

## How to curb deforestation on the Amazon frontier?

Deforestation in the Amazon advances through a frontier-expansion dynamic marked by speculation, land conquest, and the rapid conversion of land. These dynamics often come with conflict and exclusion, particularly harming Indigenous peoples. Yet sustainable economic models can help slow this expansion—provided they are conceived within an integrated territorial approach.

### **Drivers of Deforestation and Frontier Dynamics in the Amazon**

#### **Well-identified drivers, with diverse modalities across geographies**

Deforestation and degradation of the Amazon are linked to a limited set of land uses, expressed with varying intensities and forms.

The opening of roads—especially those needed for oil extraction—plays a central role in deforestation by enabling access to land and facilitating the transport of agricultural products. Between 2015 and 2020, more than 90% of forest degradation occurred within 5 km of an infrastructure (Beuchle *et al.*, 2023). For example, the Auca road opened new frontier zones in Ecuador (Hänggli *et al.*, 2023). In Brazil, the 3,579-km BR-163 highway has become a major corridor for the establishment of new agricultural operations. In Colombia, it is mostly illegal tracks that open access to the forest to serve areas of coca cultivation, ranching, or mining, thus facilitating the expansion of legal or illegal agricultural uses (IUCN NL, 2024).

#### **Authors**

**David COMBAZ** (SalvaTerra),  
**Carlos CUBILLOS** (TERO),  
**Catherine ANDRÉ** (SalvaTerra)

Deforested lands are used mainly for cattle ranching in the southern Amazon massif and in Colombia, where it would account for roughly half of deforestation (Beuchle *et al.*, 2023; IUCN NL, 2024). In Brazil, large-scale crops—chiefly soy—are also an important factor. Since 2006, a moratorium has prohibited converting forests into soy fields, but the value chain continues to have indirect effects by taking over pastures, which then shift into new forest areas to be cleared. In Bolivia, large-scale crops are expanding across the eastern plains, supported by the development of roads and infrastructure.

Other, less concentrated activities also contribute to deforestation. Gold mining—artisanal or industrial, legal and illegal—particularly affects the Guiana Shield and the Madre de Dios region in Peru. It causes mercury pollution, fragments ecosystems, and generates various social, land, and economic conflicts among Indigenous peoples, illegal miners, and opportunistic entrepreneurs.

### **Land speculation, crime, and dispossession on the frontier**

In several countries, proving that land is being used for productive purposes can allow one to obtain property rights (Pendrill *et al.*, 2022). For vulnerable populations, this prospect is a strong incentive to clear forest, which is reinforced when infrastructure projects signal an increase in land values (IUCN NL, 2024).

Deforestation thus becomes an instrument of speculation: small farmers first clear land perceived as vacant, often near infrastructure. By establishing pastures, they claim ownership, with the intention of reselling the land for a capital gain. This phenomenon is very visible in Brazil, where pastures are replaced by intensive soy cultivation (Hänggli *et al.*, 2023; Beuchle *et al.*, 2023). In Colombia, the resale of cleared land can also be an end in itself, with agricultural use becoming secondary (IUCN NL, 2024).

These dynamics often come with violence against Indigenous peoples or environmental defenders. In areas rich in natural resources, threats, killings, and forced displacement have multiplied (IACHR, 2019). Violence is fostered by the lack of recognition of customary rights and by the weakening of the institutions tasked with enforcing the law, especially when the political context is unfavorable.

In Brazil, intrusions into Indigenous lands increased sharply between 2019 and 2022, in connection with the rollback of environmental protections during that period. In Colombia, after the 2016 peace accords,

the departure of the FARC was not followed by a real return of the State. Armed groups then took their place in several areas. In Peru and Ecuador, mining or oil concessions were granted without consulting local communities, sparking numerous conflicts (IACHR, 2019).

## **Building blocks of a strategy to stabilize frontier zones**

### **Plan, control, and secure land use**

When land rights are unclear or violations go unpunished, the forest is perceived as vacant space where cropland and pasture can easily expand (IUCN NL, 2024). Strengthening governance is a strategy that has proven effective. In Brazil, the creation of a priority list of municipalities under high deforestation pressure made it possible to concentrate monitoring efforts and apply restrictions on access to rural credit. This mechanism helped reduce deforestation by clearly linking access to economic resources to compliance with environmental rules.

Other approaches have also demonstrated their effectiveness when grounded in a solid legal basis and supported by concrete means. This is the case of ecological and economic zoning in Peru and Bolivia, which enables land-use planning based on land capability, and of Indigenous territorial management plans in Brazil, developed with communities. Where rights are recognized and resources are available, Indigenous territories indeed show lower average deforestation (IACHR, 2019).

The areas most affected by deforestation are often those where local institutions lack resources. External support can play an important role there—for example by deploying participatory mapping tools to advance land-use planning or the recognition of collective rights for Indigenous populations. In several territories, projects such as TerrAmaz<sup>[1]</sup> or TerrIndigena<sup>[2]</sup> have shown that support for territorial planning can help strengthen the legitimacy of local actors.

### **Transform production systems to stabilize land use**

The second pillar concerns transforming agriculture. By increasing yields, intensification is often presented as a way to reduce pressure on forests. However, it can generate a “rebound effect”: by making agriculture more profitable, it encourages the expansion of cultivated areas, worsening

[1] <https://www.terramaz.org>

[2] <https://www.afd.fr/en/carte-des-projets/terrindigena-rights-indigenous-communities-amazon>

deforestation. Three factors influence this effect: ease of access to land, producers' sensitivity to market prices, and unequal access to agricultural innovation.

Other models seek to reconcile production with the preservation of soils and trees while improving incomes. Their feasibility has been demonstrated by many initiatives. For example, in Guaviare (Colombia), rotational grazing within silvopastoral systems has improved yields while protecting soils. In Tomé-Açu (Brazil), producers grow cacao, pepper, and fruit on the same agroforestry plot—without opening new land—with good economic results.

These approaches work only under certain conditions, including recognition of land rights, effective and legitimate territorial governance, access to adequate technical assistance, and stable, remunerative markets. Building sustainable and profitable value chains is therefore crucial to scale up land-sparing agricultural models. This implies developing and disseminating good agricultural practices, but also strengthening suitable marketing channels.

Public development banks play a strategic role here: they can mobilize private finance and reinforce public policies. Working with microfinance institutions, cooperatives, or producer organizations, they can finance investments, support value-chain structuring, and reduce risk through tools such as targeted credit lines, guarantee funds, or risk-sharing mechanisms.

This is the ambition underpinning several partnerships in the region, such as those between the French Development Bank (AFD) and Amazonian Banc (BASA) and the Brazilian Social and Economic Development Bank (BNDES) in Brazil, and with the National Corporation for Popular Finance (CONAFIPS) in Ecuador.

### **Generate value from the forest without destroying it**

Protecting the forest can also generate income by leveraging its renewable resources: fruits, medicinal plants, ecotourism, or services to society such as water and climate regulation. By offering viable alternatives, these approaches can enable the abandonment of harmful activities like gold mining or illicit coca cultivation. This is what the Science Panel for the Amazon (SPA) puts forward with the concept of an “Amazonian bioeconomy,” which bets on ecosystem regeneration, traditional practices, and greater social justice, placing communities at the heart of the model (SPA, 2021).

To encourage these practices, payments for environmental services (PES) can be made to those who protect the forest. Programs such as Socio Bosque<sup>[3]</sup> in Ecuador, Bolsa Floresta<sup>[4]</sup> in Brazil, or Conservar Paga<sup>[5]</sup> in Colombia have shown that these solutions work if certain conditions are met: secure land rights, local involvement, and stable funding.

To ensure sustainable financing over time, several options are being explored. Among them, the Tropical Forest Forever Facility (TFFF) is a recent initiative proposed by Brazil. It aims to mobilize up to 125 billion dollars, with the interest enabling regular payments to countries that protect their tropical forests. This approach—still under discussion—seeks to recognize the value of existing natural capital in the Amazon as well as in the forests of the Congo Basin and Southeast Asia.

### **Social inclusion and securing local actors**

In deforestation areas, small producers, Indigenous peoples, and Afro-descendant communities often face insecure land tenure, social exclusion, or weak institutional presence. This precariousness limits their ability to exercise their rights and to participate fully in resource management (IACHR, 2019). It also acts as an incentive to deforest in order to gain land tenure.

In this context, ensuring access to rights, resources, and information is not only a matter of justice; it is essential to stabilize territorial dynamics and preserve the forest. Numerous studies underline that preservation policies are more likely to succeed when they rely on groups that are recognized, organized, and represented in governance bodies (SPA, 2021).

Community-based approaches that strengthen local management capacities have proven effective. They make it possible to build rules adapted to local realities, which are better respected, and to avoid conflicts over resource use. This requires creating spaces where these actors can make their views heard, including in planning processes or in allocating funding.

The key challenge here is to make technical, institutional, and financial tools accessible to vulnerable groups. This may involve targeted support, adapted procedures, or backing collective organizations. Such mediation efforts often make the difference on the ground.

[3] <https://www.ambiente.gob.ec/programa-socio-bosque/>

[4] <https://www.fundoamazonia.gov.br/pt/projeto/Bolsa-Floresta-00001>

[5] <https://www.minambiente.gov.co/conservarpaga/>

## Conclusion

Stabilizing frontier zones in the Amazon is above all a matter of governance. Sustainable agricultural approaches, economic incentives, or financial tools can be useful, but they only work if land rights are clear and if local populations—especially the most vulnerable—are recognized, protected, and involved in the management of their territories.

Field experience shows that results are more durable when public, private, community, and development-cooperation actors work together on coherent, co-managed territories, relying on four pillars: better planning and control of land and resource use; supporting agriculture that uses natural resources more efficiently; generating value from the forest without destroying it; and involving those who live on these territories in their governance.

There is no single solution. It is the combination of these levers—at the local scale—that makes it possible to move beyond deforestation dynamics.

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