POLICY ARTICLE

TRADE AND ENVIRONMENT

The rise and fall of the Amazon Soy Moratorium

Challenges to the voluntary zero-deforestation pact could impose costs for forests and the soy sector

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The Amazon Soy Moratorium (ASM) is a voluntary multisectoral zero-deforestation pact, in which soy traders agreed to not source or finance soy on Amazon lands deforested after July 2008. Despite successes, most traders terminated their commitments under the ASM in early 2026, amid a series of legislative and administrative challenges. A coalition of Brazilian political parties and civil society organizations (CSOs) mobilized to defend the ASM, including petitioning the Brazilian Federal Supreme Court (STF) to intervene (ADI 7774 and related cases; table S1). Here, we describe how the end of the ASM could impose substantial costs for forests and the soy sector. The pending final STF decision may come too late to preserve the ASM, but broader implications of this case extend beyond the agreement itself to the viability of any voluntary supply-chain standards that include limits on deforestation and ecosystem conversion that are not explicitly specified by Brazilian legislation.

The ASM emerged after threats of boycotts and reputational damage associated with a Greenpeace campaign highlighting the environmental risks of soy production in the Amazon. Although initially conceived as a temporary measure and renewed through a series of short-term extensions, in 2016, all parties agreed that the ASM should continue indefinitely until broader governance conditions were deemed sufficient. When the ASM began in 2006, soy expansion was a major driver of Amazon deforestation, with nearly one-third occurring through direct forest conversion (*1*). After the ASM was implemented by the traders that purchase ~90% of the Amazon's soy, deforestation for new soy expansion fell to nearly zero (*1*).

The ASM's clear rules, uniformly implemented in large part owing to efficient, sector-wide, property-level monitoring, encouraged high levels of compliance without the need for a patchwork of costly and company-specific traceability systems. The agreement incentivized soy expansion onto the large "bank" of 9.7 to 15 Mha of land that was deforested before the ASM's 2008 cutoff date, allowing the Amazon's soy area to more than triple without substantial direct forest conversion (*1*, *2*). In doing so, the ASM reduced deforestation by 35% (1.8 Mha) in areas at risk for soy expansion during just its first 10 years, including areas outside of soy properties (*3*). By reducing overall pressure on forests, the ASM complemented improvements to public policy implementation (*3*) and contributed to historically low deforestation rates by 2012, making it the most impactful voluntary supply-chain policy ever implemented, even when accounting for evidence that some deforestation pressure may have been reallocated to other regions such as the Cerrado [(*4*); supplementary materials (SM) section 1].

But laws passed by Mato Grosso and other leading soy-producing states removed access to tax incentives for companies implementing environmental sourcing commitments beyond legal requirements. The constitutionality of these laws is the issue specifically under consideration by the STF. There has also been an investigation by Brazil's antitrust agency (CADE) into allegations that ASM traders had acted as a cartel through coordinated implementation of the agreement (*5*), though this process is presently on hold while the STF deliberates.

These formal challenges reflect a combination of economic and political arguments: long-standing claims by some politicians and producer groups that the ASM imposed costs on producers and constrained regional development in the Amazon (see SM), alongside narratives emphasizing national sovereignty and resistance to perceived external interference in domestic land-use decisions. In filings defending the ASM, CSOs showed how the ASM strengthens implementation of Brazil's environmental regulations and argued that laws penalizing companies for adopting environmental sourcing standards beyond legal requirements violate constitutional principles of free competition and environmental protection (table S1).

COSTS OF ENDING THE ASM

Although prior analyses have evaluated benefits of the ASM using retrospective counterfactuals (*3*, *4*), here we provide a forward-looking estimate of the additional deforestation expected without the ASM. Building on prior estimates of the ASM's effect on deforestation rates (*3*), we estimate that the end of the agreement will result in 1.4 ± 0.67 Mha of additional deforestation over the next decade relative to a counterfactual in which the ASM persists (SM section 1), which would result in an additional 745 ± 346 million metric tons of carbon dioxide equivalents, comparable to Canada's annual greenhouse gas emissions. This projected loss amounts to roughly 17% of the total area deforested across the Brazilian Amazon over the past decade. This estimate reflects the contribution of the ASM within a broader policy mix that includes regulations, enforcement, and other market-based interventions but does not account for important, more recent changes such as the growing biofuels sector in the Amazon.

This deforestation increase is expected because the ASM reduced incentives for clearing by limiting access to high-value soy markets for newly deforested lands, thereby lowering both the economic value of deforestation and overall pressure on forests (*3*). Without the ASM, incentives for direct forest conversion for soy will return alongside the role of soy expansion in driving speculative clearing (*3*). These effects may be especially pronounced under conditions of weakened environmental governance, in which private-sector commitments can serve as a backstop to declining public enforcement (*6*).

In total, tens of millions of hectares of forests on soy-suitable land across the Amazon could be at greater risk of conversion without the ASM in place (*2*). This includes 9.1 Mha (SM section 2) of forest on private properties that still could be legally cleared under the Brazilian Forest Code and as much as 28.7 Mha in undesignated public forests (lands with no legally defined purpose or protection), which are particularly vulnerable to illegal conversion and land speculation (SM section 3). Increased pressure on forests will likely lead to additional illegal clearing inside Brazilian Legal Reserves as well. Although not all of this land is likely to be immediately planted to soy, these areas will be subject to the overall increase in pressure on forests that will follow the end of the ASM.

The consequences of losing the ASM extend beyond impacts on forests. Its removal could create material risks for Brazil's soy sector and the companies operating in the region. Although firms are sometimes thought to avoid jurisdictions with more restrictive regulatory environments (*7*), ASM signatories increased their presence in the Amazon over

the course of the agreement (SM section 4). In part, companies adopted the ASM because it helped manage reputational and market-access risks associated with sourcing from the Amazon while meeting increasingly stringent sustainability expectations from downstream buyers (*8*).

Without the ASM, companies may face growing pressure to implement more complex and potentially fragmented due-diligence systems to maintain access to certain export markets and meet Greenhouse Gas Protocol Scope 3 emissions targets from upstream suppliers. Most companies exiting the ASM maintain public commitments to reduce deforestation in their supply chains and, in some cases, through multistakeholder initiatives such as the Consumer Goods Forum (*9*). Long-term trading relationships could be disrupted, and companies could face considerable reputational and financial risks, including effects on company valuation (*10*). At the same time, continued deforestation poses broader system-wide risks to agricultural productivity. Forest loss in the Amazon can alter regional rainfall patterns and increase temperatures, threatening the long-term viability of soy production if ecological thresholds are exceeded locally or regionally [(*11*); SM section 2].

1.4
Mha
The area of Amazon forest, equivalent to ~2 million soccer pitches, projected to be deforested by 2036 without the ASM in place.

28.7
Mha
Soy-suitable areas in undesignated public forests, an area nearly the size of Italy, will be under additional pressure from land speculation.

9.1
Mha
An area of forests, equivalant to the size of Portugal, that is suitable for soy and eligible for legal clearing.

Despite claims that the ASM imposed economic hardships on producers, the end of the agreement is likely to bring few benefits for soy farmers. Most deforestation after the 2008 cutoff date of the ASM also violated the Forest Code. The suspension of the ASM frees up only ~739,000 ha of soy-suitable land cleared legally after 2008, largely on properties not presently producing soy (SM section 5). Soy farms across the Amazon only have about 60,000 ha of forested areas that could still be legally cleared, less than 1% of the total soy area in the Amazon. Meanwhile, even under the ASM, soy farmers had sufficient eligible land on their own farms to expand soy in the Amazon by nearly 20% (1.7 Mha) compared with the 2024 soy area, without additional deforestation [(*2*); SM section 5], suggesting that considerations about expanding the production area may be more complex than the simple availability of land to do so (SM section 2). Comparing soy markets subject to the ASM with nearby untargeted regions, we detected no systematic differences in average farmgate prices received by farmers, suggesting that ending the agreement is unlikely to substantially increase producer earnings and also that traders did not engage in price-fixing in the ASM (SM section 6).

Instead, in addition to reducing pressure on forests more broadly, the ASM reduced incentives for illegal clearing by restricting the use of these areas in the region's most profitable supply chains, thereby limiting the potential for producers to benefit from Forest Code violations. The relatively low costs of the ASM for soy producers, particularly in terms of land availability, combined with evidence that many of its forest conservation benefits occurred outside of soy properties, suggest that opposition to the agreement was likely driven at least in part by incentives associated with frontier expansion rather than by hardships faced by soy producers or by concerns about national sovereignty (*2*, *3*).

Claims that the ASM hindered local development have featured prominently in debates surrounding state-level regulations. Our analysis suggests that these claims are difficult to reconcile with the limited land area constrained by the ASM, the absence of detectable farmgate price effects, and evidence that soy-driven growth generates uneven local development benefits while externalizing substantial environmental and social costs (SM section 2). The ASM's constraints on local economic development, particularly when weighed against broader risks to regional productivity and development associated with increased deforestation, may be more limited than critics of the agreement suggest.

THE WAY FORWARD

There is still a chance to avoid the worst consequences of the ASM's loss through swift implementation of a replacement that preserves key features that contributed to the agreement's effectiveness. Given the proximity of Amazonian forests to critical ecological tipping points (*12*) and the urgent need to strengthen the resilience of Brazil's ecosystems, maintaining strong incentives against deforestation remains essential.

A successor system could retain a uniform framework and the ASM's July 2008 cutoff date through either an independent monitoring system overseen by a coalition of CSOs and trader associations or through a government-led platform that publicly identifies compliant producers. Brazil's decree no. 11.687/2023, which authorizes the Ministry of Environment to publish a "positive list" of rural properties without deforestation after 2008, provides an existing institutional foundation for such an approach. A public platform identifying properties without post-2008 deforestation, independent of the activity conducted on the farm, could also support expansion of deforestation-free production to other critical biomes, including the Cerrado, and to additional commodities such as corn while strengthening implementation of policies in other sectors.

However, replicating the success of the ASM would require more than a monitoring system. Other key ingredients include sector-wide adoption (e.g., through the Brazilian Association of Vegetable Oil Industries) and property-level requirements, rather than allowing farmers to split their crop between compliant and noncompliant land. Similar to the conditions under which the ASM began, sustained pressure from downstream buyers will be critical. Coordinated expectations from processors, retailers, and financial institutions in major importing regions, including Europe and China, which together receive a substantial share of Amazon soy exports, could help sustain trader commitments to zero deforestation even in the absence of the ASM. Without continued downstream demand, soy linked to recent deforestation may increasingly flow to less regulated markets.

Another pathway proposed by the soy industry emphasizes stronger enforcement of the Forest Code in place of deforestation-free sourcing commitments. For example, the Green Grains Protocol (PVG) is an initiative led by the Brazilian Federal Prosecutors Service to reduce illegal sourcing in the soy sector. Similar to another effort aimed at limiting deforestation related to beef production, which is also administered by the prosecutors, the PVG relies on company-level monitoring against a standardized protocol, with audits contracted by firms and conducted on a sample of purchases. Compared with the ASM's unified monitoring system, this approach may result in less consistent application of sourcing criteria and create loopholes that allow for ongoing deforestation. To date, the PVG has been limited to the state of Pará, though efforts are underway to expand it nationwide.

Stronger Forest Code enforcement in the soy sector is clearly needed, given evidence that as many as a quarter of soy properties have illegal deforestation. However, Forest Code compliance alone does not devalue deforestation in the same way the ASM did. Under the Forest Code,

noncompliance can ultimately be mitigated or regularized, whereas deforestation after the ASM's July 2008 cutoff date remained ineligible for soy sourcing indefinitely (*13*), generating a stronger disincentive for soy producers to acquire these lands. Therefore, the PVG should be combined with zero-deforestation commitments such as the ASM, rather than substitute them. Similarly, calls to maintain the ASM but change the cutoff date to 2020 to align with the European Union Deforestation Regulation (EUDR) could create expectations of future amnesties and reduce the deforestation deterrent effect.

Other proposed pathways are less likely to preserve the ASM's forest conservation benefits. Individual company commitments to deforestation-free sourcing, not based on a uniform monitoring system, could result in inconsistent implementation and higher monitoring and administrative costs for companies. Over time, attrition from individual commitments could fragment the market into parallel supply chains, wherein producers without recent deforestation sell to committed buyers while soy from recently cleared areas flows to less restrictive companies (*4*). Similarly, firm-level attempts to segregate supply by selling certified deforestation-free volumes to some customers while directing soy from recently deforested or nonverified farms to less discerning buyers could weaken incentives for sector-wide forest conservation. Such approaches risk rewarding traders through preferential market access while providing limited benefits to most producers already operating on long-cleared land. Moving from sector-wide to fragmented implementation of commitments could further undermine the efficacy of the sector at protecting itself from the material risks associated with deforestation, including declining rainfall, higher temperatures, and reduced agricultural productivity, which are inherently shared and must be addressed with system-wide mechanisms (SM section 2).

If sector-wide or individual deforestation-free sourcing commitments are used as a barrier for companies to access states' tax incentives (e.g., the laws whose constitutionality is at stake at the STF), or framed as anticompetitive by CADE, this could weaken incentives for private-sector actors to address deforestation and other socioenvironmental risks. Decisions in these cases may therefore have broader cascading effects beyond the ASM, shaping whether firms view ambitious environmental standards as legally and commercially viable. Over time, this could shift the balance toward less coordinated and less ambitious approaches to sustainability, at a time when effective action is increasingly needed to address system-wide challenges. Conversely, legal decisions that reaffirm the rights of companies to adopt environmental sourcing standards could strengthen the enabling conditions for private-sector engagement in forest conservation.

THE ASM IN CONTEXT

The end of the ASM comes amid broader threats to environmental governance in Brazil. Beyond the campaign against the ASM, agricultural lobbies have expanded their influence by, for example, having advanced a bill that restricts the use of satellite imagery in environmental enforcement, having overturned presidential vetoes on a bill that dismantled the country's environmental licensing system, and pushing for a constitutional amendment to override STF decisions defending the rights of indigenous peoples to their ancestral lands. Meanwhile, upcoming national elections create uncertainty regarding future federal support for environmental protections. These dynamics are not specific to Brazil; environmental and climate priorities are increasingly being supplanted by other political priorities around the world (*9*).

In Brazil's notoriously fluid political and regulatory environment, formal legality alone provides an unstable foundation for forest protection, as legal standards can abruptly be weakened or redefined under shifting political pressures. Voluntary, market-based instruments such as the ASM have repeatedly served as important complements to public policy, helping to sustain protections when law enforcement and regulations are slow and complex (*6*). The distinctive role that the ASM has played in reducing the value of deforestation extended beyond soy properties, reaching even the speculative frontier, which made it an indispensable tool in creating more favorable conditions for Brazil to implement its laws and public policies. The loss of the ASM could jeopardize Brazil's recent progress toward meeting national targets, including zero deforestation by 2030 and net-zero greenhouse gas emissions by 2050 (*14*). An STF decision that supports the rights of the private sector to protect the environment without retaliation by states can help maintain this progress.

Zero-deforestation production is becoming increasingly important for Brazil's trading relationships as well. The EUDR, though weakened and delayed, continues to signal rising expectations for deforestation-free production, as do similar policies being considered in the United Kingdom and the United States. China also signals interest in sustainability standards for imported commodities. In a June 2026 decision, the Office of the United States Trade Representative explicitly cited the law in Mato Grosso that is in front of the STF to conclude that state-level pressure against voluntary zero-deforestation policies removes private incentives to curb deforestation, creating an unfair trade advantage that forms the legal basis for a 25% tariff determination against Brazil. Thus, the end of the ASM and antagonistic actions against the private sector over environmental policies in general can be expected to weaken Brazil's position in trade relationships.

Although private-sector policies are a key element in the fight against deforestation, lasting deforestation reductions will depend on stronger territorial governance, including effective enforcement and fully implemented land-use planning, and incentives that shape land-use decisions at scale. Ending the ASM before these broader systems are strengthened risks weakening Brazil's position as the leading supplier of deforestation-free soy while increasing risks to the agricultural sector, climate goals, and Brazilian society. □

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SUPPLEMENTARY MATERIALS

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