



WE NEED TO TALK ABOUT FOREST DEGRADATION IN THE AMAZON BRAZILIAN PUBLIC POLICY MUST UNDERSTAND AND ADDRESS THIS THREAT



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The Amazon Forest originally extended over about 4 million square kilometers of Brazilian territory. Native vegetation covering nearly a fifth of this area has already been destroyed due to clear-cut deforestation.¹ Characterized by the complete loss of vegetation, this deforestation is well known to Brazil. The country understands its causes, comprehends its dynamics, and closely monitors its spread. There are still significant challenges to eliminating deforestation in the Amazon, but Brazil mostly knows what it must do to achieve this goal.

Yet, the forest faces threats beyond deforestation. The more than 3 million square kilometers of native vegetation that have not yet been deforested in the Brazilian Amazon are not intact. Part of this vegetation is already degraded. Simply put, forest degradation occurs when an area loses some of its vegetation, but not enough to qualify as being deforested. With lower vegetation densities, degraded forests gradually lose their capacity to provide critical ecosystem services, such as biodiversity conservation and carbon sequestration and storage.^{2,3}

It is a mistake to assume that the partial loss of vegetation causes insignificant damage. The contribution of forest degradation to greenhouse gas emissions illustrates just how serious the problem is. Estimates indicate that degradation accounted for nearly 70% of global carbon emissions from tropical forests between 2003 and 2014, while deforestation accounted for the remaining 30%.⁴

To worsen an already critical situation, unlike emissions originating from deforestation, those from forest degradation are not all immediate. Because degraded forests are less resilient than intact forests, they are more prone to suffer additional

damage that further aggravate degradation and make them even more vulnerable. Degraded forests may therefore continue to emit more carbon than they can absorb for many years after the onset of degradation.⁵

This is an urgent issue for Brazil. On average, the forest area that is annually degraded in the Brazilian Amazon is at least as large as — and often larger than — that which is deforested.^{6,7,8} Between 2010 and 2019, forest degradation was estimated to account for three quarters and deforestation for only one quarter of gross biomass loss in the region.⁹

Forest degradation in the Brazilian Amazon is not just an initial stage of a process that culminates in clear-cut deforestation, but a phenomenon with drivers and dynamics of its own. There are three main activities associated with degradation in the region: selective logging, forest fires, and deforestation itself.

Selective logging interferes with the forest ecosystem by removing native species from their environment. Forests in the region of extraction may also be affected by the opening of access roads and storage yards, or damaged when felled trees fall on nearby vegetation. Legal timber extraction must abide by a management plan to minimize the risk of degradation.

As **fire** is not a natural element of tropical forests, its occurrence should be interpreted as damage to that ecosystem. Yet, because tropical forests are extremely humid, they do not easily burn all at once. In the Amazon, fires typically destroy more vulnerable plants first, but also jeopardize the resilience of those that survive. Forest areas affected by fires tend to exhibit greater plant mortality for extended periods of time.

Lastly, **deforestation** itself also affects forest degradation. After an area is deforested, the vegetation along the new forest border becomes exposed to atypical conditions, such as changes in temperature, light, and wind. This may interfere with that ecosystem's local equilibrium and trigger the onset of degradation. The impact of deforestation on climate conditions at more aggregated scales, such as regional variations in rainfall, also contribute to exacerbate forest degradation.

It is imperative that Brazil put in place specific efforts to understand and combat forest degradation in the Amazon. Although it is knowingly challenging to monitor and measure such a diverse and nuanced phenomenon, the country has the necessary technology and technical capacity to detect and track forest degradation. The official system for monitoring forest loss in the Brazilian Amazon, for example, already issues near-real-time alerts for different types of forest degradation. Brazil also has official data on active fires across the full extent of its Amazon Forest.

Despite having access to data and being able to monitor and measure — albeit with some uncertainty — forest degradation in the Amazon, Brazil continues to overlook this threat. The country’s environmental performance metrics essentially ignore degraded forests and, instead, focus solely on deforestation. This also applies to emissions from forest degradation, which are not included in Brazil’s inventories of greenhouse gas emissions.

The United Nations Framework Convention on Climate Change (UNFCCC) recognizes the importance of this phenomenon to the global effort to mitigate the effects of climate change and supports financial incentives to reduce emissions from deforestation and forest degradation via REDD+ mechanisms. However, there is yet to be an Amazon country that reports emissions from forest degradation and, thus, that sets targets to reduce these emissions. Agreements, commitments, and targets that disregard forest degradation will not be enough to mitigate the risk of critical climate change scenarios.

Brazil should see this as an opportunity to strengthen its commitment to the climate cause and reclaim a leading role in international forums. Considering its successful experience with public policies to fight deforestation in the Amazon,¹⁰ the country knows how to combine the strategic use of technology and policy innovations to effectively address a phenomenon that is spatially dispersed, heterogeneous, and challenging from an accountability perspective. Brazil can leverage this experience in combating deforestation to design public policies that specifically target forest degradation.

A key step in this direction is incorporating forest degradation measures, imperfect as they may be, in environmental performance metrics. These are, after all, key mechanisms for promoting transparency in international agreements and national public policy actions.

Brazil used to command enormous international respect for its pioneering spirit in not only measuring and monitoring tropical deforestation, but also in combating it. Now, it could once again play a leading role at the global stage by understanding, reporting, and actively addressing forest degradation in the Amazon.

Notes

- 1 INPE. *Monitoramento do Desmatamento da Floresta Amazônica Brasileira por Satélite (PRODES – Amazônia)*. 2022. Access date: July 2022.
- 2 Barlow, Jos et al. “Anthropogenic disturbance in tropical forests can double biodiversity loss from deforestation”. *Nature* 535 (2016): 144-147. [bit.ly/3Bm71Ce](https://doi.org/10.1038/nature18824).
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- 4 Baccini, A. et al. “Tropical forests are a net carbon source based on aboveground measurements of gain and loss”. *Science* 358 (2017): 230-234. [10.1126/science.aam5962](https://doi.org/10.1126/science.aam5962).
- 5 Silva Junior, Celso H. L. et al. “Amazonian forest degradation must be incorporated into the COP26 agenda”. *Nature Geoscience* 14 (2021): 634-635. [bit.ly/3d8ZFtY](https://doi.org/10.1038/s41562-021-01111-1).
- 6 Gandour, Clarissa et al. *Degradação Florestal na Amazônia: Fenômeno Relacionado ao Desmatamento Precisa ser Alvo de Política Pública*. Rio de Janeiro: Climate Policy Initiative, 2021. [bit.ly/3mger1h](https://doi.org/10.1017/9781009152971).
- 7 Pucci, Rafael et al. *Sob a Lupa do DETER: A Relação entre Degradação e Desmatamento na Amazônia*. Rio de Janeiro: Climate Policy Initiative, 2021. [bit.ly/SobaLupadoDETER](https://doi.org/10.1017/9781009152971).
- 8 Menezes, Diego et al. *A Relação entre Fogo Florestal e Desmatamento na Amazônia: Associação entre Fenômenos É Mais Forte em Assentamentos Rurais e Posses em Terras Públicas*. Rio de Janeiro: Climate Policy Initiative, 2021. [bit.ly/FogoFlorestal](https://doi.org/10.1017/9781009152971).
- 9 Qin, Yuanwei et al. “Carbon loss from forest degradation exceeds that from deforestation in the Brazilian Amazon”. *Nature Climate Change* 11 (2021): 442-448.
- 10 Climate Policy Initiative. *Proteção Florestal Baseada em Evidência*. 2021. [bit.ly/3DIKcPd](https://doi.org/10.1017/9781009152971).

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