries—activities that penetrate indigenous lands and claim the lives of indigenous rights defenders.

IPVI/IC communities inhabit pristine Andean Amazonian forests in the following landscapes or IPVI/IC Corridors:

- The Cacataibo Corridor, covering over 6,000 km², encompasses Cordillera Azul National Park and the Cacataibo Indigenous Reserves North and South in Peru.
- The Ashaninka Corridor, composed of Otishi National Park, Machigüenga Communal Reserve, and Ashaninka Communal Reserve in Peru, covering over 17,000 km².
- The Pano Arawak Corridor, located in the tri-national basin of the Acre River, extending over 88,900 km² and including Mascho Piro Indigenous Reserve, Alto Purús National Park, Purús Communal Reserve, Madre de Dios Indigenous Reserve, and Manu National Park in Peru, neighboring with a similar size Brazilian Corridor made of Chandless National Park, Xiname, Kampa e Isolados do Rio Envira, Riozinho do Alto Envira, and Mamoadate Indigenous Lands in Brazil.
- The Isconahua Corridor, comprising 31,399 km² and composed of Isconahua Indigenous Reserve, Yavarí Tapiche Indigenous Reserve, West Sierra del Divisor Indigenous Reserve, Sierra del Divisor National Park, and a proposed Capanahua Indigenous Reserve in Peru, neighboring with the Brazilian Serra do Divisor National Park in Brazil.
- The Waorani–Arabela Corridor, extending over 24,324 km² and comprising Pucacuro National Reserve and a proposed Napo Indigenous Reserve in Peru, while on the other side of the border sits the Yasuní National Park, the Waorani Reserve, and the Tagaeri Taromenane Intangible Zone in Ecuador.
- The Toromona Corridor, covering 28,653 km² and including Bahuaja Sonene National Park in Peru and, in Bolivia, the Toromona Reserve, Madidi National Park, the Intangible Zone for the Integral Protection and Absolute Reserve of the Toromona Peoples within the Madidi National Park (also inhabited by the Ese Ejja and Kapuibo IPVI peoples), the Madidi Integrated Management Natural Area, the Manuripi Heath National Wildlife Reserve, and the Tacana II territory, which overlaps with an oil concession block.
- The Carabayo Corridor, encompassing 98,604 km² and containing Río Puré National Park, Cahuniari National Park, and the indigenous reservations [*resguardos*] of Curare-Los Ingleses, Predio Putumayo, and Cotué-Putumayo in Colombia.

Extractive industries operating in areas adjacent to IPVI/IC territories are required to implement Anthropological Contingency Plans, monitor the impacts of their activities on these populations, prevent adverse effects on indigenous health and welfare, and ensure their general wellbeing. In practice, the environmental management of such industries is characterized by significant tension between the letter of the law and its actual implementation by field operators, managers, and affected communities, as well as by relevant political actors. Extractive industries represent a grave threat to the health and integrity of IPVI communities and their territories, affecting their physical integrity, food security, and vulnerability to disease, while imposing radical cultural transformation.

Nevertheless, the future of some of these areas could take a fundamentally different trajectory. The 8,890,000 hectares of the Pano Arawak Corridor in Peru, spanning the regions of Ucayali, Madre de Dios, and Cusco, is equivalent to 33% of the territory of the United Kingdom, or the combined territory of Jordan, Azerbaijan, Austria, or the United Arab Emirates. Were the Peruvian and Brazilian sections of the Pano Arawak Corridor to be managed collaboratively, the total extension would be equivalent to 66% of the United Kingdom. It is evident that, with judicious and effective management, these territories could protect their indigenous populations for centuries, if not millennia (Soria 2018, 101).

Advancing IPVI/IC management and guaranteeing effective human protection is a state obligation but is also, in the present context, an opportunity for climate change adaptation, biodiversity conservation, and sustainable agro-forestry production, as well as for the deployment of REDD+, Payment for Ecosystem Services (PES), and other Green Economy financing instruments in support of sound land management strategies aimed at reducing deforestation.

Long before European colonization, anthropogenic land use had already been transforming Amazonian forests through farming, crop selection, hunting, the establishment of settlements, and the deliberate preservation of

non-use areas. Since 1452, when Francisco de Orellana and the expanding world economy first reached the Amazon River, an ever-accelerating process has progressively reduced the region's pristine forests. Since the Rubber Boom (1865–1915), cycles of natural resource boom-and-bust have greatly intensified Amazonian deforestation. The proliferation of illicit activities in the twenty-first century—encompassing illegal logging and mining, coca production, and wildlife trafficking—is now of sufficient scale to constitute an independent variable in land-change analyses (Tellman, Magliocca, Turner *et al.*, 2020). The Andean Amazonian countries are characterized by weak state presence and control, a lack of coordination across governmental levels and interagency bodies, and a confusing regulatory environment in which policy implementation inadvertently facilitates the legalization of deforestation (Lawson 2014).

3. A Development Model that Promotes Deforestation

Total deforestation within indigenous lands fell from 9,195 km² during the 2000–2005 period to 6,586 km² during the 2010–2015 period, a 28.4% reduction. However, while Brazil, Colombia, and Ecuador registered downward trends, French Guiana and Venezuela recorded increases. Deforestation tends to intensify in indigenous territories without formal legal recognition, with an increase of 50%—from 976 km² in 2000–2005 to 1,501 km² in 2010–2015—recorded across the basin as a whole. The newly deforested areas are occupied principally by informal economies, including illegal logging, mining, and drug trafficking, as well as by some formal operators such as cattle ranchers, soybean producers, and others (RAISG 2017).

Amazonian deforestation is driven by the progressive penetration of market forces and their demands upon what were once pristine and largely inaccessible Amazonian forests. The first groups to establish a presence in previously unknown areas are typically extractive industries, which might experience either contact or conflict with IPVI communities. Loggers subsequently follow, and farmers thereafter clear additional areas and establish settlements.

Amazonian deforestation proceeds at the hands of multiple actors, including:

- Small-scale farmers operating dispersedly using family labour.
- Small-scale farmers settled along road corridors, whose cumulative clearance produces the so-called fishbone or grid pattern that progressively consolidates deforestation.
- Medium-sized landowners, such as Mennonite settlers in Bolivia², engaged in agro-commodity production.
- Large-scale investment operations for commodities such as soy, cattle, and palm oil, which deforest hundreds of thousands of hectares.
- Alluvial miners who destroy riverbanks and terraces while polluting waterways.
- Oil and gas operations that penetrate the most undisturbed areas, subsequently opening pathways for loggers and settlers who seek to convert forest into agricultural land.

In the early 1990s, the author witnessed these processes of forest degradation firsthand along the Ecuadorian provinces of Napo, Orellana, and Sucumbíos. The *chiva* (a truck fitted with wooden benches) then travelled along a dirt road barely wide enough to pass through the overhanging branches and vegetation. Today, that same area is dominated by a consolidated road flanked by properties and settlements that penetrate the forest for tens of kilometres, while fauna and vegetation have retreated in that same direction. A parallel process was witnessed along the Southern Interoceanic Highway between Peru and Brazil (Estrada do Pacífico). In the early 2000s, this was a dirt track; by 2009, construction of a paved highway had begun and was inaugurated in 2011.

This trajectory reflects a development model that prioritizes deforestation and forest degradation in service of illegal mining, illegal logging, and the encroachment upon indigenous peoples' lands (Finer *et al.* 2008 and 2010). In the 1980s, Chico Mendes opposed the Inter-American Development Bank's Amazonian road projects and instead proposed the concept of sustainable extractive reserves (Bunker 1985; Schmink and

Wood 1987; Mahar 1989). Yet Amazon has continued along with this outdated, pre-Hudson River Dam developmentalist model. What has changed is the principal actor driving development policy: first state-led development, then private investment, and now criminal actors operating as a violent expansion frontier. What has not changed is who bears the cost of this expansion—as Chico Mendes' assassination attests, rural populations, and disproportionately indigenous peoples, continue to be killed by illegal interests operating under the banner of development. In Peru, between 2009 and 2022, 163 cases involving indigenous human rights defenders were recorded: 6.75% involved threats, 9.8% involved physical attacks, 62.5% involved criminalization, 18.4% involved murder, and only 2.45% resulted in successful legal outcomes. 80% percent of cases resulted in either criminalization or murder. The number of defenders subjected to criminalization is nearly 3.5 times the number killed. Successful legal outcomes were achieved in only 3.92% of criminalized cases and in 2.45% of all documented cases (Soria 2022).

This occurs despite the existence of 18 international legal instruments and approximately 150 laws and decrees enacted by five Amazonian countries that formally declare the protection of indigenous peoples' lands and resources. In practice, however, the availability of resources and politics will profoundly affect institutional responsiveness. Regional political leadership is heavily influenced by regional economic interests, which in many cases also constitute powerful local political actors. Regional politicians and legislators who claim to represent an Amazonian region or state frequently present themselves as advocates for illegal mining, timber extraction, or wildlife trafficking.

An analysis of deforestation trends in the Amazon basin over the period 2001–2014 (Kalamandeen *et al.*, 2018) reveals significant shifts in Amazonian forest-loss dynamics. First, deforestation hotspots are migrating from the southern Brazilian Amazon toward Peru and Bolivia. Second, while the number of new large forest clearings (>50 ha) declined significantly over time (by 46%), the number of new small clearings (<1 ha) increased by 34% between 2001–2007 and 2008–2014. Third, the area characterized by small-scale, low-density forest loss expanded markedly during 2008–2014. This shift represents an important and alarming new challenge for forest conservation, notwithstanding reductions in the overall deforestation rate. The year 2019, moreover, saw a pervasive combination of small-scale deforestation and a marked increase in the frequency and intensity of forest fires. In the period from 2005 to 2015, through the partial implementation of Green Economy measures, Brazil reduced deforestation by 82%, formally demarcated indigenous lands representing 13% of the Amazon, and expanded protected areas to cover 27% of the Amazon.

4. Deforestation and Politics

Many Amazonian governments enforce pro-resource extraction policies and discourses at the national level that reinforce and synergize with provincial and local government actions promoting deforestation. At the national level, several development initiatives—including the Amazonian Hydroway project in Peru, the Trans-Amazonian Train in Bolivia, and pro-deforestation policies in Brazil—have contributed to increased rates of deforestation. At provincial and local levels, logging, mining, and other resource extraction activities continue to be the only political option effectively enforced, while the protection of isolated indigenous peoples' lands is systematically demonized as a liberal-leftist, anti-development agenda.

The acceleration of deforestation in Brazil, Bolivia, and elsewhere is directly attributable to the political impetus provided to deforesters by their political leaders. Political leaders adhering to business-as-usual development models systematically seek to weaken environmental agencies and indigenous protection bodies, appointing pro-industry figures or outright proponents of deforestation as heads of environmental institutions. In this context, ideological alignment along traditional left-right lines offers no meaningful protection: both orientations have demonstrated pro-development tendencies at the expense of environmental and indigenous rights. When Evo Morales came to power, his administration came into conflict with Amazonian indigenous organizations, favored colonization and extractive industries, promoted the expansion of the agricultural frontier, and authorized the construction of a highway through a protected area and communal lands. Similarly, the Correa government in Ecuador separated from the indigenous peoples

movement at the beginning of the administration and later persecuted environmental NGOs, opposing its pro extractive industries proposals.

National policies frequently come in support of local deforestation proposals, as illustrated by the case of Peruvian Law 30574, which consists of a single article declaring it a matter of public necessity and national interest to prioritize a multimodal connection route without restriction by protected areas or indigenous peoples' rights, including those of IPVI. This proposal had previously been rejected by Congress in 2011 and 2012, when the Ministries of Transport, Environment, and Culture issued strong technical assessments against its approval. However, by 2017—by which time loggers had already opened extensive kilometres of road into the forest with the aim of connecting the province of Purús in Ucayali to the Madre de Dios region and the Southern Interoceanic Highway—Congress enacted the law. This road stands to affect forest concessions, national parks, and IPVI reserves, in violation of the Peruvian Forestry and Fauna Law, the Environmental Law, the Environmental Assessment Law, the Protected Areas Law, and ILO Convention 169.

Democratic governance demands the meaningful participation of all concerned parties in decision-making processes. Policies for the development of Amazonian rural areas are, in practice, determined in provincial or national capitals by politicians oriented toward serving their urban, pro-development constituencies. In Brazil, large-scale farmers; in Peru, loggers; and in Ecuador and Peru, oil and gas interests, are the voices that governments most consistently heed, while indigenous peoples and other rural populations are largely excluded or confined to protracted negotiations that produce declarations lacking effective implementation, monitoring, or verification mechanisms. More democratic and inclusive governance can contribute to the formulation of durable Amazonian policy decisions by systematically attending to the needs of all rural populations and economic actors. While this may appear to be a regional concern, it carries global consequences for climate and human rights justice.

The very integrity of electoral processes is called into question when elected officials openly embrace anti-science positions, racism, and climate denial. By contrast, indigenous peoples' organizations, environmental activists, and even the Pope have only their voices and moral authority with which to counter the promoters of deforestation, who operate under the ideological umbrella of economic growth, agrarian development, investment by extractive industries, and the imperative to install large-scale production projects in Amazonian settings. While legitimate arguments may exist on both sides of the development debate, what is fundamentally lacking is a shared and rigorous understanding of the substance, processes, and outcomes of democratic governance. There is therefore a compelling need for sustained investment in democratic education and governance capacity-building.

When politics overrides the legal framework, development interests weaken institutional and legal structures, thereby paralyzing responses at the national, regional, and local levels. The relocation of an agency from a pro-conservation sector to a pro-investment one is a common political manoeuvre that diminishes agency effectiveness and emboldens agents of deforestation and resource extraction with no regard for others' livelihoods. In Peru, for example, the forestry authority is housed within the Ministry of Agriculture, where the agents of deforestation hold considerably greater influence than they would within the Ministry of Environment. Each institutional relocation entails a transitional period and an organizational realignment that further compromises the agency's effectiveness.

The well-intentioned declarations of international legal instruments and national legislation are routinely undermined by the poor implementation of ILO Convention 169 on indigenous peoples and by failed public policy dialogue processes between states and Amazonian indigenous organizations. Amazonian states tend to engage with indigenous peoples as isolated individuals and systematically refuse to coordinate organically with indigenous peoples' organizations and their recognized leaders. They similarly tend to disregard the fact that the political momentum of indigenous organizations is what makes the definition of new horizons for indigenous public policy development possible in the first place.

Peruvian indigenous peoples' legislation recognizes eleven distinct types of land tenure which, on the whole, possess moderate textual robustness but require robust implementation instruments, control mechanisms, and sanctioning procedures. Two thirds of these tenure types are characterized by moderate rights protections, while one third have weak or very weak robustness (Soria 2018). Despite these limitations, this legislation is comparatively more robust than traditional or indigenous land tenure legislation in Asia and Africa.

CIFOR land tenure legislation studies across all five continents demonstrate that land titling, while important, does not in itself guarantee conservation outcomes (Angelsen *et al.* 2018). Achieving conservation requires integral accompaniment grounded in intercultural dialogue on indigenous development in conjunction with conservation objectives. Several Amazonian indigenous REDD+ projects offer instructive cases of successful income improvement for indigenous communities linked to agricultural production, including coffee and cocoa cultivation.

A robust system for protecting rights against drivers of deforestation and degradation will require effective prosecution of the crimes of illegal logging and unauthorized land-use change from forestry to agriculture—not merely by arresting the logger and any accomplices, but by ensuring that financiers are also held liable and penalized.

NASA (National Aeronautics and Space Administration, n.d.), INPE (Instituto Nacional de Pesquisas Espaciais, n.d.), and SERFOR maintain fire early-warning systems covering terrestrial and forest environments. The World Resources Institute operates the Global Forest Watch (Global Forest Watch, n.d.), a forest monitoring platform that coordinates with field organizations to generate deforestation alerts and prompt responses by local authorities. For monitoring systems to be effective, the forestry authority must be capable of comparing information submitted in planning documents with real-time data on how operations are actually proceeding in the field—encompassing tree felling, log and plank preparation, transport, transformation, and commerce. This requires real-time connectivity and the deployment of digital applications capable of uploading detailed information on forest licenses, forest management plans, and transport permits, among other instruments. Obligations must be established for the daily reporting of production data from felling areas, warehouses, and sawmills, provided by license holders, fixed forest control posts, participating merchants, and engaged citizens, along with robust traceability systems.

5. How to move forward

What is needed is a rapid judicial mechanism capable of responding to claims related to land tenure, environmental crimes, and related matters; a clear and proactive commitment to fulfilling shared responsibilities within an integrated multisectoral and multilevel system (encompassing agriculture, environment, the judiciary, regional governments, and others); the effective exercise of state authority in the supervision and support of environmental management in rural areas; and the integration of policies promoting collective ownership and land conservation with policies for economic growth (Soria 2015, p. 17). The 1217 English Charter of the Forests used a traveling court to process forest infractions, while China, since 2007, integrated administrative, civil, penal and economic procedures to properly address environmental claims.

Different forms of land tenure—private property, communal property, and public property—require appropriate institutional arrangements to function effectively. Accordingly, public policies must be designed and calibrated to address the specific requirements of each of these tenure dimensions. Sustainable development must transcend its current market-level orientation and be embedded within the social and environmental commitments that address the full diversity of actors and contexts found in regions of the world where market mechanisms are weak, incomplete, or historically absent.

What is needed is a concerted promotion of sustainability through the following measures: the sanitation of public, communal, and private land ownership; support for sustainable agricultural, forestry, and fisheries production; effective enforcement of sanctions against illegal actors and their financiers; promotion of

conservation through inclusion, intercultural dialogue, exchange, and joint learning; and the institutionalization of adaptive management, monitoring, reporting, and verification systems.

6. Conclusion

It is essential to recognize the critical importance of providing for diversity in governance and public policy development. This entails safeguarding the rights of private producers, indigenous peoples, citizens, and nature—the very foundations upon which the Amazon basin maintains its status as a vital, multicultural, and biodiverse space that sustains the region and the planet as a whole.

The regulatory framework must be updated, and public management must be made more transparent and democratized in the service of conservation, rather than continuing to privilege grey infrastructure (cement and concrete). Current policies and budgets remain disproportionately oriented toward urban space rather than rural areas, towards grey infrastructure rather than green, towards population density over population dispersion, and towards commercial production over subsistence production—even though the latter serves the needs of a significant share of the rural and indigenous population.

Ultimately, any movement in this direction necessarily entails a broader debate about the prevailing development model and, more fundamentally, about the suitability of market mechanisms alone to address the climate crisis and ensure the survival of the planet, while permitting the peaceful coexistence of diverse livelihoods. As Arce and Soria (2019) remind us, nature favours diversity over homogeneity, and homogeneity characteristically leads to collapse. It is within this logic that we must advance through adaptive management and seek to reconcile the coexistence of private, public, and communal land tenure arrangements, while simultaneously ensuring the continuity of essential ecological processes and biodiversity, thereby diversifying our collective response to deforestation.

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