

POLICY BRIEF

LAND MARKET AND ILLEGALITIES: THE DEEP ROOTS OF DEFORESTATION IN THE AMAZON

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KEY MESSAGES

(i) In a context of weak state presence and deteriorating democracy, illegal land appropriation advanced in Brazil, Colombia, Bolivia and Perú, while drug trafficking, illegal gold extraction and other illicit activities also proliferated, notably in Bolivia, Colombia, Ecuador, Peru, and Venezuela.

(ii) Deep roots of deforestation lie in the way in which the concentrated patterns of land ownership in the Amazon countries have been imprisoning the Amazon forests destiny to the criteria of the land market influenced by institutional contexts of land chaos and deterioration of democracy.

(iii) The land market in Amazonian countries like Brazil and Colombia is part of an entire ecosystem of illegalities surrounding the appropriation and transformation of public (forested) land into private (deforested) land. In the Brazilian Amazon, in 2017 at least 31 million hectares (an area the size of Italy) of forest were under the control of the largest private

establishments, likely used towards tendential increases of profitability through the production and speculation of lands.

(iv) The coca cultivation area increased fourfold between 2010 and 2022 in Colombia, mostly on the Ecuador border, leading to a fivefold expansion in homicide rates in Ecuador and underlining the failure of conventional antidrug policies in the whole Andean region.

(v) In Venezuela, the criminal ecosystem strongly impacts the Amazon and its people and is organized around illegal gold mining in a political context of indifference and institutional ineffectiveness. A dramatic expansion of illegal gold mining is also taking place in Bolivia and Peru, where gold has become a leading export.

(vi) The Amazon region accounts for a large fraction of the nearly 2,000 environmental and land defenders killed worldwide between 2012 and 2022, with Colombia and Brazil being the most violent areas.

RECOMMENDATIONS

(i) To tackle the foundation of the land market spurred on through land chaos, governments and civil society should be endowed with informational resources (both processing infrastructure and organized information) to reconstitute property chains swiftly and cheaply and expose their inconsistencies. This will equip them to overcome land chaos, while ensuring their ability to distinguish between legal and illegal transactions involving land.

This will achieve the following key tasks:

- Enable the state to control public lands and return private lands acquired illegally to public control.
- Expand command-and-control policies, anticipating and combating illegalities that underlie and strengthen the land market.
- Reinforce democracy by guaranteeing social transparency in the management of its most valuable foundations.

(ii) To contain other illegalities, promote national and international governance targeting the Amazon including:

- Improving (inter)national verification systems of the origin of potential illegally sourced goods such as gold, timber, and soybeans that are introduced into legal value chains, integrated into international frameworks that penalize goods associated with environmental degradation, deforestation, and illegitimate land practices.

- Strengthening the implementation of the Leticia Pact and the Belem Declaration, putting regional governance and conservation policy mechanisms into practice in a coordinated fashion, including the monitoring of Amazonian state policies with the goal of eliminating corrupt and illegitimate practices and state impunity leading to land grabbing, illegal mining, logging, and drug trafficking. Boost joint approaches involving the governments of Colombia, Brazil, Guyana, and Venezuela to address illegal mining, including cross-border problems.
- Considering alternative and complementary policies to combat illegal drug trade, including not only supply eradication by force but also control of international demand, given the low effectiveness and poor results of conventional strategies in the Amazon countries.

(iii) The land market, and its entire ecosystem of illegalities, imposes dominant pressures on vulnerable modes of production and ways of life. Therefore, it is necessary:

- Strengthening the economies of local communities, farmers, and Indigenous peoples.
- Strengthening the social cohesion of peasant, grassroot organizations, and Indigenous peoples to defend the human rights of social leaders.

A. DETERIORATION OF DEMOCRACY AND THE RULE OF LAW

In the last decade, primary forest loss doubled in the Amazon, strongly increasing in all countries (Figure

1A). The process has been particularly severe in Brazil, Bolivia, Peru, and Colombia¹². The ensuing conversion to cultivated land has been concentrated in large estates and has taken place mostly through a combination of legal and illegal means, especially in Brazil and Colombia³⁻⁵.

Land market and illegalities: The deep roots of deforestation in the Amazon

The land market in the Amazon is a powerful structure that precedes, conditions, and interferes critically in productive decisions. Market demand for produced deforested land drives illegal land grabbing and “land chaos”

Reinforce democracy by guaranteeing social transparency in the management of its most valuable foundations

Monitor Amazonian state policies to eradicate corruption and impunity and increase international humanitarian efforts focused on the Amazon region

Nationally, expand command-and-control policies to prevent land market illegalities, while internationally, enhance verification systems for the origin of potentially illegally sourced goods



Expand protected areas and acknowledge indigenous lands while strengthening control against illegal extractive activities.



Encourage local community involvement and integration within national governance systems, while also providing technical support and market access to bolster the resilience of local associations, Indigenous, and rural economies.



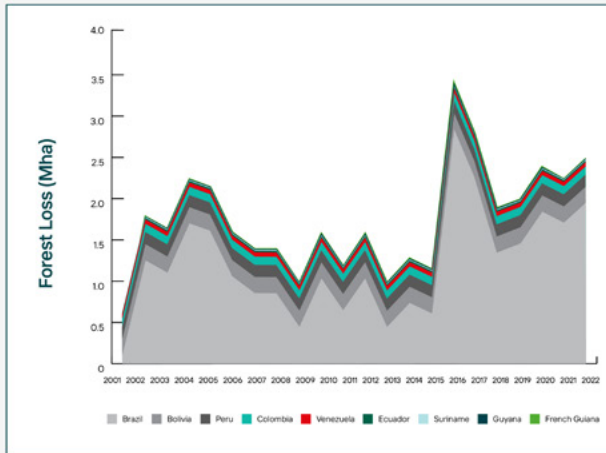
Cease large-scale commercial monoculture and capital-intensive operations by closing the agrarian frontier, while promoting sustainable employment, tourism, and local market-oriented productive systems.

GRAPHICAL ABSTRACT: Land market and illegalities: The deep roots of deforestation in the Amazon.

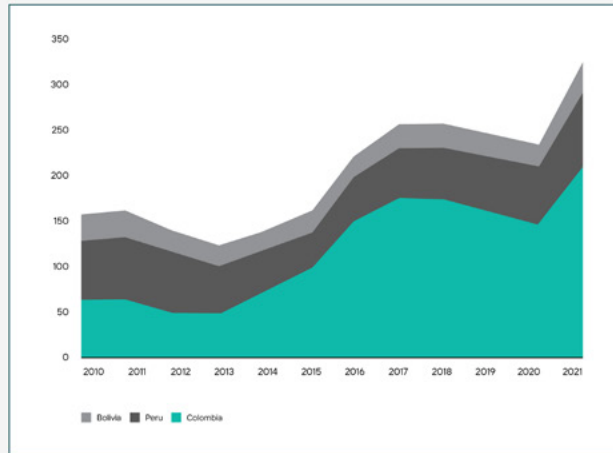
At the same time, other illegal activities increased in the Amazon. Between 2010 and 2022, coca cultivation area grew fourfold in Colombia (Figure 1-B), the world’s largest cocaine producer⁶,

and illegal gold mining expanded dramatically in Venezuela, Bolivia, Peru, and other Amazon countries² (Figure 1-C). In a context of weak state presence and declining democratic institutions,

(A) Primary forest cover loss by country (2001-2022)



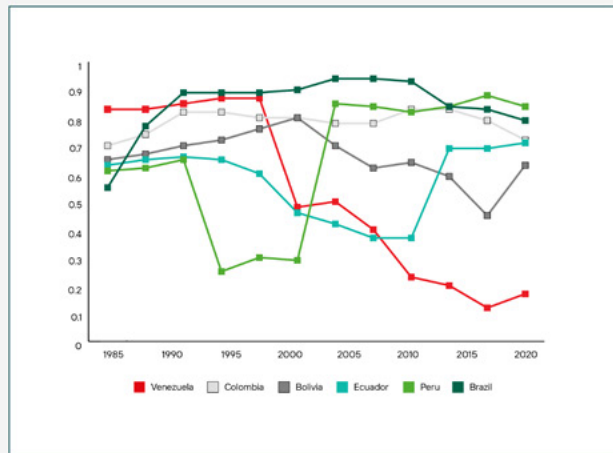
(B) Coca cultivation by countries (2010-2021)



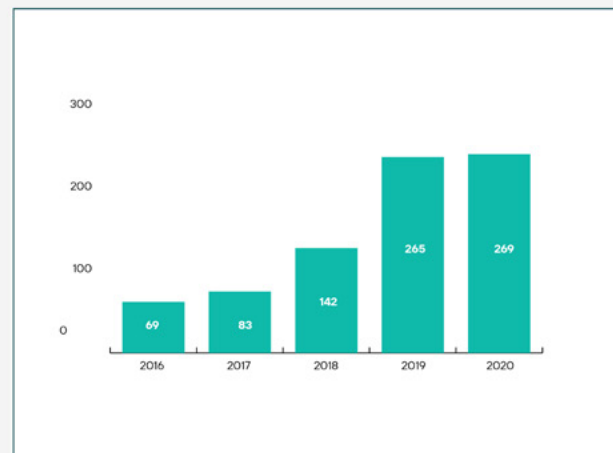
(C) Illegal gold mining map



(D) Democracy Civil Control Index (1985-2020)



(E) Appropriation of public lands (thousand ha)



Sources: A: Global Forest Watch; B: UNODC; C: RAISG (2020) Amazonia Under Pressure; D: University of Würzburg; E: Rede Amazônica de Informação Socioambiental.

FIGURE 1. (A) Primary forest cover loss by country (2001-2022). (B) Coca cultivation by countries (2010-2021). (C) Illegal gold mining map. (D) Democracy Civil Control Index (1985-2020). (E) Appropriation of public lands in Brazil (thousand ha). Sources: A: Global Forest Watch; B: UNODC; C: RAISG (2020) Amazonia Under Pressure; D: University of Würzburg; E: Rede Amazônica de Informação Socioambiental.

violence proliferated, and a complex global network of legal and illegal activities as well as money laundering emerged.

Recent evidence shows dramatic correlations between the deterioration of democracy in the Amazonian countries^{7,8} and increases in illegal activities and threats to the biome and the populations and cultures associated with it. After three decades of oscillating but continuous advances in the quality of democracy - except Venezuela, - from 2016 to 2020, there were significant setbacks in Brazil, Bolivia, and Colombia, and a continuity of the gravely deteriorating situation in Venezuela, (Figure 1D). The data for Peru and Ecuador in Figure 1-D show relative stability but do not reflect events in the last year, when these countries suffered dramatic political and institutional crises, leading to political violence and the deterioration of the rule of democracy and separation of powers. This regional crisis of democracy was accompanied by the notable growth of illegal activities, including extraordinary increases in the appropriation of public lands (in Brazil, the verified occurrences of annual deforestation in public lands increased threefold in the period, Figure 1-E); expansion of banned mining (Rede Amazônica de Informação Socioambiental registered 4,472 localities mainly in Brazil and Venezuela but also in Ecuador, French Guiana, Guayana, Peru and Suriname); and the extraordinary doubling of the area of coca planting in Colombia, Bolivia and Peru (Figure 1-B).

Colombia accounts for about two thirds of coca cultivated area in Latin America^{6,9}. Between 2010 and 2022, it grew from 62,000 ha to 240,000 ha, heavily concentrated on the Ecuadorian border, including the Putumayo basin in the Amazon⁶. Ecuador became a significant trafficking route for drugs, and its homicide rate increased fivefold between 2018 and 2022, as the country became one of the most violent in Latin America. The killing of anti-corruption presidential candidate

Fernando Villavicencio in August 2023 exemplifies the crisis¹⁰.

The intensity and scale of these shifts reveals the significant reorientation or even dismantling of state operational capacities in the region in this short period. Powerful underlying forces present significant challenges to Amazonian democracies, and the ways of life of its societies and their natural resource base. Amazonian states harbor historical "pillage coalitions"^{11,12} which articulate landed interests with unsustainable production of traditional agricultural and mineral commodities. These coalitions influence unstable state behavior to varying degrees, depending on the strength of opposing forces associated with new "pro-environment coalitions" – complex webs of social actors that have recently formed around social and environmental sustainability principles.

This policy brief focuses on the structural nature of the interactions of the legal and illegal dimensions of land markets and additional illegal activities, such as cocaine trafficking and gold mining. For doing so, three national cases (in Brazil, Colombia and Venezuela) are described in more detail, and brief references to illegal activities in Peru and Bolivia are also made.

B. BRAZIL: THE "PILLAGE COALITION" ENABLES LARGE-SCALE PRIVATE LAND CONCENTRATION AND DEFORESTATION

1. PRIVATIZATION OF PUBLIC FORESTS IS THE GENESIS OF THE DEFORESTED-LAND MARKET AND PRIVATE CONTROL OF FORESTS IN THE BRAZILIAN AMAZON

Privatization entails fencing public forests, transforming them into private forests (or forested land, FL, in land market jargon), followed by deforestation to transform them into deforested

lands (DL), the central object of the land market. This process has been influenced by different policies of the Brazilian government, and the rate of privatization has changed over time¹³. Figure 2-A shows the trends over time: of the total 51.3 million hectares of land declared as private properties in the 1970 agricultural census, 48.8 million (95%) were found to have been deforested by 1985. From 1985 to 2006, containment of the privatization process was accompanied by the deforestation of another 19 million hectares, reducing the stock of privatized forests to 49 million ha. Then, from 2006 to 2017, the area of private land continued to increase (to 132 million ha), with 58% of those land being deforested. If the pace of privatization and deforestation remained the same, it can be estimated that the total stock of private lands grew to just over 139 million hectares in 2022, of which about 81 million (19,2% of the Brazilian Amazon Forest) was deforested

(Figure 2-A). PRODES data show a slightly higher figure, at 83.1 million hectares deforested up to July 2022 for the Brazilian Amazon (19,7% of total).

Privatization of Brazilian Amazonian public forests and deforested land production are large-scale and predominantly illegal operations

Appropriations of large tracts of land have dominated land privatization in Brazilian Amazonia, further concentrating landownership: large properties (La) over 1,000 ha held 59% of the total land privatized in 1970 and 61% in 2017 (Figure 2-B), leading to an average Gini Index of 0.867 in the region, much higher than that of the rest of Brazil of 0.789³.

The high land concentration, in turn, is associated with presumably illegal possession processes.

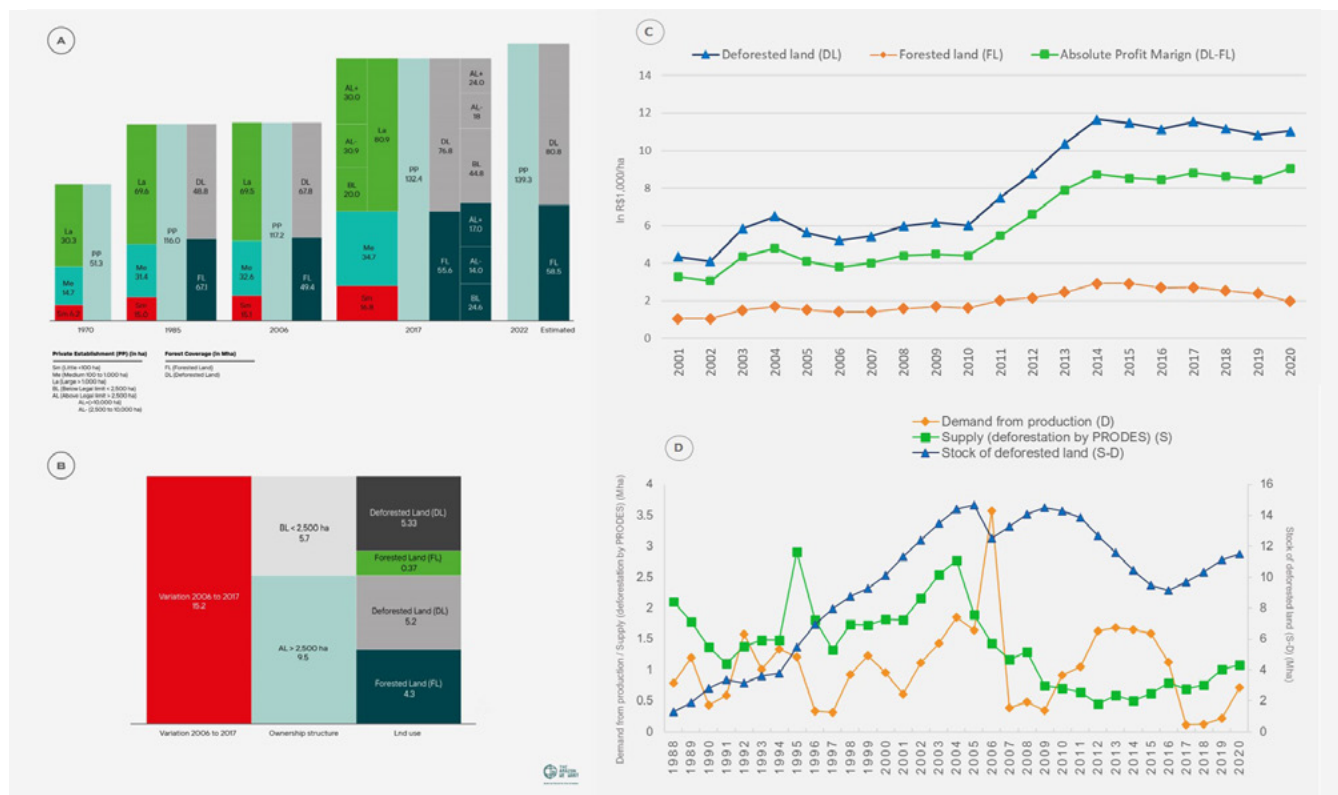


FIGURE 2. Privatization of public lands and land market in the Brazilian Amazon: A) Historical evolution of land stocks in private establishments; structure by size [Sm (Small <100 ha); Me (Medium 100 to 1.000 ha); La (Large > 1.000 ha); and forest/non-forest coverage: FL (Forested Land) and DL (Deforested Land) (million ha); B) Participation of establishments below (BL) and above (AL) the legal size limit for public land appropriation from 2006-2017, considering forested and non-forested land cover (in million ha); C) Price differences between deforested and forested lands (in R\$1,000/ha). D) Annual increment of total lands privatized, of production-supply of deforested lands (deforestation according to PRODES) and of the annual demand from the economy, 1985-2020 (millions ha). Source: IBGE¹⁶.

Specifically, in private land expansion during the last period, establishments larger than 2,500 ha (i.e., above the constitutional limit for the allocation of public lands), appropriated 9.5 million hectares – 62.5% of the total appropriation of 15.2 million hectares (Figure 2-B) – and by 2017 owned 61 million hectares, half in giant properties larger than 10,000 hectares (in Figure 2-A, AL+).

The concentration of landownership corresponds to the concentration of forest stocks: after deforesting 5.2 million hectares of additional assets from 2006 to 2017, establishments over 2,500 hectares (AL) added 4.3 million hectares to their forest stock (Figure 1-B), which increased to 31 million hectares. It is also notable that, of this total, 17 million hectares were declared to be in establishments over 10,000 hectares (Figure 1-B, AL+).

The social and environmental fate of the Brazilian Amazon crucially depends on what happens to these immense forest stocks under various forms of private control. One can assess the weight of the issues and the risks involved by considering that deforestation of approximately 12 million more hectares would bring the Amazon to the maximum limit of deforestation (20% of forest cover removed) that has been modelled to push the Amazon towards the tipping point^{14,15}.

2. MARKET DEMAND FOR PRODUCED DEFORESTED LAND DRIVES ILLEGAL LAND GRABBING AND “LAND CHAOS”

The land market in the Amazon is a powerful structure that precedes, conditions, and interferes critically in productive decisions (with emphasis on the pressure on the forest and deforestation). As opposed to the rural land market in the rest of Brazil, where the volume of landownership in play reduced from 243 million ha in 1970 to 218 million in 2017¹⁶, in the Amazon it is characterized by a supply that incorporates the annual “production” of deforested land. This production is governed

by the specific gains of the land market, or the difference between the prices of land with and without forest (considering that, roughly speaking, cost and revenue from deforestation are equivalent, Figure 2-C). In turn, the demand for deforested land is defined by the progress of product markets and by the technologies adopted in the respective production systems. Thus, supply and demand for land evolve with high relative autonomy³.

Institutional conditions allowed the large-scale privatization of public forests through illegal land grabbing, which has minimal costs and leads to a situation of “land chaos” (Box 1). This underpinned the land market by keeping the prices of forested land growing more slowly than the prices of land without forest, 4.2% and 5.7% per year, respectively, increasing consequently the absolute profit margin from the production of deforested land at an average rate of 6.2% per year from 2001-2020 (Figure 2-C). At the same time, the low cost of creation and maintenance of deforested land led to the growth of speculative stocks of deforested land. The 2005 stocks of over 14 million hectares of deforested land were reduced sharply by 2016, but from 2016 to 2020, with the deterioration of the institutional environment, 2.4 million hectares of deforested land were added to the market (Figure 2-D).

Speculative stocks kept the price of deforested land low in the region, helping guarantee the profitability of extensive livestock farming, increasing its competitiveness and the competitiveness of crop production as well, possibly augmenting their respective demands for land. Indeed, two components of the land market have been increasingly profitable: the production of deforested land (difference between the prices of land with and without forest) and speculation with land (difference in the prices of deforested land between different commodity production cycles)³ (Figure 2).

BOX 1: LAND CHAOS

The notion of “land chaos” refers to situations in which high probabilities of illegality in land ownership relations, presumed from history and context, coexist with low probabilities of effective distinction between what is legal and legitimate and what is not³. This occurs because the state land agencies and organizations of civil society do not have the means to combine information about the origin of the property and the purchase and sale of lands. Consequently, state agencies are not able to quickly and reasonably demonstrate the domain chain of establishments. The reasons for that may be:

1. A lack of technical resources capable of dealing with the situation’s complexity; or
2. While technical resources exist, a) there are insufficient financial resources to put them into practice, or b) the state refuses to operationalize them, out of lack of political will – because through the correlation of forces that influence its actions, the state has become incapable of controlling the society’s inheritance of land for the common good. Recent experiences show that technical resources exist to solve this problem^{17,18}.

3. LAND MARKETS ARE INTERLINKED WITH OTHER ILLEGAL AND LEGAL ACTIVITIES, WITH VIOLENCE AND HUMAN RIGHTS VIOLATIONS: INSTITUTIONAL ARRANGEMENTS OF THE “PILLAGE COALITION”

Land chaos and the land market are expressions of deeper contexts in which structural underpinnings of captured states, acting under the hegemony of specific economic forces, make Amazonian land and resources critical subsidies to national

economies. In Brazil, given the trends of deindustrialization and the growing dependence on the export of commodities to ensure politically acceptable economic growth, the hegemony of agribusiness and mining interests has deepened its influence on the formation and use of state capacities¹⁹⁻²¹. Production of land in the Amazon is therefore a topic of great strategic relevance, permitting the formation of “pillager coalition”^{11,12,22} to strengthen its operational mechanisms at local levels, assuming forms of local-specific arrangements that articulate the institutional sphere with the sphere of production of land and goods⁴.

Data from the Federal Police of Brazil from 2016 to 2020 about operations to prevent environmental crimes all over the Brazilian Amazon states allow an approximate view of these complex relationships²³ (Table 3, p. 23). The Federal Police attributed “criminal hypotheses” (e.g., land grabbing, drug trafficking, illegal deforestation, etc.) to 166 of its operations on rural properties at different stages of the production and land use process (Figure 3). According to this unique information, no less than 47% of all the properties investigated resulted from land grabbing mediated by fraud (45%) and corruption (34%) (Figure 3-A). 60% of the properties investigated suffered illegal deforestation and illegal logging (22%). The data inform further that these moments of land production were frequently linked with other illicit activities, including that 16% of the properties carried out some type of money laundering, 15% had illegal weapons and 14% were involved in violent crimes, including people trafficking (7%), and illegal mining (9%). Consequently, 60% of the cases could be characterized as transactions by criminal organizations (Figure 3-A). Unfortunately, other sources corroborate that Amazonian land transactions are linked to illegality, violence, and human rights violations: well-documented cases of land grabbing have accounted for appropriations by individual agents of tens or even hundreds of

thousands of hectares²⁴. In 2020 there were 1,132 land conflicts with 17 deaths, 17 murders, 16 attempted murders and 102 death threats against peasants, Indigenous people and their defenders (FNSP²⁵, Quadro 3, p. 534.); 77.8% of workers found in conditions of slavery in Brazil were registered in the Amazon, precisely in the municipalities responsible for 88.8% of deforestation²⁶; and around 95% of all deforestation is illegal^{19,27}.

One can understand the dynamics of land production as a cycle of territorial appropriation and wealth accumulation by economic agents and groups²⁸⁻³¹ (schematically shown in Figure 3-B). Illicit resources finance appropriation of public land and/or expropriation of peasants and Indigenous lands. These illegally obtained lands are transformed into negotiable properties, with false and legal titles becoming indistinguishable through a market based on land chaos and increasing control over formal administrative mechanisms (electing local and national executive and legislative representatives or corrupting official agents; Figure 3-B).

Put into production, the deforested land resulting from such illegitimate systems allows privileged access to different income streams of legal origin. For example, productive land is eligible to access subsidized credit and state financing of services like technical research and assistance and infrastructural

facilities, which positively impact profitability of these lands. Put into the market, deforested land allows for cumulative legal and illegal gains and the expanded results of one cycle subsequently form the basis of a new one (see Figure 3-B).

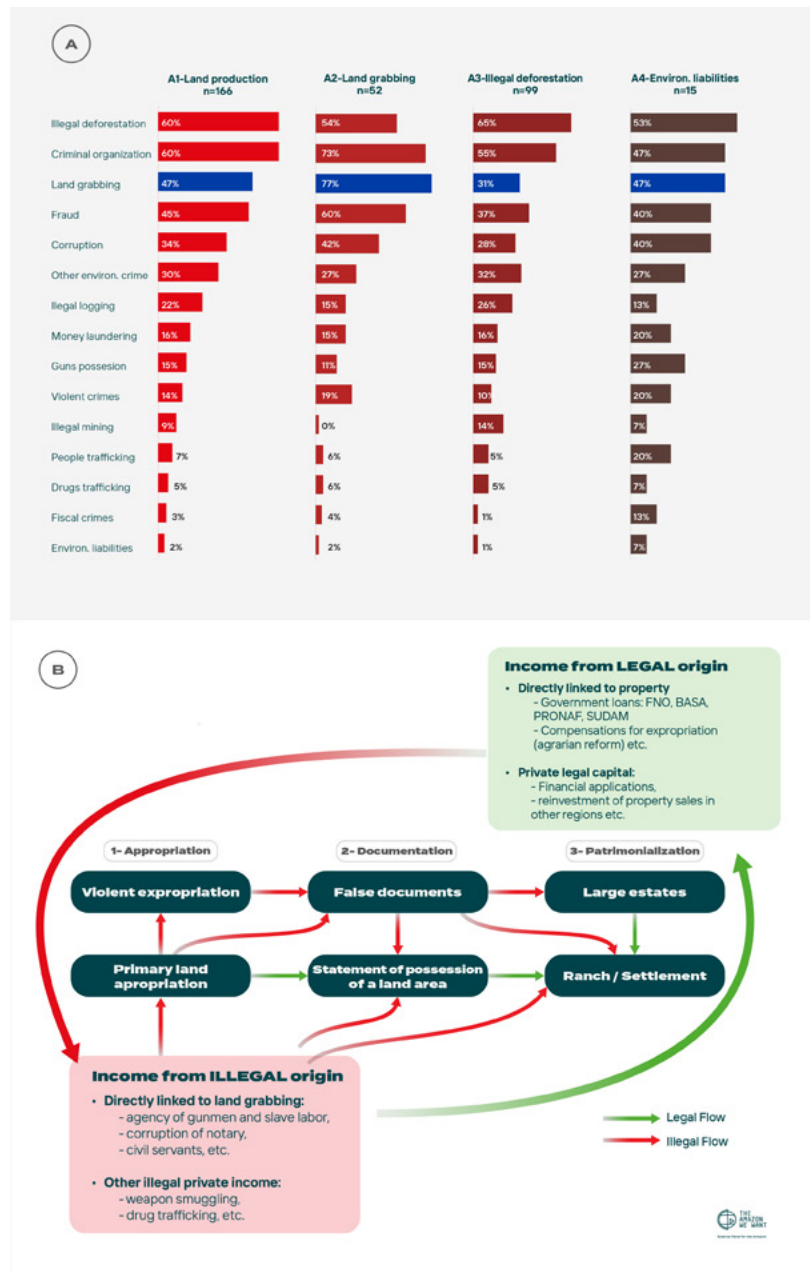


FIGURE 3 – Local institutional arrangements, land market and illicit economies. A. Proportion of cases investigated by the Brazilian Federal Police in their operations to suppress environmental crimes in Legal Amazonia from 2016–2020 that were subject to “criminal hypotheses” (lines) and the total cases grouped by themes or focus of the operations: “land grabbing” operations (A2) focused on the alleged illegitimate institutional or bureaucratic transformation of public to private lands; “illegal deforestation” (A3) focused on the transformation of forested to deforested land; and “properties with environmental deficits” in relation to land use and legal reserves requirements (A4). The column designated “land production” (A1) is the average case situation, resulting from weighting the three relative structures by the respective case totals. Source: Developed by the authors based on Araújo Santos et al. 2019³².

C. COLOMBIA: LAND GRABBING ENABLES MONEY LAUNDERING OF ILLICIT ECONOMIES

The main drivers of deforestation in the Colombian Amazon are extensive cattle ranching and land grabbing, both of which have recently increased in protected areas³³⁻³⁶. Further drivers of deforestation are mining, oil drilling, infrastructure projects, and cultivation of illegal crops^{34,37-40}. Yet, deforestation in the Colombian Amazon cannot be properly understood without focusing on the economic model and social inequalities that are deeply entwined with land distribution and internal armed conflict.

Land distribution in Colombia is extremely unequal. According to recent data, the Gini index of land tenure (the most common measure of inequality in land appropriation) is 0.89^{5,40-43}. These inequalities are historically persistent and have increased as a consequence of the internal armed conflict through dispossession and forced displacement. In the past, several attempts for land redistribution through agrarian reforms have been frustrated.

To analyze the links between land, illicit activities, inequalities and the ongoing processes of deforestation and biodiversity loss in the Amazon, it is important to take into consideration the main aspects of the agrarian question in the region: i) the historical process of its colonization; ii) the consequences of the internal armed conflict; iii) extractive development patterns and, like in Brazil, land chaos.

i) Process of Colonization

Although the Amazon accounts for approximately 43% of the national territory, only after the 1991 Constitution was it considered a region of special environmental protection, Indigenous people

were officially recognized, and five of the six departments of the Amazon were constituted. Before that, interest in the region resided in natural resource extraction (especially rubber, quinine, and timber) and colonization⁴⁴.

Starting in the 1960s, the state promoted the colonization of the Amazon through grants of “terrenos baldíos” (wastelands) to peasant families with the aim of mitigating pressure for land redistribution from peasant movements and victims of political violence in other territories⁴⁵. The programs promoted colonization patterns based on forest clearings as the way to demonstrate productive use of land, which could be used to get access to credit and land titles⁴³. Because of this policy, a continuous expansion of the agrarian frontier, deforestation, and a rapid increase of the population size took place, along with land use and land cover changes, from forests to agriculture and cattle ranching⁴⁶. This process had far-reaching negative consequences for the territories of Indigenous peoples and local communities and their ecosystems.

Despite this transformation of the forest and its impact on the original populations, the socio-economic development objectives that promoted the migration of peasant families from the center of the country to the Amazon were not achieved. However, when seen under the perspective of the agrarian question underlying the fate of the Amazon and considering the inequalities in land distribution that persist in Colombia, the policy succeeded in mitigating the pressures for land reform in the places of origin of the migrating peasant families. As a result, the Colombian Amazon combines dramatic environmental degradation with socio-economic marginalization and weak state presence⁴⁷ in the provision of social services (health, education) and infrastructure (roads and market access)^{48,49}.

ii) The consequences of the internal armed conflict

The long-term history of political violence in Colombia is a crucial driver of deforestation in the Amazon and contributes to land chaos⁵⁰. These processes remain from colonial times but rose significantly in the second half of the 20th century. Ongoing marginalization and weak state presence increased incentives for cultivation of illicit crops and eased the presence and legitimacy of non-state armed actors.

The emergence of renovated forms of the armed conflict in the Amazon has led to a circular dynamic of forced displacement – colonization – armed conflict – forced displacement^{51–53}. During the Peace Process with the FARC-EP (The Revolutionary Armed Forces of Colombia-People's Army) guerrilla, the negative consequences of the internal armed conflict on the Indigenous, afro-Colombian, and peasant communities and their territories became evident. In the Colombian Amazon, especially extensive cattle ranching, extractivism (mining and oil drilling), and the cultivation of illicit drugs have been at the center of the internal armed conflict and contributed to deforestation, soil degradation and water pollution^{54–56}. Recently, nature and territories have been acknowledged as victims of the Colombian armed conflict and some rivers and territories – including the Amazon – have been recognized as legal subjects⁵⁷.

Nonetheless, the current Peace Process with the FARC-EP suffers from slow implementation, especially regarding rural development and drug economy⁵⁸. According to official data, only 16% of the objectives regarding land restitution have been achieved⁵⁹. Moreover, after the Peace Accords, deforestation rates increased rapidly³⁴, environmental activists suffered attacks, and some were even murdered⁶⁰. However, the state has accomplished the goals of rural reform

agreed in the Peace Accords that seek to improve the living conditions of people in rural areas in a sustainable manner. Consequently, today both new and old non-state armed actors exercise territorial control in the areas.

iii) Land Chaos

Land chaos in the Colombian Amazon is related to both historical patterns of occupation of Amazonian territories and more recent land grabbing by big capital. Unplanned forms of colonization, the incentives to expand the agrarian frontier in order to mitigate land conflicts and the circular dynamics between forced displacement, colonization and violence have made land titling in the Amazon very precarious. With few exceptions, cadasters are outdated or do not exist at all⁶¹, and as a result, the state does not have sufficient information to take actions on, for example, land restitution⁶². Additionally, a more modern phenomenon has emerged whereby local elites and foreign investors are deforesting large extensions of forest, followed by illegal wildlife trafficking, and the introduction of cattle ranching or other “productive” activities. In fact, land chaos is increasing partly due to money laundering from illicit activities.

Cattle ranching, not the cultivation of illicit crops, is the main driver of deforestation in the Colombian Amazon³⁴, but the drug economy is intrinsically linked to deforestation by money laundering of the important illegal rents through land purchase and cattle ranching⁶³. These practices reproduce rentier economies that do not focus on productivity, but rather on securing political and social power and status through wealth and position. Thus, productive activity is undertaken to legitimize illicitly obtained wealth. With efficiency and productivity not as primary objectives, the practices adopted tend to put more pressure on the agricultural frontier.

D. VENEZUELA: ILLEGAL GOLD MINING BY PARAMILITARY GROUPS UNDERMINES DEMOCRACY

The Venezuelan Amazon is experiencing a process of accelerated degradation of both its ecosystems and the different peoples that inhabit it. The bioregion is being impacted by the most complex and profound crisis that Venezuela has undergone in its contemporary history, and probably one of the worst in Latin America⁶⁴. Among the various factors that are generating this situation, mining is the main and most pernicious when weighed by its creation of multidimensional impacts^{65,66}. However, one of the main direct drivers of deforestation is the expansion of the agricultural frontier for crops and livestock, although the rate has slowed in the last decade⁶⁷. This expansion is not accompanied by an increase in production, as the land is often abandoned after a few years⁶⁷. Land grabbing problems are not common in the region, where cleared land is likely converted from forestland to feed the region's influx of miners⁶⁶. Mining and agriculture, as well as forest fires, appear as the main drivers of deforestation when analyzing Venezuela's Amazon deforestation hotspots, which are mainly concentrated within the Orinoco Mining Arc (an area of over eleven million hectares created to promote mining), as well as within and around protected areas⁶⁶.

Mining development and expansion in the region are fundamentally illegal, because of three main factors. The first is the widespread presence, participation, and control of mining by organized crime and irregular armed actors throughout the Venezuelan Amazon. These actors may be of national origin – such as the so called '*Sindicatos*' – but also, depending on the region, representatives of the Colombian guerrilla – *Ejercito de Liberacion Nacional*

(ELN) and FARC dissidents^{68,69} or Brazilian organized crime – such as expressions of the narcogarimpo in Roraima⁷⁰, – which strengthen and promote cross-border mining. Through the establishment of extreme violence regimes, these groups can control mines and illicit commodity routes, as well as supervise local extraction chains. Small miners (who may be local, from other Venezuelan states or from neighboring countries, like Colombia) and Indigenous communities operate primarily as workforce, under great vulnerability conditions. Several Indigenous territorial resistances have emerged, although there are also mines controlled and managed by Indigenous groups – as for example in La Paragua⁷¹. These violent regimes impose severe punishments and even resort to murder to discipline those who disrespect criminal authority, or resist overexploitation of labor, recruitment of children and young people, or forced displacements⁷².

The second reason is the eminently illegal nature of the activity in a wide extension of the Amazonian territory, as mining is prohibited in the entire Amazonas state and in ABRAEs (Areas under Special Administration Regimes, designated for special purposes, like conservation or improvement), such as National Parks (NP) or Natural Monuments in the Bolívar state. Yet mining occurs in large NPs such as Caura (7.5 million ha) or Canaima (3 million ha). Additionally, mercury, which has been prohibited by decree since 2016ⁱ, is used in the extraction process.

The third reason for mining expansion is that a few small-scale mining activities are included within the scope of the Venezuelan

ⁱ Decree No. 2,412 dated August 5, 2016, which prohibits the use, possession, storage and transportation of mercury (Hg) as a method of obtaining or treating gold and any other metallic or non-metallic mineral. Published in the Official Gazette of the Bolivarian Republic of Venezuela No. 40,960 of the same date.

Mining Corporation (CVM) and are considered 'formal' mining activities; for example, in the El Callao municipality. However, these initiatives operate under a cloak of secrecy, without public information being made available and are enveloped by state corruption^{73,74}. There is great opacity regarding the origin and methods of obtaining gold⁶⁹ and the activity is dominated by violent criminal networks.

The areas of greatest mining expansion in the Bolívar state are the Cuyuní river basin (bordering the Essequibo), in the Ikabarú zone, the banks of the Caroní, upper and middle Paragua, and in the Caura basin with respect to gold, and coltan and diamond extraction corridors in the Cedeño municipality. In the state of Amazonas, the notable expansion in the Yapacana NP stands out; similarly in the Yanomami territory in Alto Orinoco, and in rivers such as the Ventuari and Sipapo, to mention examples.

The national government established the Orinoco Mining Arc project as the framework of the mining policy for the Amazon. However, it has not been able to advance in large-scale mining ventures given the complex and adverse conditions for foreign investment. What prevails in practically all the analyzed cases is the participation, association, and complicity of state officials and military forces in illegal mining – e.g., facilitation of fuel acquisition for boats, bribery of mining actors, transit permit for mining inputs and illegal miners, etc⁷⁵⁻⁷⁷. These close forms of association and mining operation between legal and illegal actors have made borders between them increasingly blurred. This is also due to networks of state corruption that participate in the appropriation and insertion of illicit gold in global value chains.

The protraction and stagnation of the political conflict in Venezuela has had a very negative impact on the Amazon region, to the extent that this situation is faced with high levels of impunity and government negligence. The Amazonian issue is given little attention by the opposition sectors in national debates, and in the international arena, the issue is absent in the negotiation process led by Norway⁷⁸. Additionally, international sanctions on Venezuela have been accompanied by negative impacts on its population, as seen in rising disease and mortality rates and the collapse of standards of living⁷⁹. Although experts disagree on the causal link between this decline and the sanctions, this has occurred while no clear effect on current government's hold on power has materialized and no solutions to the political conflict have followed^{79,80}.

E. GOLD MINING, DRUG TRAFFICKING, AND DEFORESTATION IN PERU AND BOLIVIA

A dramatic expansion of illegal gold mining has taken place in the last decade both in Bolivia and Peru. In Bolivia, gold became the largest export product in the country, at \$2.55 billion in 2021⁸¹, accounting for 6.2% of GDP⁸², while in Peru gold is the second largest export product, at \$7.7 billion dollars in 2021, reaching 14% of total exports. In both countries, illegal and artisanal gold mining represent a large fraction of total gold production and exports^{82,83}.

In Peru, illegal gold mining has been concentrated in the southern Amazon (Madre de Dios department), although the activity has recently proliferated in other areas as well⁸⁴. In Madre de Dios, illegal mining involves other illicit activities, such as child labor, forced labor and prostitution. Several military crackdowns reached only partial success in

controlling illegalities⁸³. In Bolivia, most gold extraction comes from small and medium-sized producers, who benefit from generous incentives. Gold extraction takes place even within the Madidi National Park in the northern Amazon, despite the high social conflict with Indigenous communities⁸⁵. In both cases, gold mining generates massive pollution of mercury, mostly affecting Indigenous peoples, which depend on a fish-based diet⁸⁶. Bolivia became the largest mercury importer in Latin America and the second largest in the world, accounting for 13% of world imports in 2021⁸⁷.

Both in Bolivia and Peru, a fraction of coca production is legally produced and consumed locally by traditional cultures as an unprocessed commodity. In Peru, coca cultivation has almost doubled between 2015 and 2021⁶, expanding to new areas, mostly in the center-south, in addition to the traditional area of Alto Huallaga, located in the central west Peruvian Amazon. Drug gangs attempt to control large territories, and armed clashes with the military are recurrent. Coca leaves require a chemical process to produce cocaine, which is partly done in Peru, but most is sent to Bolivia to be further refined and exported⁸⁴. In Bolivia, by contrast, coca cultivation areas did not change significantly in the last decade, although export links became more diversified and stronger⁸³.

Although primary tree forest loss increased both in Peru and Bolivia, deterioration in Bolivia was stronger. Despite its environmental rhetoric, Bolivia had the highest cumulative primary forest loss among Amazon countries between 2001 and 2022 (9.1%) overcoming even Brazil. Deforestation increased dramatically between 2015 and 2022, as primary cover loss went up fourfold¹. New legislation⁸⁸ promoted the expansion of

soybean and cattle ranching for exports with minimal controls. As soy cultivation leads to soil nutrient depletion, new cleared lands are replacing old, exhausted cultivation areas in an escalating deforestation path. In addition, agricultural expansion has displaced Indigenous peoples and local communities' lands, as in the case of Laguna Concepción⁸⁹.

Land conversion to small and medium holdings is the dominant way of deforestation both in Peru and Ecuador. As a result, illegal land markets of large holdings are not the prevailing way of land appropriation, as in Brazil and Colombia. Nevertheless, large plantations of palm oil and cacao have recently expanded⁸⁴.

Illegal activities expanded in Peru in a context of weak state presence, both at national and local levels, and lack of transparency, resources, and capacity of local governments to implement law enforcement. Most of illegal activities remain in impunity. In addition, 90% of land owned in the region lacks formal titling⁹⁰, generating land conflicts and making indigenous land recognition increasingly difficult, particularly in conflicts with mining concessions⁸³. By contrast, Bolivia implemented a process in the 1990s of Indigenous legal land recognition in the Amazon, reinforced in the following decade. Nevertheless, after 10 years of land titling regulation in the country, only 6% of lands subject to regulation were titled⁹¹. Yet, some progress seems have been made recently.

F. CONCLUSION

During the last decade, in a context of weak state presence, deteriorating democracy, and increasing deforestation in the Amazon, land grabbing and illegal land markets proliferated, particularly in Brazil and

Colombia, consolidating the already high land concentration and inequality. Different forms of other unlawful activities, particularly cocaine trafficking, money laundering, and illegal gold mining experienced a dramatic increase in several Amazonian countries, like Colombia, Venezuela, Peru, and Bolivia, with ensuing effects of violence and both social and environmental degradation. Illegal and legal activities are frequently blurred in complex transactions and productivity chains, and impunity generally prevails.

It is necessary to empower national and local governments, civil society, and Indigenous communities with informational tools on land property chains and traceable production and trade flows, to differentiate between legal and illegal activities, avoid money laundering, and control or eliminate the latter ones.

As the conventional approach to combat drug trafficking by eradicating coca and cocaine production by force has not been successful in controlling the problem, despite its high cost in human lives, it is recommended to explore a different paradigm, including the reduction of international demand or legalization of consumption in developed countries.

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