Chapter 17 In Brief

Globalization, extractivism, and social exclusion: Threats and opportunities to Amazon governance in Brazil

Desmatamento em áreas protegidas, Beruri, Amazonas, 2010 (Foto: Alberto César Araújo/Amazônia Real)

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Globalization, extractivism, and social exclusion: Threats and opportunities to Amazon governance in Brazil

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Key Messages & Recommendations

1) Globalization and widespread changes in consumption have drastically altered the type and scale of human intervention in the Amazon, generating social and environmental impacts of unprecedented magnitude and gravity. Together with countries from the Global North, China is an increasingly dominant actor in the process. Environmental and social sustainability must be embedded and mainstreamed into political decision making and business incentives at both the global and local level. Non-Amazon countries, particularly developed countries and China, are important actors in the response to degradation and must be part of the solution.
2) The example of Brazil demonstrates that strategic state policies involving multiple government sectors, not exclusively environmental, can succeed in reducing deforestation. Brazil's experience can be replicated in other Amazonian countries, if adapted to local conditions and realities. Internal strategies may be complemented by trans Amazonian coordinated policies, within the framework of the Leticia Pact.
3) Policies to reduce deforestation and conserve forests are vulnerable to changing governments and political priorities. Institutional agreements transcending changing political cycles must be implemented to ensure continuity, as is also the case in addressing climate change.
4) Initiatives to reverse deforestation must involve the participation of key stakeholders, including different levels of government, multiple sectors of the economy, civil society, Indigenous peoples and local communities (IPLCs), and international institutions.

Abstract From the 1970s on, the Amazon experienced its deepest transformation, becoming a commodity and energy provider for both domestic and international markets, through extraction of natural resources. Living conditions barely improved, and social conflict and violence became widespread, particularly affecting Indigenous peoples and local communities. Conservation efforts also became globalized and achieved significant results. Brazil's 84% reduction in deforestation from 2005-2012, based on an integrated strategy with high political priority, provides an important case study that can support future policies across the basin. These gains were reversed in recent years, and unsustainable extractivist policies generally prevailed over conservation and the sustainable use of biodiversity in the whole Amazon basin (Chapter 18).

The political economy Two epochal processes have marked the political economy of the Amazon since the last quarter of the 20th century, and particularly after the turn of the century. The first is the global commodity boom, enhanced by soaring raw material prices between 2004 and 2014, and the entrenchment of a commodity-based development model in Latin America. For instance, mineral extraction increased by 400 percent in the region in the 1990s[1]. Increased demand for energy and transportation for extractive economies led to a

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boom in the construction of infrastructure projects, including large hydroelectric dams such as Belo Monte in Brazil[2], and major waterway and road construction projects associated with the China-backed Initiative for Regional Infrastructure Integration in South America (IIRSA)[3], all of which have further fragmented the Amazonian ecosystem. From a societal perspective, the extractive boom has come with profound impacts on local communities and economies, including rapid population influx, environmental destruction and pollution, disorderly urbanization, weak governance, and violence, turning the region into one of the most active hubs of socioenvironmental conflict[4].

The second process runs in the opposite direction; just as economic globalization expanded, growing awareness about global warming, environmental deterioration, and existential threats to the lives of IPLCs spurred a countermovement. Led by Indigenous peoples in partnership with other stakeholders, a series of actions (including legislation, protests, litigation, and consumer boycotts) have exerted countervailing pressure to protect the Amazon, enforce IPLCs' rights, and limit social and ecological impacts[5].

Global and domestic economic changes in the Amazon (1970-2020) In the late 1970s a new global development paradigm, based on neoliberal concepts, emerged[6–8], and Latin America shifted towards an export-oriented and market-friendly model[9], mostly concentrated on primary exports with low added value. The Amazon became a significant provider of raw materials, such as oil (Peru, Ecuador, Colombia), gas (Bolivia, Peru), iron ore, soybeans and beef (Brazil), gold (Peru, Venezuela, Suriname), timber, and hydroelectric power. A complex process of infrastructure expansion, migration[i], and urbanization took different forms, without substantially improving living conditions. This model has accelerated deforestation, environmental degradation, and biodiversity loss.

From the political economy perspective, a significant change was the transition from the era of the Cold War, with a strong US influence in Latin America, to a multipolar world where China has increasing influence. China became the largest importer of several Amazonian commodities, finances large infrastructure projects, and is one of the region's main sources of investment. Chinese loans reached USD 62.2 billion in Venezuela, 28.9 billion in Brazil, and 18.4 billion in Ecuador[10]. Canadian companies also played a significant role in large-scale mining investment, while global interconnections in commodity markets have further cross-country effects; for example, 2006 US corn subsidies resulted in higher soy prices and more deforestation[11].

Illegal activities also play a key role in extractive outcomes, as in the case of coca production and drug trafficking, mostly in Colombia and Peru. Drug trafficking provides large amounts of (laundered) money to purchase land for monocultures and cattle ranching. Illegal activities are also stimulated by lawful international markets, as seen with illegal timber extraction and gold mining, occurring in all Amazon countries, but mostly in Peru and Venezuela. Domestic market expansion also matters; for example, more than three-quarters of the deforestation in Brazil is driven by domestic demand for beef. International agricultural drivers are not only on the demand side; technological packages, spearheaded by global chemical and trading companies and based on GMO seeds and agrochemicals introduce strong international interests to the direct determinants of land use change and farm size.

The Amazon region exemplifies uneven social and economic development. In examining poverty data for Brazil and Ecuador, Amazonian regions are the most deprived relative to other areas of both countries[12,13]. The COVID-19 pandemic exacerbated these inequalities, disproportionally affecting the Amazon. Manaus, Brazil, with a population of over

[i]In addition to internal migrations from densely populated regions to the Amazon, current human mobility includes massive international flows (e.g., from Venezuela to other Amazon countries), particularly circular and temporary migration (Chapter 14).

two million inhabitants, was one of the most devastated cities in the world, with a mortality rate well above the Brazilian average[ii] [14–18]. Rapid COVID-19 expansion in the Amazon was the result of a weak prevention network, and dramatically showed the inadequacy of basic health services.

The pandemic also brought to the fore links between deforestation and biodiversity loss and the emergence and spread of infectious diseases, underscoring the importance of conservation for pandemic prevention. Deforestation and forest degradation are drivers of disease cross-overs from wildlife to humans, and tropical forest edges are "a major launch-pad for novel human viruses"[19–22] (see also Chapter 21).

Rise and fall of Brazilian conservation policies in the 2000s Despite the importance of the socioenvironmental heritage of the Amazon, its contribution to climate processes, and its enormous potential for sustainable economic development, deforestation has already compromised a significant portion of the biome (see Chapter 19) and attempts at reforestation have not generated perennial socioeconomic benefits with regional importance[23–25]. 18.95% of the original forest has been converted to other uses, an area greater than that of Germany, Italy, and Greece combined. This loss occurred in just two decades[26,27].

From the 1950s to today, the only period in which there was a consistent reduction in deforestation in the Amazon was from 2004 to 2012; over this period rates declined from 27,722 km^2/yr in 2004 to 4,571 km^2/yr in 2012 (Figure 17.1). The groundwork for this monumental achievement was laid in the 1980s and 1990s through the increasing political influence of environmental movements[28,29]. Early victories

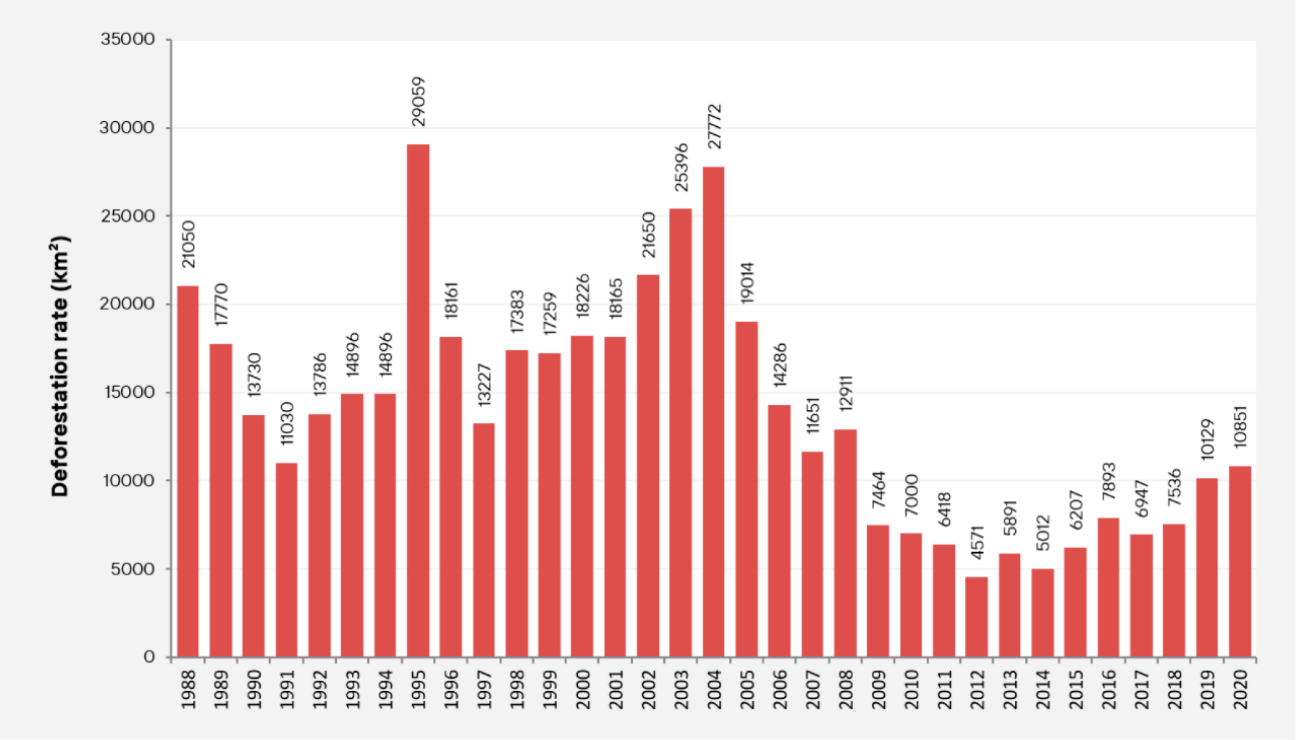

Figure 17.1 Annual evolution of deforestation rates in the Legal Amazon (km^2)[36].

[ii] On December 26, 2020, Manaus had a mortality rate of 15.1 per million inhabitants, the Brazilian Amazon had 9.6, and the Brazilian average was 9.1. In Ecuador, the confirmed cases in the Amazon region were 150 per million inhabitants, while the national average was 119. In January 2021 a new wave of COVID-19 affected Manaus, sparked by a new variant of the virus.

included the 1998 environmental crimes law (Law 9.605/98) and National System of Conservation Units (SNUC) created in 2000, but advances in environmental policy-making partic-ularly took off in the 2000s, including implementation of the Plan for the Prevention and Control of Deforestation in the Amazon (PPCDAm).

The Ministry of the Environment (MMA), as recorded by Capobianco (2017)[29], operated on three integrated and complementary fronts: a sustainable development program for the macro-region that committed Federal and State funds to Brazil´s Sustainable Amazon Program (*Programa Amazônia Sustentável*, or PAS); an action plan for immediate interventions to reverse deforestation rates (PPCDAm); and a local development plan for the most impacted regions built on multi-actor, multi-sector, and multi-level governance strategies (Example: *Plano BR-163 Sustentável*).

PPCDAm Preparations for the PPCDAm mobilized an unprecedented 54 members from 12 ministries[30] and sought to foster policy synergies by focusing on three axes: (i) land and territorial planning; (ii) environmental monitoring and control; and (iii) fostering sustainable productive activities. It led to 149 activities, each with explicit institutional responsibilities, an execution period, and indicators for evaluation, and also linked them with resources (USD 394 million in total)[31].

One of the cornerstones of the monitoring and control axis was the development of a Deforestation Detection System in Real Time (DETER) by INPE in 2004, which became a powerful and efficient surveillance tool[32] and allowed the press and public to follow the evolution of deforestation. Another innovation was the involvement of the Federal Police in criminal investigations carried out by the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) and state environmental police, resulting in approximately 1,500 clandestine timber companies being closed and more than 1 million m^3 of wood confiscated.

Within the land and territorial planning axis, the creation of conservation units (UCs) was central to combating deforestation[33]. Between 2004 and 2009, 40 UCs were created in the Amazon, totaling 26 million hectares. In six years, the PPCDAm expanded these by more than 76%. Early UCs (established prior to 2003) were mostly located in remote regions, far from agricultural expansion areas, but after 2003, UCs were actively integrated into the regional land tenure strategy. These UCs have become a 'green barrier' against deforestation; according to Soares Filho et al.[34], the creation of UCs was responsible for 37% of the reduction in deforestation between 2004 and 2006. Further, the PPCDAm became the template for distributing financial resources from the Amazon Fund, which received (and later disbursed) over USD 1.2 billion[35] from international (Norway and Germany) and domestic sources.

Environmental governance also improved during this period, with tightened law enforcement, adoption of the soy moratorium in 2006 (see Chapter 15), and preparations for a beef moratorium in 2012. During this period seven federal laws, three provisional measures, six CONAMA resolutions, 156 decrees, and 16 normative acts of government agencies were approved.

It is important to highlight that until 2005 there was a clear correlation between growth of beef and soy production and deforestation[30]. As of 2007, decoupling between these variables began and, despite rising commodity prices, Brazil saw a decline in deforestation rates. This is because many cattle producers replaced extensive grazing (less than one head of cattle per ha) with animal confinement, a practice that grew 286% from 2005 to 2008.

Weakening environmental law enforcement in Brazil The changing tides of environmental politics in Brazil started with revisions to the Forest Code in 2012 (Law 12.651/12), which granted an amnesty to past deforesters[37]. Secondly, the earlier law had set up a national, obligatory, and fully transparent self-

registration system for rural landowners that could have greatly strengthened law enforcement[37]. However, information available in the system has not been used for law enforcement as initially anticipated and contributed to a high level of perceived impunity for illegal deforestation. Other challenges include significant declines in the number of staff at IBAMA and ICMBio, the two agencies responsible for enforcing environmental legislation[38], reflected in the falling number of fines issued in 2019 and 2020 to a historical minimum[39].

The weak conservation status of protected areas is another challenge. Since the 2010 presidential election the creation of new protected areas has nearly ground to a halt, and the 2016-sworn president actively tried and, in some cases, succeeded in dismantling protected areas. Furthermore, there is a proposal for new legislation that would allow highways and hydroelectric dams to be developed in protected areas[40]. Deforestation inside protected areas has risen from 640 km^2 in 2017 to more than 1,100 km^2 in 2020.

Pro-deforestation discourse The rhetoric of political and business leaders constitutes a powerful factor in shaping potential deforesters' perception of risk. Brazilian presidents and ministers of environment between 2003-2010 used strong language against deforestation, but the reverse is true in the years that followed. Having himself been fined for illegal fishing, the current Brazilian president promised to halt the creation of protected areas and challenged the veracity of deforestation and fire reports from the Brazilian Institute of Space Research[41,42]. The private sector is also becoming more vocal; for instance, APROSOJA (Mato Grosso Soybean Producers Association) is demanding the end of the soy moratorium under the pretext of free trade[43], while UNICA (the Brazilian Sugarcane Industry Association) has changed its position on the ban on growing sugarcane in the Amazon. On the other hand, the Brazilian Coalition on Climate, Forests and Agriculture has promoted legal and sustainable agricultural practices in the Amazon, and retains the support of the ABAG (Brazilian Agribusiness Association), IBA (Brazilian Tree Industry Association), and ABIEC (Brazilian Beef Exporters Association).

Deforestation and lost opportunities The pro-deforestation discourse has cost Brazil its global reputation and halted Amazon Fund financing from Norway and Germany[44]. International investment funds have expressed concern and European countries have warned that they will halt import of products linked to deforestation, including soy and beef.

Conclusions During the mid-1970s Latin America integrated into the international economy mostly as a commodity provider. As a result, the Amazon experienced the accelerated expansion of extractive sectors and agri-business, mostly soybean cultivation, cattle ranching, iron and other metal mining, and oil and gas, coupled with the building of large infrastructure and energy projects. Conservation policies also became globalized, and have achieved significant results, such as the expansion of protected areas and the 84% reduction in deforestation rates in Brazil during the 2005-2012 period. Nevertheless, the conservation paradigm has not been strong enough, and extractivism remains the leading paradigm. Deforestation, rainforest and environmental degradation, and biodiversity loss are close to a tipping point, where a self-sustained process of savannization may be unleashed. A new sustainable and equitable development strategy, such as a vibrant bioeconomy, is necessary for the Amazon to maintain ecosystem services, the integrity of Indigenous cultures, and improve living conditions for the population.

References

1. Bebbington, A. *Minería, movimientos sociales y respuestas campesinas. Una ecología política de transformaciones territoriales*. vol. 2 (Instituto de Estudios peruanos, 2007).
2. Ioris, A. *Environment and Development: Challenges, Policies and Practices*. (Routledge London, 2021).
3. Van Dijck, P. The impact of the IIRSA road infrastructure programme on Amazonia. (2013).
4. EJAtlas. Environmental Justice Atlas. (2021).
5. Garavito, C. R. & Diaz, C. B. *Conflictos Socioambientales En America Latina*. (2020).
6. Cox, R. & Production, P. *World Order*. *New York* (1987).

7. Harvey, D. *A brief history of neoliberalism*. (Oxford University Press, USA, 2007).
8. Harvey, D. *The condition of postmodernity*. vol. 14 (Blackwell Oxford, 1989).
9. Thorp, R. & others. *Progress, poverty and exclusion: an economic history of Latin America in the 20th century*. (IDB, 1998).
10. The Dialogue. China Latin America Finance Database. (2020).
11. Laurance, W. F. Switch to corn promotes Amazon deforestation. *Science (80-.).* (2007).
12. Costa, G. O. T., Machado, A. F. & Amaral, P. V. Vulnerability to poverty in Brazilian municipalities in 2000 and 2010: A multidimensional approach. *EconomiA* 19, 132–148 (2018).
13. Larrea, C. *¿Está agotado el período petrolero en Ecuador?* (UASB-Pachamama Aliance-La Tierra, 2017).
14. Worldometer. Covid-19 Coronavirus Pandemic. (2020).
15. Conselho Nacional de Secretarios de Saude - CONASS. Coronavirus. (2020).
16. Fundação de Vigilância em Saúde do Amazonas - FVS. Boletim diário Covid-19 no Amazonas. *25/12/2020* (2020).
17. Ministerio de Salud Publica. Situación Nacional por Covid-19. (2020).
18. Turkewitz, J. & Andreoni, M. The Amazon, Giver of Life, Unleashes the Pandemic. (2020).
19. Dobson, A. P. *et al.* Ecology and economics for pandemic prevention. *Science (80-.).* 369, 379–381 (2020).
20. Tollefson, J. Why deforestation and extinctions make pandemics more likely. *Nature* 584, 175–176 (2020).
21. Damian Carrington. Coronavirus: Nature is sending us a message. *The Guardian* (2020).
22. United Nations Environment Programme and International Livestock Research Institute. *Preventing the next pandemic: Zoonotic diseases and how to break the chain of transmission. Nairobi: UN Environment Programme* (2020).
23. Almeida, O. *Evolução da Fronteira Amazônica: Oportunidades para o Desenvolvimento Sustentáve*. (Imazon, 1996).
24. Andersen, L. E., Granger, C. W. J., Reis, E. J., Weinhold, D. & Wunder, S. *The Dynamics of Deforestation and Economic Growth in the Brazilian Amazon*. *The Dynamics of Deforestation and Economic Growth in the Brazilian Amazon* (Cambridge University Press, 2002). doi:10.1017/CBO9780511493454.
25. Becker, B. K. Reflexões sobre políticas de integração nacional e de desenvolvimento regional. in *Reflexões sobre políticas de integração nacional e de desenvolvimento regional* (ed. Kingo, M. D.) 71–138 (Ministério da Integração Nacional, 2000).
26. Tardin, A. T. *et al.* Subprojeto desmatamento: convênio IBDF/CNPq. *INPE-Instituto de Pesquisas Espaciais* (1980).
27. MAPBIOMAS. Mapbiomas Amazonia Site. (2020).
28. Viola, E. J. The ecologist movement in Brazil (1974–1986): from environmentalism to ecopolitics. *Int. J. Urban Reg. Res.* 12, 211–228 (1988).
29. Viola, E. Brazil in the context of global governance politics and climate change, 1989-2003. *Ambient. Soc.* 7, 27–46 (2004).
30. Capobianco, J. P. R. Governança socioambiental na Amazônia Brasileira na década de 2000. (Universidade de São Paulo, 2017).
31. Ministério do Meio Ambiente, M. Plano de ação para a prevenção e controle do desmatamento na Amazônia Legal - PPCDAm - Documento de Avaliação 2004-2007. (2008).
32. Rajão, R., Moutinho, P. & Soares, L. The rights and wrongs of Brazil's forest monitoring systems. *Conserv. Lett.* 10, 495–496 (2017).
33. West, T. A. P. & Fearnside, P. M. Brazil's conservation reform and the reduction of deforestation in Amazonia. *Land use policy* 100, 105072 (2021).
34. Soares-Filho, B. *et al.* Role of Brazilian Amazon protected areas in climate change mitigation. *Proc. Natl. Acad. Sci.* 107, 10821–10826 (2010).
35. Correa, J., van der Hoff, R. & Rajão, R. Amazon Fund 10 Years Later: Lessons from the World's Largest REDD+ Program. *Forests* vol. 10 (2019).
36. Instituto Nacional de Pesquisas Espaciais. Monitoramento da Floresta Amazônica Brasileira por Satélite: Projeto PRODES. (2020).
37. Soares-Filho, B. *et al.* Cracking Brazil's forest code. *Science (80-.).* 344, 363–364 (2014).
38. Trancoso, R. Changing Amazon deforestation patterns: urgent need to restore command and control policies and market interventions. *Environ. Res. Lett.* 16, 41004 (2021).
39. Silva Junior, C. H. L. *et al.* Persistent collapse of biomass in Amazonian forest edges following deforestation leads to unaccounted carbon losses. *Sci. Adv.* 6, eaaz8360 (2020).
40. Borges, A. Confira a lista das 67 unidades de conservação que o Governo Federal quer reduzir. *Estadão* (2019).
41. Watts, J. Jair Bolsonaro claims NGOs behind Amazon forest fire surge--but provides no evidence. *The Guardian* vol. 21 2019 (2019).
42. Maisonnave, F. Brazil's environment minister suspends environment surveillance in Acre Reserve. *Folha de São Paulo* (2019).
43. Samora, R. Brazil's farmers push traders to end Amazon soy moratorium. *Reuters* (2019).
44. van der Hoff, R., Rajão, R. & Leroy, P. Clashing interpretations of REDD+ "results" in the Amazon Fund. *Clim. Change* 150, 433–445 (2018).