

Chapter 17



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Environmental Policies in the Amazon and their impacts

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CHAPTER 17: Globalization, Extractivism and Social Exclusion: Threats and Opportunities to Amazon Governance in Brazil

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Globalization, Extractivism and Social Exclusion: Threats and Opportunities to Amazon Governance in Brazil

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ACRONYMS AND ABBREVIATIONS

ABAG	Brazilian Agribusiness Association
ABIEC	Brazilian Beef Exporters Association
Abiove	Brazilian Association of Vegetable Oil Industries
APROSOJA	Mato Grosso Soybean Producers Association
CAR	Rural Environmental Registry System
CBD	Convention on Biological Diversity
CONAMA	National Council on Environment
DETER	Brazilian Deforestation Detection System in Real Time
EU	European Union
FIESP	Federation of Industries of the State of São Paulo
FPIC	Free, Prior and Informed Consultation and Consent
GDP	Gross Domestic Product
GMO	Genetically Modified Organisms
IBA	Brazilian Tree Industry Association
IBAMA	Brazilian Institute of Environment and Renewable Natural Resources
ICMBio	Chico Mendes Institute for Biodiversity Conservation
ICT	Information and Communication Technologies
IL	Indigenous Lands
ILO	International Labour Organization

Incra	National Institute of Colonization and Agrarian Reform
INPE	Brazilian Institute for Spacial Research
MMA	Ministry of the Environment
NGO	Non-governmental Organization
PAS	Brazil's Sustainable Amazon Program
PES	Payments for Ecosystem Services
PPA	Pluriannual Plans
PPCDAm	Brazilian Plan for the Prevention and Control of Deforestation in the Amazon
Prodes	Amazon Deforestation Monitoring Program
PT	Labor Party in Brazil
SBR	Brazilian Rural Society
SNUC	Brazilian System of Conservation Units (SNUC)
UC	Conservation Units
UNCED	United Nations Conference on Environment and Development
UNFCCC	United Nations Framework Convention on Climate Change
UNICA	Brazilian Sugarcane Industry Association
US	United States

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1 KEY MESSAGES

- 2 • Globalization and widespread changes in consumption have drastically altered the type
3 and scale of human intervention of in the Amazon, generating social and environmental
4 impacts of unprecedented magnitude and gravity. Together with countries from the
5 Global North, China is an increasingly dominant actor in the process.
- 6 • The example of Brazil demonstrates that deforestation control implemented as strategic
7 state policy, with the commitment and involvement of multiple government areas, not
8 exclusively restricted to environmental authorities, can succeed in reducing
9 deforestation. Brazil's experience can be replicated in other Amazon countries, adapted
10 to local conditions and realities. Country by country strategies may be complemented by
11 trans Amazonian coordinated policies, within the framework of the Leticia Pact.
- 12 • Deforestation reduction and forest conservation policies are vulnerable to changing
13 governments and political priorities. Institutional agreements transcending changing
14 political cycles must be implemented to ensure continuity of policies for forest
15 conservation, as the international climate change strategy suggests.
- 16 • Initiatives to reverse deforestation must involve participation of all stakeholders (different
17 levels of government, multiple sectors of the economy, civil society actors, indigenous
18 peoples, international cooperation). The participation of indigenous peoples and local
19 communities is essential for sustainable forest management, and must include a socio
20 environmental perspective where sustainable, healthy livelihoods and conservation are
21 coupled.

1 **ABSTRACT**

2 From the 1970 onwards, the Amazon experienced the deepest social and environmental
3 transformation in its history. In a context of changing political global hegemony and deep
4 regional integration into the world economy, the Amazon became a commodity and energy
5 provider for both domestic and international markets, while being affected by detrimental social
6 and environmental effects in a process of uneven regional development. Large investments with
7 international corporation involvement let to a dramatic expansion of cattle ranching, soy
8 cultivation, large-scale mining, mega infrastructure projects, oil and gas extraction, illegal gold
9 mining and drug trafficking, coupled with deforestation, environmental degradation, and
10 biodiversity loss, reshaped the region. Living conditions barely improved, while social conflict
11 and violence became widespread, affecting particularly indigenous peoples. In a new multipolar
12 international order, China has led the globalization, becoming the most significant commodity
13 importer, a large credit provider and a partner of oil, mining, and infrastructure investments.

14 Conservation efforts also became globalized, but the extractive developmentalist model
15 generally prevailed. The most influential success in reducing environmental degradation,
16 although recently reversed, was the Brazilian experience (2005-2012), which achieved an 84%
17 reduction in deforestation. This experience was the result of an integrated and consistent set of
18 policies, implemented from a multisector approach, with efficient monitoring, effective law
19 enforcement, conservation incentives, expansion of protected areas and indigenous lands, and
20 strong international support. This strategy has the potential of being replicated, either at a pan-
21 Amazon level, or by individual countries.

22 The prevailing extractivist model of unequal development is neither sustainable nor socially
23 distributive. It poses a serious risk to the integrity of the rainforest. The Amazon is reaching a
24 tipping point, and a shift towards new options is necessary. The achievement of a sustainable
25 Amazon implies substituting the limited commodity-dependent economy by economic
26 diversification, increasing productive linkages, expanding services based on biodiversity, and
27 improving the living conditions of Amazon peoples.

28

1. THE POLITICAL ECONOMY OF AMAZON: AN OVERVIEW

At first glance, the fires raging in the Amazon in mid-2019 and mid-2020 (NASA Earth Observatory 2021) may have seemed like random events. For a concerned viewer helplessly watching the images streamed live on social media around the world, fires may appear as the quintessential “natural” disaster: an uncontrollable cascading event sparked and fueled by forces of nature that recur every season.

However, when seen from the view of natural and social sciences, the fires and other extreme events affecting the Amazon are anything but random. As Chapters 19 to 21 show, the natural sciences offer robust evidence about the role of environmental deterioration - stemming from economic drivers like mining, oil extraction, soybean cultivation, cattle ranching and large energy and infrastructure projects—on patterns that put in peril the stability and survival of the Amazon, including the disruption of the water cycle, increasing temperatures and hydrometeorological extreme events, and biodiversity loss.

This chapter examines those and other drivers and processes from the viewpoint of the social sciences. A wealth of studies in political economy, sociology, economics, anthropology, and other fields has documented the social determinants and impacts of environmental deterioration in the Amazon. Importantly, they have shown that those socioeconomic forces operate not only at the local and national levels, but also at the transnational scale. This chapter provides a long-term view of the urgent challenges brought about to the Amazon by global and regional transformations, as seen from a broader socioeconomic perspective.

Two epochal processes have marked the political economy of the Amazon over the last three decades. The first one is the global commodity boom of the turn of the 21st century and the entrenchment of a development model in Latin America that relied on the production of commodities for export –from fossil fuels to metals to beef and soybeans. Driven by increasing demand from China and continued demand from Europe and North America, the Amazon became the new frontier for the extractive economies embraced by governments throughout the subcontinent as oil, minerals and other commodities reached record prices in what has been called a “super-cycle” that took off in the early 1990s and ebbed in the mid-2010s (Erten and Ocampo 2012; The Economist 2013; Erdem and Ünalımsı 2016; Ocampo 2017). The impact on

1 Latin American economies, which had been highly dependent on commodity production, was
2 considerable. For instance, mineral extractions increased by 400 percent in the region in the
3 1990s, reaching unprecedented growth in countries like Peru (where it reached 2,000 percent)
4 (Bebbington 2011).

5 As one of the last mineral and agricultural frontiers, the Amazon has experienced drastic social
6 and ecological pressures from the re-commodification of Latin American economies, both
7 directly and indirectly (Verburg *et al.* 2014). Directly, the Amazon has been affected by a flurry
8 of new extractive projects, both legal and illegal: governments have opened or slated large
9 swaths of the Peruvian and Ecuadorian Amazon for oil exploitation, legal and illegal logging and
10 gold mining have proliferated across the region, and land clearing for cattle ranching has been a
11 major source of deforestation in Brazil, Colombia, and more recently Bolivia, as have been
12 monocultures like soybean production in countries across the region (Charity *et al.* 2016). The
13 Amazon has also experienced heavy pressures from rapid transformations to its ecosystems and
14 societies that are indirectly associated with the extractive boom. Increased demand for energy
15 and transportation for mining and other extractive economies is one of the drivers behind new
16 infrastructure projects like large hydroelectric dams such as Belo Monte in Brazil (Ioris 2021) as
17 well as major waterway and road construction projects associated with China-backed Initiative
18 for Regional Infrastructure Integration in South America (IIRSA) (Van Dijck 2013), all of which
19 have further fragmented the Amazonian ecosystem.

20 From a societal perspective, the extractive boom has come with profound impacts on local
21 communities and economies. Rapid population influx, disorderly urbanization, weak governance
22 and a long history of violence have made for a volatile mix that have turned the region one of the
23 most active hubs of socioenvironmental conflicts (EJAtlas 2021). The growth of extractive
24 economies relies on the continuous expansion of areas for resource extraction, in practice has
25 amounted to a model of “accumulation by dispossession” (Harvey 2003) that creates immense
26 pressure on indigenous peoples, small-scale producers of local products, and other traditional
27 inhabitants of the Amazon (Dagicour 2020).

28 The second process with regional and global implications that has marked social life in the
29 Amazon runs in the opposite direction. Just as economic globalization (including the model of

1 production of commodities for export) expanded over the last three decades, growing awareness
2 about global warming, environmental deterioration and existential threats to the lives of
3 Indigenous peoples spurred a counter-movement. Led by indigenous peoples in alliance with
4 sectors of governments, civil society and the private sector, a series of actions –from legislation
5 to protests, from litigation to consumer boycotts—have exerted countervailing pressure in order
6 to implement existing legislation protecting the Amazon, enforce Indigenous and local
7 communities’ rights as recognized by national constitutions and international law, and otherwise
8 set limits to the **aforementioned** social and ecological impacts (Garavito and Diaz 2020). A
9 successful example of a local oil conflict, which achieved international significance is the
10 Sarayacu case in Ecuador, where the Interamerican Human Rights Court ruled accepting the
11 indigenous demand in 2012 (Rodríguez-Garavito, 2020). Frequently the strength of the
12 environmental movement derives from its strategic integration of local, national and international
13 actions. This counter-movement has received different names in different countries, such as
14 socio-environmentalism in Brazil and the aspiration to “buen vivir” in Ecuadorian constitutional
15 law and Bolivian legislation, and has been accompanied by social mobilization (Estupiñán
16 Achury *et al.* 2019). The notion of “good living” (buen vivir or *sumak kausay*), inspired by the
17 cosmovision of indigenous cultures and other contributions from critical and green perspectives,
18 emphasizes community values, participation, interculturality and harmony with nature as
19 alternative social principles (Larrea 2015; Larrea Maldonado *et al.* 2017; Chassagne 2019;
20 Kothari *et al.* 2019).

21 Just like the commodities boom, the political economy of this counter-movement is global in
22 nature. Starting with the International Labor Organization’s Convention 169 (1989) and
23 continuing with the United Nations Declaration on Indigenous Peoples’ Rights (2007), the rise of
24 the contemporary indigenous peoples’ movement translated into a new global legal framework
25 with direct impact on Latin America, in general, and the Amazon, in particular. Indeed, 14 out of
26 the 23 states that have ratified ILO 169 are Latin American (ILO 2021), and many of them have
27 incorporated indigenous peoples’ right to free, prior and informed consultation and consent
28 (FPIC) into their national constitutions. This helps explain why the language and the rules of
29 FPIC figure prominently in legislation, litigation, social movement campaigns and public debates
30 on the Amazon, as indigenous peoples’ and their allies demand that governments and
31 corporations interested in extractive projects in the Amazon respect indigenous peoples’ right to

1 have a voice in decision making and veto such projects when they put in peril their physical or
2 cultural survival (Rodríguez-Garavito 2011).

3 Advances in climate change science, policy and public debates have provided an additional
4 impetus for this counter-movement. The adoption of the 2015 Paris Agreement by Amazonian
5 countries, youth mobilization for climate action and increased evidence of massive human rights
6 impacts of global warming have gradually converged with the aforementioned political and legal
7 mobilization by indigenous peoples (references), as shown by the 2019 summit of
8 representatives from those movements in the Brazilian Amazon and the resulting declaration.¹
9 Given that the Amazon is essential to any scientific and regulatory efforts to avoid the most
10 catastrophic scenarios of global warming (Salles and Esteves 2019), this convergence is likely to
11 be a key source of bottom-up pressure for the protection of people and ecosystems in the region.

12 Although the opposition between globalized extractive forces and environmentalist and human
13 rights networks with international support has led to complex struggles in different countries, the
14 outcomes have been mixed and the strength of the former has generally dominated. Further,
15 public policies have promoted an extractivist-development approach, combined with certain
16 environmental checks and balances that did not substantially change the prevailing model
17 (Baletti 2014).

18 This chapter, as well as the broader social science literature on the present and future of the
19 Amazon, bears out the actors, mechanisms, the volatile interactions and the impact of the two
20 aforementioned processes. In turn, country studies help exemplify the form that these prevailing
21 processes took in different countries (Chapter 18).

22 **2. EFFECTS OF GLOBAL AND DOMESTIC ECONOMIC CHANGES ON THE** 23 **AMAZON (1970-2020)**

24 Human presence affected the Amazon during at least 10 millennia (SPA Report, Chapter 8).
25 However, the changes brought about by modern globalization, and a set of transformations from

¹ See “Declaration of Civil Society Organizations on the Crisis of Deforestation and Burning in the Brazilian Amazon,” available at https://www.inesc.org.br/wp-content/uploads/2019/12/Declaration-CSOs_deforestation_Amazon_ENG-Final.pdf

1 the 1970s onwards have been unprecedented in both speed and magnitude of their social and
2 environmental effects. In a context of changing world political hegemony and deep expansion of
3 regional integration into the global economy, the Amazon is becoming a commodity and energy
4 provider for both domestic and international markets, as well as being affected by detrimental
5 social and environmental effects of a process of uneven regional development (Harvey 2019).
6 Human intervention, which generated positive effects on biodiversity before the Iberian conquest
7 (Chapter 8), is currently the main threat to the rainforest integrity.

8 The expansion of the world economy, rather than being a continuous linear process, evolves in
9 the form of long-term cycles. In the late 1970s the Fordism model (Harvey 1989) of
10 accumulation became exhausted and a new global development paradigm, based on neoliberal
11 concepts, emerged (Cox and Production 1987; Harvey 1989, 2005). Latin America shifted from
12 import-substituting industrialization towards an export-oriented and market-friendly model
13 (Thorp and others 1998). Exports grew faster than GDP, and commodities were the most dynamic
14 group (Appendix Chart 3). Regional commodity exports expanded, and the Amazon
15 progressively became a significant provider of raw materials, such as oil (Peru, Ecuador,
16 Colombia), gas (Bolivia, Peru), iron ore, soybeans and beef (Brazil), gold (Peru, Venezuela,
17 Suriname), timber, and hydroelectric power. A complex process of infrastructure expansion,
18 migration² and urbanization took different forms, without substantially improving living
19 conditions. The model has accelerated deforestation, degradation, and biodiversity loss. This
20 process has taken different forms over time, according to dominant products and local social and
21 environmental conditions (Chapter 15).

22 Sachs (2020) differentiated two recent long-term cycles in the global economy, using
23 Kondratieff waves (Appendix Chart 1). The first one, between 1970 and 2010, was driven mostly
24 by information and communication technologies, and the current cycle is based on intelligent
25 technologies and robotics (Sachs 2020). Each global economic wave, sparked by technological
26 innovation, generates its own way of reshaping the world order and the role of different regions.
27 As the Chinese economy expanded until the 2008 crisis, Latin America took advantage of
28 soaring commodity prices and became a raw material provider, with deep effects on the Amazon.

² In addition to internal migrations from densely populated region to the Amazon, current human mobility includes massive international flows (eg. from Venezuela to other Amazon countries) circular and temporary migration (Chapter 13).

1 After 2014, China adopted a different model, reducing its growth, shifting towards its internal
2 market expansion, and fostering certain environmental protection. The decline in commodity
3 prices affected Latin America and the Amazon (Ocampo 2017).

4 From the political economy perspective, a significant change was the transition from the bipolar
5 world of the Cold War, with a strong US influence in Latin America, to a current multipolar
6 scenario dominated by the emergence of China, and a complex equilibrium among US, the
7 European Union and China as dominant powers (Sachs 2020; Ray 2021). China's share of world
8 GDP went up from a marginal 2.3% in 1980 to 20% in 2020, becoming the largest economy in
9 the planet, and surpassing US in 2013 (Appendix Chart 2).

10 China became the largest importer of several commodities extracted from the Amazon. In 2018,
11 Brazil was the leading world exporter of soybeans (56% share) - cultivated in the Cerrado and
12 the Amazon- and China was the largest importer, with a 57% share (OEC 2021). The shares for
13 iron ore are lower but significant (Appendix Charts 4 and 5). In the case of beef, nearly 46% of
14 Brazilian exports went to China in 2019, increasing from near zero early in the century (Meat &
15 Livestock Australia 2020). In 2018, Brazil became the world's largest beef exporter, led by
16 growing Chinese demand. Other important destinations were the Middle East and North Africa,
17 Singapore, Russia, and the EU. Ecuador began exporting oil from the Amazon in 1972 and ever
18 since this product became the single largest export and the backbone of the economy. Recently,
19 Amazonian oil in Colombia also became the main export product (OEC 2021).

20 As China became one of the largest trade partners in Latin America, regional exports
21 concentrated in a small group of commodities, with several coming from the Amazon (oil from
22 Ecuador, Colombia and Peru, soybeans, iron ore and beef from Brazil). In Brazil and Peru, China
23 became the top export destination and outpaced the US. In 2018, soybeans were the main export
24 product of Brazil, and iron ore the third one. Colombia and Ecuador share similar traits
25 (Appendix Table 1). These cases reflect China's fundamental interest in securing access to
26 commodities. In return, China contributes needed infrastructure and investments to the host
27 country.

28 China was not only a commodity importer, but it also financed large infrastructure projects in the
29 Amazon (such as the Coca-Codo Sinclair dam in Ecuador and the Belo Monte - Rio de Janeiro

1 Second Transmission Line in Brazil), invested in oil, mining, agribusiness, energy, finance and
2 communications (Ray 2021). It became one of the region's main financial partners. In 2020,
3 cumulative Chinese loans reached 62.2 billion dollars in Venezuela, 28.9 billion in Brazil and
4 18.4 billion in Ecuador (The Inter-American Dialogue 2020). Chinese involvement in the
5 Amazon is not only the result of demand expansion, but it is also guided by the long-term
6 geopolitical strategy of an emerging world power (Ray 2021). Canadian companies also played a
7 significant role in large-scale mining investment in the Amazon (Deonandan and Dougherty
8 2016). Financing and financial institutions have a significant role in leveraging and profiting
9 from the activities that drive deforestation and the associated infrastructure that enables them
10 (refs). With international incentives, frequently regional drivers are the main immediate forces of
11 environmental deterioration (Brazilian companies promoting IIRSA, Ecuadorian state companies
12 expanding oil extraction with Chinese support) (European Commission 2010).

13 Latin American exports became more dependent on primary products, reversing a secular trend
14 towards diversification with expansion of manufactures. As a result, the Economic Complexity
15 Index of Exports remained flat or declined in Amazon countries.³ Brazil, Venezuela and Bolivia
16 present a statistically significant decline, while Ecuador, Colombia and Peru keep a flat trend
17 (Appendix Chart 7). The Latin American profile in international trade was reshaped, with a new
18 role as commodity provider to China (Appendix Chart 6).

19 Commodity-export expansion depends on international prices, which were very unstable during
20 the last decades, with two ascending periods (the 1970s and the 2004-2014 decade) and two
21 depressed phases (from early 1980 to the turn of the century and after 2014) (Appendix Chart 8,
22 International Monetary Fund 2000). During periods of low prices, extractive activities do not
23 necessarily decline. Conversely, in a context of scarcity and fiscal crisis, countries may opt to
24 expand extraction to overcome short-term problems, as they become "locked into" a path
25 dependence on such activities resulting from previous investment and interwoven social,
26 political, and technical conditions associated with them (Braun 1973). In a context of heavy debt
27 burden and economic crisis, expansion of extractive activities, such as oil in Ecuador, is a way to
28 alleviate short-term economic pressures. In addition, interconnections in global commodity

³ The Index of Economic Complexity of a country is an indicator of economic diversification and technological sophistication of its exports (Hidalgo and Hausmann 2009).

1 markets may lead domestic policies to have cross-product and cross-country effects, which can
2 derive in changes in land use. For example, the 2006 U.S. corn subsidies for ethanol production
3 resulted in higher soy prices, which stimulated deforestation in Amazonia (Laurance 2007).
4 Biofuel production, being highly influenced by government policy and subsidies, by feedstock
5 cost (soybeans, sugarcane, corn, palm-oil) and by oil prices (IEA, 2019), has long been the
6 subject of concern, given the possible effects of policy and price changes on deforestation
7 (Laurance 2007, Ferrante and Fernside, 2020).

8 Illegal activities linked to international markets also played a key role on extractive outcomes, as
9 in the case of coca production and drug trafficking, mostly in Colombia and Peru. An important
10 part of coca cultivation comes from the Amazon and drug trafficking activities can be important
11 shapers of the social and physical landscape. Drug trafficking also provides large amounts of
12 (laundered) money to purchase land for monocultures and cattle ranching, particularly in
13 Colombia. Illegal activities can also be stimulated by lawful international markets, such as the
14 cases of illegal timber extraction and gold mining, occurring in all Amazon countries (Reyes-
15 Hernandez, 2010).

16 Commodity-driven deforestation became the main forest loss driver both globally and in Latin
17 America, accounting for about 64% in the region (Curtis et al 2018). The pressure on rainforest
18 comes not only from international forces. Domestic market expansion also matters, as in the case
19 of bovine meat in Brazil, responsible for more than three-quarters of deforestation, driven by
20 internal demand, which is four times larger than exports. Yet, domestic demand and availability
21 of land in the vast Cerrado and Amazon biomes provided a platform from which export-oriented
22 beef production was able to take advantage of opportunities emerging from international
23 markets. In turn, soy and beef are intimately connected as beef production makes way for more
24 profitable soy for export and moves back farther into the Amazon, resulting in more
25 deforestation. As intensive soy cultivation in Cerrado expands, extensive cattle ranching are
26 displaced to the Amazon. Soybean production is also a direct driver of deforestation, albeit
27 second to the beef industry (Da Silva and Guerreiro 2017). The workings of the different drivers
28 and relative prices are also leading to land speculation, which sometimes obscures the true
29 motivation behind the visible cause of deforestation (Gao et al. 2011, Margulis, 2003).

1 International agricultural drivers are not only on the demand side. Supply has become
2 increasingly concentrated in large-scale multinational actors. A technological package
3 spearheaded by global chemical and trading companies and based on GMO seeds,
4 agrochemicals, no-till cultivation and new machinery emerges alongside modes of organization
5 where landowners are replaced by production firms and the operating capital is often provided by
6 input and trading firms Bianchi and Szpak, 2017). These consist predominantly of the main
7 international companies (Monsanto, Syngenta, Dow, Pioneer, Bayer Cropscience, Nidera,
8 Cargill, Bunge, Dreyfus, AGD, ADM, Noble, Toepfer, among others) (Bianchi and Szpak 2017).
9 Thus, the new model introduces strong international interests in the direct determinants of land
10 use change and farm size. In line with China's policy of securing access to agricultural
11 commodities, Chinese companies have acquired some of the leading firms in the market:
12 Syngenta, Noble Agri and Nidera.

13 The complex alliance among international and domestic actors has created strong political
14 pressures for the expansion of extractive use of the Amazon (European Commission, 2010). The
15 case of Brazil has become the paragon of how the combination of international market conditions
16 and domestic policies can have long lasting and substantial impacts on the environment. Brazil's
17 growth became increasingly linked to exports as the country responds to opportunities arising
18 from international markets (Müller, 2020). At the origin of these, is a secular and global process
19 of rise in income and increasing demand for food, improved income distribution and
20 urbanization in emerging economies led by China (Boanada, 2020; Fearnside, 2015; European
21 Commission, 2010; WWF, 2018). Brazil has succeeded in taking advantage of this process and
22 positioning as a leading world supplier of commodities, as well as a major emerging economy. In
23 doing so, some of the forces set in motion are putting pressure on natural ecosystems and
24 threatening the sustainability of the Amazon. Thus, the fate of Amazonia is tied to how these
25 international drivers are managed.

26 According to Sachs (2020), current globalization has aggravated not only global environmental
27 problems, but also social inequality. The Amazon region crystalizes both deep ecological
28 impacts and uneven social and economic development. According to a recent poverty map of
29 Brazil municipalities, the Amazon and Northeast regions are the more deprived ones in the
30 country (Ottoni, Machado and Amaral 2017). Research on poverty in Ecuador (Larrea et al 2013)

1 also presents the Amazon as the most socially deprived region in the country. The situation is
2 similar in other Amazon countries (World Inequality Database, 2021).

3 The pandemic of Covid-19 evidenced the region fragility in the face of globalization. As Covid-
4 19 disproportionately hit the Amazon, it also demonstrated the aggravated effects of globalization
5 on social inequality. By April 2021, Brazil was the second most affected country in the world,
6 with 13.3 million confirmed cases and 345,000 deaths, and the subnational data in Brazil and
7 Ecuador evidenced that the Amazon region had higher infection rates than national averages. In
8 Brazil, Manaus, with a population over two million inhabitants, was one of the most devastated
9 cities in the world, and the mortality rate per million inhabitants was well above the Brazilian
10 average in all Amazon states, excepting Tocantins, Pará, and Acre⁴ (Worldometer, 2020, Conass
11 2020, FVS 2020, Ministerio de salud pública 2020, Turkewitz and Andreoni 2020). The rapid
12 Covid-19 expansion among dispersed communities in the Amazon was a result of a weak
13 prevention network, and dramatically showed the inadequacy of basic health services and the
14 low priority given to social services and infrastructure.

15 The pandemic of Covid-19 also brought to the fore the responsibility of deforestation and
16 biodiversity loss in the emergence and spread of infectious diseases, and thus underscored the
17 importance of nature conservation for pandemic prevention, and the relevance of pandemic
18 prevention for economic well-being. Thus, the processes driving deforestation and forest
19 degradation, can also be considered drivers of disease cross-overs from wildlife to humans, and
20 of pandemics. Tropical forest edges are “a major launch-pad for novel human viruses” (Dobson
21 2020). Such edges are created at the boundary where forests meet the land use that replaces them
22 - mining, oil and gas, modern agriculture, livestock, wildlife trade, infrastructure development,
23 urbanization (Tollefson 2020, Dobson 2020, The Guardian 2020, UNEP 2020).

24 Summarizing, since the 1982 Mexican debt crisis, Latin America shifted from an inward-
25 oriented, import substituting industrialization model towards a market-friendly strategy of export
26 promotion. Soaring commodity prices during the 2004-2014 period, and the Chinese economy

⁴ 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 affected Manaus, sparked by a new variant of the virus.

1 expansion helped to redefine the main role of the region as a commodity provider, pushing a
2 neo-extractivist development strategy, where exports of a small group of commodities becomes
3 strategic (Burchardt/Dietz 2014, Svampa 2019). The Amazon was deeply affected by a dramatic
4 expansion of oil, gas and mineral extraction, as well as soybean cultivation, large-scale cattle
5 ranching, and drug traffic, coupled by energy and infrastructure projects, such as hydroelectric
6 dams. The neo-extractivist development model deepened social exclusion and severe
7 environmental deterioration in the Amazon.

8 *Stricto sensu*, extractive activities are only the exploitation of non-renewable resources or the
9 over-exploitation of renewable ones. Extensive cattle ranching, with low land productivity and
10 often declining yields, may lead to a non-reversible reduction of soil fertility. Capital-intensive
11 soybean cultivation may also lead to long-term soil deterioration. Soybean and beef production,
12 although not necessarily being extractive activities, imply a deterioration of natural endowment.
13 Using a broad sense of the term, the neo-extractivist development strategy refers to a
14 development model, adopted by most Latin American countries from the 1980s onwards,
15 dependent on the commodity export expansion, frequently under dominant market-friendly
16 strategies. Although the “pink tide” of nationalistic governments in several Latin American
17 countries in the early XXI promoted a stronger state role in development policies, partially
18 departing from market-friendly strategies, this change did not reduce the strong dependence of
19 commodities (Svampa 2019).

20 In contrast, some positive contributions to conservation came from the international arena. With
21 particular force since the 1980s, there have been progressively louder and more influential voices
22 expressing concern about conservation. They prompted local initiatives as well as global events,
23 such as UNCED 1992 Rio Earth Summit, which aimed to “reconcile worldwide economic
24 development with protection of the environment”. It resulted in the Convention of Biological
25 Diversity and the UNFCCC and paved the way to later developments such as the Sustainable
26 Development Goals and the Paris Agreement. Stronger government policies started to appear,
27 and environmental and social safeguards began to be introduced by multilateral agencies,
28 financial institutions and the private sector. Financing for conservation increased and consumers,
29 local and global social movements and environmental activism became empowered (IEA 2021,
30 Teske 2021).

1 Positive examples that are described in this chapter emerged from these changes or were
2 supported by them. The net result, however, has been the advance of deforestation, ecosystem
3 degradation and pollution in the region.

4 Although extractivism prevailed over conservation, the expansion of protected areas and
5 recognized indigenous territories, which currently account for about 47% of the whole Amazon
6 basin (Chapter 15) was a significant achievement and demonstrated the strength of balancing
7 regulation policies. Social resistance to extractivism and several successful experiences leading
8 to economic diversification coupled with biodiversity conservation can be mentioned as well
9 (SPA Report Section III).

10 Nevertheless, the most significant successful (albeit further reversed) experience in countering
11 the prevailing extractivist model has been Brazil's success in dramatically reducing deforestation
12 between 2005 and 2012, which achieve an 84% reduction in deforestation rates in the period.
13 The Brazilian policy under the Workers Party (Partido dos Trabalhadores, PT, in Portuguese)
14 government was also an important departure from the market-friendly paradigm, which
15 minimizes the state role in development. Public policies played the leading role in deforestation
16 reduction (next section of this chapter).

17 The Brazilian model resulted from a combination of smart national policies, private sector
18 involvement, foreign sector support and domestic and international pressures. The experience
19 also may provide elements for its possible replication at a pan-amazon scale in the future.

20 The current reversal of the policy, particularly during the Bolsonaro government, shows its
21 limited success and the power of the prevailing extractive paradigm. The next section of this
22 chapter analyzes both the implementation and reversal of Brazil's counter-hegemonic policy,
23 focused on the design and implementation of specific public policies.

24 **3. RISE AND FALL OF BRAZILIAN CONSERVATION POLICIES: COMBATING** 25 **DEFORESTATION IN THE BRAZILIAN AMAZON IN THE 2000s**

26 Despite the importance of the socio-environmental heritage of the Amazon, of its contribution to
27 climate processes stability at the local, national and global levels, and of its enormous potential
28 for economic development, deforestation has already compromised a significant portion of the

1 biome, and the replacement of the forest has not generated perennial socioeconomic benefits
2 with regional importance (Almeida, 1996; Becker, 2000; Andersen, 2002). The most recent
3 official data on deforestation increase in the Brazilian Legal⁵ Amazon, verified from August 1,
4 2018 to July 31, 2019, shows an area of 10,896.51 km² (INPE, 2020) (Figure 1), increasing the
5 accumulated total deforestation to 795,493.23 km² (INPE, 2020b). As a result, 18.9% of the
6 original forest has been converted to other uses, an area greater than the sum of the territories of
7 Germany, Italy and Greece. This loss occurred in just two decades, since the first survey carried
8 out based on Landsat images, from 1976 to 1978, showed the loss of only 1.8% of forest cover
9 (Tardin et al, 1980). This tremendous loss of vast expanses of Amazonia forest is a direct result
10 of ambitious programs and projects of regional development, stimulating regional occupation
11 and advancing an economy primarily based on agricultural production (Hecht & Cockburn,
12 1988).

13 During about seven decades, from the beginning of the occupation based on opening new roads
14 and the replacement of the forest by livestock and agriculture, which started in the government of
15 Getúlio Vargas in the 1950s, until today, especially in 2019, when deforestation presented a
16 strong acceleration, the only period in which there was a consistent reduction in deforestation in
17 the Brazilian Amazon was between 2004 and 2012, when rates declined from 27,722 km² to
18 4,571 km² (figure 1). The groundwork for this monumental achievement was laid in the 1980s
19 and 1990s through the increasing political influence of counter-hegemonic environmental
20 movements embodied in, for example, the ‘ecological action caucus’ in the national congress
21 (Viola, 1988, 2004). Early victories included the 1998 environmental crimes law (Law 9.605/98)
22 and National System of Conservation Units (SNUC) created in 2000, among others. But
23 advances in environmental policy-making mainly took off in the 2000s, a period marked by
24 implementing the Plan for the Prevention and Control of Deforestation in the Amazon
25 (PPCDAm), determined by the Federal Decree of July 3, 2003. This section details how this plan
26 in particular (and environmental politics, in general) fostered synergetic impacts on deforestation
27 dynamics in the Brazilian Amazon.

⁵ The Brazilian Legal Amazon comprises the Brazilian states of Acre, Pará, Amazonas, Roraima, Rondônia, Amapá and Mato Grosso, as well as the northern regions of Tocantins and Goiás and the western regions of Maranhão (law no 12.651/2012, art. 3-I. The microregion was created by Law to better plan the social and economic development of the Amazon, forming a surface of approximately 5,020,000 kilometers square, larger than the area of the Amazon Biome, which has 4,196,943 square kilometers.

1 **3.1. Integrating public policies to combat deforestation**

2 The early 2000s were marked by the strong impact of data showing deforestation increase in the
3 Brazilian Amazon, with control initiatives adopted by previous governments until then being
4 ineffective. To face this problem, the Ministry of the Environment (Ministério do Meio
5 Ambiente, MMA) proposed to the new president-elect, Lula da Silva, who took office in 2003, a
6 reorganization of the Federal Government's activities in the region, with the fundamental
7 objective of overcoming the disconnected actions model in place, which was considered the main
8 reason for the advance of social inequality and environmental degradation, with deforestation
9 being its most visible feature. The goal was to establish a reference for a new economic
10 development model for the Amazon, capable of promoting economic growth, meeting the main
11 demands of the local population, and breaking with previous models through the structured
12 incorporation of the sustainability perspective (MMA, 2007).

13 The design of the actions conceived by the MMA, as recorded by Capobianco (2017), was
14 organized on three integrated and complementary fronts: a sustainable development program for
15 the macro-region that would commit the direct investments of the Federal Government and the
16 transfers to the State Governments to Brazil's Sustainable Amazon Program (*Programa*
17 *Amazônia Sustentável*, PAS); an action plan for immediate interventions to reverse the
18 accelerated deforestation rates underway (PPCDAm); and a local development plan for regions
19 most threatened by the expanding deforestation frontier, where initiatives to reverse the problem
20 would build on multi-actor, multi-sector and multi-level governance strategies (Example: *Plano*
21 *BR-163 Sustentável*). These initiatives were presented and discussed as early as 2003. The first
22 two (PAS and PPCDAm) were approved and started in the same year, while the latter was
23 formally launched in 2004. All three had the strong and broad involvement of different ministries
24 and related agencies, instead of being solely in the hands of MMA.

25 The strategies for action on these three fronts were based on five premises considered essential
26 for the success of the initiatives: (1) to convert the sustainability issue in the Amazon into a
27 Government matter, by leaving the sectorial sphere of the MMA and obtaining the direct
28 endorsement of the Presidency of the Republic for its articulation; (2) to guarantee political
29 solidity and internal summoning power in the government apparatus (3) to make actions

1 intersectoral, committing all the ministries and related bodies of the Federal Government that,
2 directly or indirectly, were related to the problem or had capacities and / or institutional expertise
3 to solve it; (4) to establish a permanent evaluation system for the implemented policies,
4 generating high-quality and credible periodic feedback; and (5) to consolidate an external
5 support community for the definition, implementation and pressure for continuity (MMA, 2008).

6 Part of the strategy adopted in the period consisted in strengthening environmental governance
7 capacity. One action was to significantly increase the number of public servants in federal
8 environmental agencies, including the Brazilian Institute of Environment and Renewable Natural
9 Resources (IBAMA), through public tender. In addition, the Chico Mendes Institute for
10 Biodiversity Conservation (ICMbio) was established in 2007 to manage the Conservation Units
11 (UCs). In the same year, the organizational structure of the MMA was also updated and included
12 the creation of the Climate Change Secretariat and the Directorate for Climate Control
13 Deforestation in the Amazon, among others (MMA, 2008b).

14 **3.2. PPCDAm**

15 The PPCDAm is emblematic for the synergetic and intersectoral approach to environmental
16 governance in Brazil. In June 2003, preparations for the PPCDAm mobilized 54 members from
17 12 ministries to define strategies and priorities for public policy formulation in the Amazon,
18 which represents an accomplishment previously unheard of (Capobianco, 2017). The structuring
19 of the Plan was led by the Civil House of the Presidency and the MMA teams. Presidency's Civil
20 House was responsible for summoning the technical and political staff of the public agencies
21 involved and for demanding that the necessary subsidies to support the work were sent. A team
22 from the MMA, meanwhile, took care of the systematization of proposals and contributions
23 received and the overall structuration of the Plan.

24 In addition, the PPCDAm sought to foster synergetic effects of deforestation policies by
25 focusing on three axes: (i) land and territorial planning; (ii) environmental monitoring and
26 control; and (iii) fostering sustainable productive activities. This plan propelled institutional
27 ownership of the deforestation issue in two specific ways. The first was the establishment of a
28 detailed planning of 149 activities, each of them with explicitly assigned institutional
29 responsibilities, an execution period, and objective indicators for implementation evaluation. The

1 second was linking the necessary resources for the development of the plan (\$ 394 million in
2 total) to the budgets already approved in the Pluriannual Plans (PPA) of the participating
3 ministries. This guaranteed the financial conditions for the immediate start of the actions,
4 without depending on complex negotiations to obtain additional resources from the Federal
5 Budget (MMA, 2008).

6 The three axes of the PPCDAm made significant contributions to environmental governance in
7 diverging albeit complementary ways. One of the cornerstones of the monitoring and control
8 axis, for example, was the development of a Deforestation Detection System in Real Time
9 (DETER) by INPE in 2004. DETER represented a technological innovation for monitoring
10 deforestation occurrences in the Amazon at very short intervals (weekly to monthly), which
11 became a powerful and efficient planning tool for surveillance activities (Rajão et al., 2017).
12 Conceived as an open Internet platform, DETER allowed the press and society to follow the
13 evolution of deforestation, stimulating the permanent public debate on the results of the control
14 policies adopted.

15 Another innovation of this axis was the involvement of the Federal Police in criminal
16 investigations and in the operations carried out by IBAMA and state environmental police,
17 following a strategic plan that considered technical criteria and territorial priorities. As a result,
18 approximately 1,500 clandestine timber companies were closed and more than 1 million cubic
19 meters of wood were confiscated. Organizations promoting illegal logging were also dismantled,
20 leading to 659 people imprisoned, including federal and state government officials.

21 Within the land and territorial planning axis, the creation of Conservation Units (UCs) was
22 central for combating deforestation, particularly in the early phases (West & Fearnside, 2021).
23 Between 2004 and 2009, 40 UCs were created in the Amazon, totaling 26 million hectares. In six
24 years, the PPCDAm expanded the territorial extension of these areas by more than 76%
25 compared to everything that had been created since the establishment of the Caxiuanã National
26 Forest in 1961 (the first UC of the region).

27 Early Amazonian UCs established prior to 2003 were mostly located in remote regions, far from
28 agricultural frontier expansion areas, with some exceptions in the federal states of Rondônia and
29 Acre. Since 2003, however, UC creations under the PPCDAm were actively integrated in the

1 regional land tenure strategy. More specifically, the designation of protected areas, both as UC
2 and as Indigenous Lands (ILs), strongly discourages land grabbing, thereby rendering the
3 obtainment of land titles (and land speculation) more difficult, which reduces the likelihood of
4 deforestation in those areas. As a result, new UCs were primarily located in areas with strong
5 anthropic pressure (IPEA, 2011). Together with the demarcation of approximately 10 million
6 hectares of Indigenous Lands, many of which are recognized and approved under the PPCDAm,
7 these UCs have become a ‘green barrier’ for the protection of extensive areas that were still in a
8 high state of conservation but showed an intense increase in deforestation rates in southern Pará,
9 northern Mato Grosso, and south of Amazonas. According to Soares-Filho et al (2010), between
10 2004 and 2006, the creation of UCs was responsible for 37% of the reduction in deforestation
11 seen in the period.

12 In addition to the establishment of protected areas, the fight against land grabbing was intensified
13 by cancelling around 66,000 claims for land titles that had no legal origin proven in the registers
14 of the National Institute of Colonization and Agrarian Reform (INCRA in portuguese), and
15 profoundly modifying the mechanisms and procedures for tenure registration (MMA, 2007).

16 The impact of PPCDAm was much broader than reflected in the two axes described above.
17 Although the third axis – sustainable productive activities – was less prominent during the first
18 phase (2004-2008) (see West & Fearnside, 2021), it did contain the proposal, approval and
19 regulation of the public forest management system by Law 11.482/06 in 2006 and the regulation
20 of wood circulation control by CONAMA Resolution 379/06 the same year. The three axes of
21 the PPCDAm also became the template for distributing financial resources from the Amazon
22 Fund, (<http://www.amazonfund.gov.br/en/home/>) which received (and later disbursed) over 1.2
23 billion dollars between 2008 and 2017 from international (Norway and Germany) and national
24 (Petrobrás) donations (Correa et al., 2019).

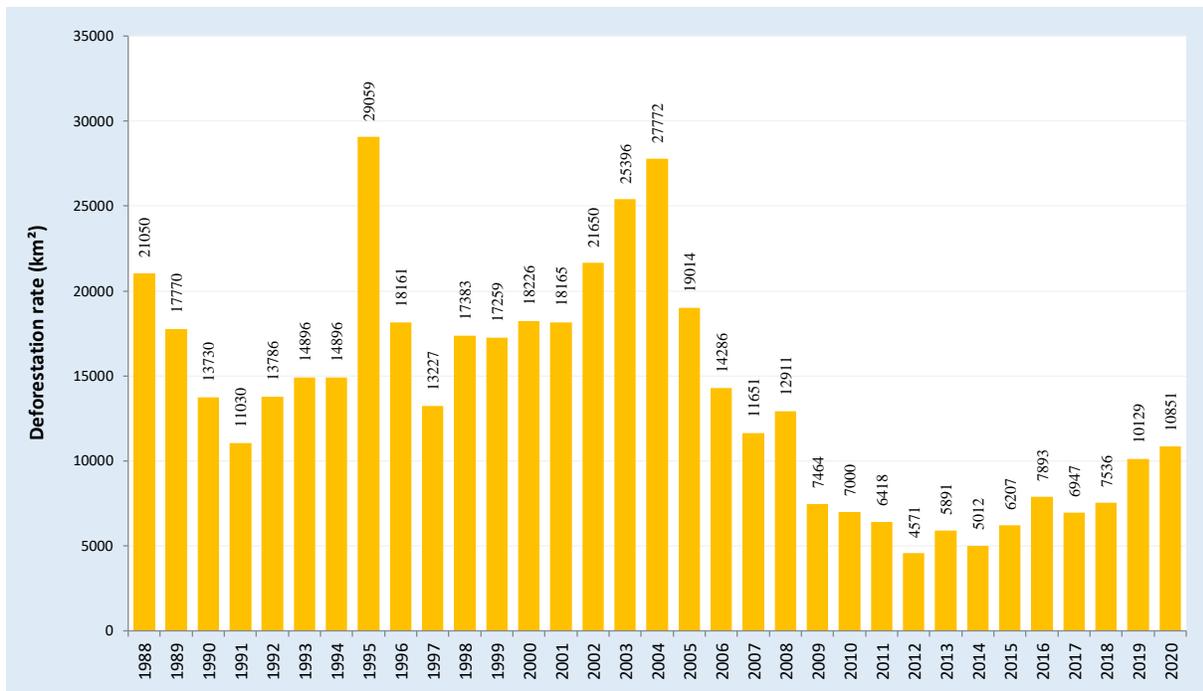
25 The strengthening of environmental governance reached far beyond the PPCDAm, which
26 complemented its actions and strengthened its impact. Punishment for illicit deforestation
27 activities was raised in 2008 via decree 6.514/08, which tightened law enforcement. Illegality
28 also received economic disincentives through the conditional obtainment of rural credit from the
29 Brazilian Central Bank (resolution 3.545/08), adoption of the soy moratorium in 2006, and

1 preparations for a beef moratorium in 2012. Amazonian federal states also increased the creation
2 of UCs, which even surpassed in area those created by the federal government, while the state of
3 Pará initiated the creation of its Green Municipality Program (PMV) (Soares-Filho & Rajão
4 2018).

5 *3.2.1. Policy impacts on deforestation dynamics*

6 The PPCDAm obtained significant results in the first 10 years of its implementation. The main
7 indicator of this success was the consistent decline of deforestation rates in the Amazon from
8 27,423 km² in 2004 – the second highest in Prodes⁶ (Amazon Deforestation Monitoring System,
9 by Inpe) records – to 4,571 km² in 2012 – the lowest ever recorded (see figure 1). This period
10 was marked by an unprecedented increase in initiatives implemented by the Federal Government
11 aimed at halting deforestation. During this period, seven federal laws, three provisional
12 measures, six CONAMA resolutions, 156 decrees, and 16 normative acts of government
13 agencies were approved. There were also 29 major surveillance operations involving the Federal
14 Police. In total, there were 232 initiatives, of which 134 were directly aimed at controlling and
15 combating deforestation in nine years of activities. This number is significantly higher than the
16 77 actions undertaken with the same objectives in the 13-year period of previous governments,
17 between 1990 and 2002 (Capobianco, 2017). Furthermore, the emphasis during the early stages
18 of the PPCDAm on strict enforcement of socio-environmental legislation in the first decade of
19 implementation installed in local actors a higher risk perception in relation to illegal and
20 predatory deforestation. This effect stimulated the emergence of initiatives by state and
21 municipal governments, as well as by society in general, that contributed to this result. In a way,
22 it represents the tangible legacy of the increasing political power of environmental movements in
23 the 1990s.

⁶ PRODES (Program for the Estimation of Deforestation in the Brazilian Amazon) is the first monitoring tool (currently one of several) designed to calculate annual deforestation rates in the Brazilian Amazon. The Amazon Deforestation Monitoring System, created in 1989 by Inpe, measures the annual clear cut in polygons larger than 6.25 hectares in the Brazilian Amazon. These measurements are carried out in periods with good observation conditions in the Amazon region, which generally take place from July to September, when 90% of the region can be seen due to reduced cloud cover. The analysis period comprises the beginning of August to the end of July of the following year. As it is more detailed than other systems and depends on weather conditions for capturing images, its analysis is carried out only once a year. Its first estimate is released until December of the current year and the consolidated data are made available at the end of the first semester of the following year. For a broader discussion, see Rajão, Moutinho & Soares (2017) and Richards, Arima, VanWey, Cohn & Bhattarai (2017).



1

2 Figure 16.1: Annual evolution of deforestation rates in the Legal Amazon (Km²). Source:
3 Prodes/Inpe 2020.

4 It is important to highlight that this expressive and unprecedented reduction in deforestation
5 occurred in a period of high valuation of the two main commodities – soy and beef – produced in
6 the Amazon (see section 16.1). An analysis of the evolution of soybean and livestock production
7 in the region showed that until 2005 there was a clear correlation between the constant growth of
8 these two economic activities and the increase in deforestation (Capobianco, 2017). As of 2007,
9 a gradual decoupling between these variables began. Despite the return of growth in soy
10 production and in the increasing cattle herd in response to rising commodity prices, Brazil saw
11 an unprecedentedly constant decline in deforestation rates.

12 According to Koch et al (2019), the greater risk of criminal sanctions under a policy that makes
13 illegal land expansion more expensive and less valuable, induces farmers in a growing
14 agricultural market to reinvest in capital instead of land, leading to increased land productivity
15 per hectare. When analyzing data on livestock production in the state of Mato Grosso, Macedo et
16 al (2012) identified that large-scale deforestation for pasture declined rapidly after 2005,
17 decreasing more than 70% from 2005 to 2006. According to these authors, the growing risks and
18 costs of expanding pastures were concomitant with an intensification movement, as many of the

1 state's cattle producers replaced extensive grazing (less than one head of cattle per ha) with
2 animal confinement, a practice that grew in 286 % between 2005 to 2008.

3 This evidence demonstrates that the constant and consistent reduction in deforestation in the
4 Legal Amazon in the 2000s was not directly related to the evolution of the main commodities of
5 the region. At the same time, the economic conjuncture with regard to the national and
6 international agricultural market was favorable to reduced pressure to open new areas at the
7 beginning of the first phase of the Program (2004 to 2006). Brazil's experience in combating
8 deforestation in the 2000s shows that it is possible, through coordinated actions and strong
9 commitment from the bodies that formulate and implement public policies, in partnership with
10 society, to establish a governance process capable of promoting a fast and significant decrease in
11 deforestation rates in the Amazon.

12 **4. THE FALL OF BRAZIL'S FOREST CONSERVATION POLICIES**

13 The systematic construction of environmental governance in Brazil, as described in the previous
14 section, did not last long. With the turn of the decade, the hegemonic movements that advance
15 the neoliberal development agenda in Brazil, still premised on soybean and beef production,
16 regained control over the environmental agenda, while the counter-hegemonic movements
17 represented by professionalized and politicized environmental organizations were losing traction
18 (e.g. Sauer & França, 2012). This shift in political dynamics is symbolized by the steadily rising
19 deforestation rates from 4,571 km² in 2012 to 11,000 km² in 2020. This section presents the key
20 factors that help explain what has been notoriously called a 'systematic dismantling' of Brazil's
21 forest conservation policies (Abessa et al., 2019).

22 ***4.1. Weakening Brazil's environmental law enforcement***

23 The changing tides of environmental politics in Brazil started with the onslaught of revisions to
24 the Forest Code proposed by the rural caucus. According to Sauer and França (2012), the
25 reorganization of rural Brazil and the rural caucus already started in the late 2000s as a response
26 to the tightening law enforcement actions and increasing difficulty to obtain rural credit. While
27 the original bill proposing the revisions since 1999 did not pass through congress during most of
28 the 2000s, its legislative process was accelerated in 2009 with the establishment of a special

1 commission. The outcome of this protracted debate was the approval by the Brazilian Congress
2 in 2012 of a new legislative text on protecting native vegetation (Law 12.651/12) that substantial
3 changed the Forest Code previously in force (Law 4.771/65). Some changes were positive, but
4 the majority was negative. For environmental law enforcement, the revised Forest Code had
5 detrimental effects in two ways. Most significantly, the revised law granted an amnesty to past
6 deforesters exempting them from recovering the vegetation of 58% of all illegally deforested
7 areas prior to 2008 (Soares-Filho, et al, 2014). Such changes have severe consequences in terms
8 of the perceived risks of illegality, mostly because it denotes a reward rather than a punishment,
9 thereby disadvantaging law-abiding landowners.

10 The second negative effect for environmental law enforcement relates to the Rural
11 Environmental Registry System (Cadastro Ambiental Rural, CAR), a national, obligatory and
12 fully transparent self-registry system for rural landowners that paradoxically had great potential
13 to strengthen law enforcement institutions (e.g. IBAMA) to remotely monitor and punish illegal
14 deforesters (Soares-Filho et al. 2014). The CAR registration process has been a success, mostly
15 because landowners need the CAR to have access to bank loans and notary transactions.
16 Between 2014 and 2020, the number of properties enrolled in CAR grew from less than 1 million
17 to about 5.7 million nation-wide⁷. Despite this potentially positive development, information
18 available in the CAR system has not been used for law enforcement as initially anticipated.
19 Except for a few hundred fines issued via operation “*Controle Remoto*” by IBAMA between
20 2016-2020, most law enforcement still takes place through local field inspections rather than
21 using the CAR dataset combined with the official PRODES deforestation monitoring systems.
22 This contributes to a high level of perceived impunity for illegal deforestation within properties
23 registered at the CAR (see also below). For instance, Rajão et al. (2020) observed in the state of
24 Mato Grosso that only 23% of the properties with evidence of illegal deforestation had been
25 embargoed between 2009 and 2018. The waning effect of CAR as a deterrent tool for illegal
26 deforestation was also observed in the state-level initiatives that preceded the national registry.
27 While in 2008-2009 the properties at the CAR deforested less than the properties outside the
28 registry, by 2012 landowners inside and outside the registry had a similar behavior (Azevedo et
29 al. 2017).

⁷ <https://www.car.gov.br/publico/imoveis/index>

1 The negative effects of the Forest Code reflected a broader trend of substantially weakening
2 environmental law enforcement in Brazil and particularly concerns the institutional capacity of
3 IBAMA and ICMBio, the two federal agencies responsible for enforcing the environmental
4 legislation on private and public lands, respectively. The number of personnel at those two
5 institutions has shrunk since 2010 due to the lack of replacement for retiring staff. The total
6 number of IBAMA's staff members dedicated to law enforcement, for example, plummeted from
7 a total of 1311 staff members in 2010 to 591 in 2020 (Borges 2020). The MMA under the
8 administration of Presidente Bolsonaro has also systematically replaced experienced managers
9 from IBAMA and ICMBio with military policemen from São Paulo with little knowledge of the
10 federal environmental agenda. Moreover, the administration has discouraged field inspectors not
11 to fulfill to apply the controversial destruction of equipment used for illegal deforestation as
12 administrative punishment, an effective environmental sanction permitted by law and highly
13 recommended for remote regions. The decreased capacity of these environmental law
14 enforcement institutions have been reflected in the falling number of fines issued during the
15 Bolsonaro administration (Muniz, Fonseca & Ribeiro 2020; see also Lopes & Chiavari, 2021).

16 A final threat to environmental law enforcement capacity involves the weak conservation status
17 of protected areas in the Amazon region. Since the election of President Dilma Rousseff from the
18 Labor Party (Partido dos Trabalhadores, PT) in 2010, the creation of new protected areas has
19 nearly grinded to a halt. The situation became worse in 2016 following her impeachment, as
20 President Michel Temer actively tried to dismantle already existing protected areas in exchange
21 for political support. Some of those attempts were reverted, but others, such as the case of the
22 National Forest of Jamanxin, were approved in congress. After Jair Bolsonaro's election in 2018,
23 the suspension of protected areas designation became an explicit federal policy. Furthermore,
24 both the president and the Minister of Environment threatened to review the sizes of 59 protected
25 areas and to pass new legislation that would allow highways and hydroelectric dams to be
26 developed in those areas (Borges 2019). Consequently, deforestation inside protected areas have
27 been on the rise over the recent years, jumping from 640 km² in 2017 to more than 1,100 km² in
28 2020, as land grabbers expect to benefit from future downgrading, downsizing and
29 degazettement of those areas. The combined threats to environmental law enforcement – lenient
30 conservation requirements, on private lands (Sauer & França, 2012), CAR
31 ineffectiveness(Azevedo et al. 2017), diminishing institutional capacity (Lopes & Chiavari,

1 2021) and weakened protected areas (Borges 2019) – foster an antagonist – send a strong signal
2 to deforesters of a favorable legislative and political climate. for reducing deforestation.

3 ***4.2. Pro-deforestation discourse from political and business leaders***

4 While concrete law enforcement actions and territorial restrictions play a key role in reducing
5 deforestation, the discourses of political and business leaders also constitute a powerful factor in
6 shaping the perception of reality held by potential deforesters. Public support from Brazilian
7 presidents and their minister of environment in office between 2003 and 2010 played a key role
8 in intimidating illegal deforesters, increasing their risk perception in relation to breaking the law,
9 but the reverse is equally true in the years that followed. Environmental politics became less
10 potent during President Dilma Rousseff's administration. Even though Izabella Teixeira, the
11 Minister of Environment at the time, provided strong technical guidance to the agenda, she
12 lacked the political weight of her predecessors. Following the impeachment of Ms. Rousseff and
13 the transfer of powers to the vice-president, Michael Temer, the executive branch became even
14 more exposed to the ruralist lobby and pro-deforestation interests. As such, the president issued
15 several decrees weakening the status of protected areas and providing amnesty to land grabbers
16 (see chapter 14). The Minister of Environment under Temer's administration, Zequinha Sarney,
17 managed to revert some presidential attempts to wrecking environmental policy, such as
18 flexibilization of environmental licensing rules and the extinction of the Reserva Nacional de
19 cobre e associados (RENCA, a large mining reserve). The broader range actions of Michel
20 Temer's administration, some of which received the explicit support of his Minister of
21 Agriculture, Blairo Maggi, sent a strong signal to deforesters that the political context was now
22 becoming more lenient to illegal deforestation. This helps explain why deforestation kept going
23 up between 2015-18, despite a raise in the number of environmental fines and despite
24 continuation of the PPCDAm (West & Fearnside, 2021).

25 While pro-deforestation clamor from rural political leaders increasingly became louder since
26 2012, it has accelerated substantially following the election of President Jair Bolsonaro. Already
27 during the campaign, Bolsonaro promised to halt the creation of protected areas and to cripple
28 IBAMA's "industry of fines". Having himself been fined for illegal fishing by IBAMA,
29 Bolsonaro often presented landowners as treated unfairly by a biased environmental legislation.

1 The appointment of a former lawyer from the Brazilian Rural Society (SRB), Ricardo Salles, as
2 Minister of Environment also strongly signaled the sector's environmental deregulation and mild
3 inspection of the sector. In various occasions, the Minister has questioned the effectiveness of
4 law enforcement actions and threatened to reduce the autonomy of field inspectors. The current
5 administration also proposed to decommission protected areas, threatened to punish IBAMA
6 personnel in charge of environmental sanctions (Brandford 2019, Watts 2019a). In the meantime,
7 both Salles, Bolsonaro and other senior officials have challenged the veracity of deforestation
8 and fire occurrence reports from the Brazilian Institute of Space Research. They also accused,
9 without presenting evidence, NGOs for setting fires in the Amazon forest (Watts 2019b,
10 Maisonnave 2019).

11 Politicians from the rural caucus were not alone in overtly supporting a pro-deforestation
12 discourse in recent years. Salles' initial appointment for the Ministry of Environment was
13 supported by the SBR and the Federation of Industries of the State of São Paulo (FIESP).
14 Following the release of a video of a presidential meeting in which Salles suggested to take
15 advantage of the civil struggle with the COVID-19 pandemic to "pass the herd", hinting at the
16 approval of an array of bills to reduce bureaucratic processes of environmental legislation (Vale
17 et al., 2021). The changes introduced by Salles following this statement included the reduction of
18 environmental protection of wetlands and the further reduction of the civil society participation
19 in the policy fora. In response to the outrage of the civil society and rebuke by many scientists,
20 NGOs members, and politicians, Brazil's main business associations, including FIESP, acquired
21 a full page of Estado de São Paulo, the country's main newspaper, to advertise Salles'
22 administration. Other business associations were even more explicit by recommending further
23 changes to relax national environmental requirements. For instance, APROSOJA (Mato Grosso
24 Soybean Producers Association) is demanding the end of the soy moratorium in the Amazon
25 under the pretext of free trade principles (Samora 2019), while UNICA (the Brazilian Sugarcane
26 Industry Association) has changed drastically its position in relation to the ban on growing
27 sugarcane in the Amazon. Back in 2018, when a senator proposed to lift the ban, UNICA
28 strongly defended the restrictions based on the fact that 98% of its sugarcane crops are grown
29 outside of the Amazon and the importance of reducing the risk of deforestation linked to ethanol
30 and sugar production since Brazil's is pressing the EU to raise its export quota. However, under a

1 new president, UNICA changed position and successfully helped terminate the ban (Follador
2 2019, Girardi 2019).

3 Counter-movements have not been silent in this context. Some agribusiness associations, NGOs
4 and researchers from the Brazilian Coalition on Climate, Forests and Agriculture
5 (coalizaobr.com.br) have played an important role in contesting most of the pro-deforestation
6 narratives. In the end of 2019, the Coalition carried out the campaign “Be Legal with the
7 Amazon” in favor of promoting legal and sustainable agricultural practices in the Amazon,
8 stopping land grabbing and against the further weakening of the Forest Code. As a reaction to the
9 campaign, SRB, UNICA, and Abiove (Brazilian Association of Vegetable Oil Industries) left the
10 Coalition. As of March 2020, ABAG (Brazilian Agribusiness Association), IBA (Brazilian Tree
11 Industry Association) and ABIEC (Brazilian Beef Exporters Association) were the only major
12 associations still participating in the Coalition, indicating the limited ability of the more
13 sustainability-oriented part of the agribusiness sector be vocal against the growing pro-
14 deforestation political discourse.

15 *4.3. Lost opportunities due to deforestation*

16 The pro-deforestation discourse and actions carried out by Bolsonaro’s government, endorsed by
17 the rural lobbies and some agribusiness associations undermines opportunities towards a
18 sustainable development agenda. All of this not only tarnishes the image of the country, it also
19 affects its business. It already dried up the stream of finance from Norway and Germany to the
20 Amazon Fund, both due to disappointing deforestation reduction ‘results’ (van der Hoff, Rajão &
21 Leroy, 2018) and as a casualty of the ‘dismantling’ environmental institutions. International
22 investment funds concerned about the direct or indirect support to activities that further degrade
23 our planet have already warned Brazil about its detrimental policies threatening to divest in the
24 country. In addition, European countries have shown concerns about products linked to
25 deforestation that are reaching their internal markets. In this regard, the European Union is
26 developing mechanisms to bar soy and beef, the major Brazilian agricultural export commodities
27 (see section 16.2), that are tainted by deforestation as well as programs to phase out the
28 agricultural dependence on Brazil in the long run. Within this context, it may increase chances
29 that the European Union will not ratify the Mercosur trade agreement. China may soon follow

1 suit (Wachholz and Dutra, 2021). In not fulfilling its commitment to curb deforestation, Brazil
2 misses out on potential future opportunities, since its agricultural sector will suffer severe
3 consequences and new environmental markets (e.g. PES, green bonds, etc. regulated in Law
4 14.119/21) become less likely to materialize.

5 **5. CONCLUSIONS AND RECOMMENDATIONS**

6 Dominant elites in South America have perceived the Amazon predominantly as an empty space
7 with almost unlimited raw materials to be exploited, ignoring indigenous peoples, climate and
8 environmental services of the rainforest, and fragility of natural ecosystems. Before the 1970s,
9 several extractive waves affected the Amazon, in search for rubber, gold, minerals, quinine and
10 other commodities, leaving behind deep disruptions. However, the extractive expansion during
11 the last five decades has been unprecedented by its magnitude, widespread diffusion, and adverse
12 social and environmental effects.

13 During the mid-1970s Latin America began a shift from an inward-oriented and state-led model
14 of import substituting industrialization, towards an internationally open and market-friendly
15 development strategy of export promotion, following neo-liberal principles. This change was
16 part of the emergence of a new global model of a world economy, based on a paradigm of
17 flexible accumulation (Harvey 1989). Latin America became progressively integrated into the
18 international economy mostly as a commodity provider, in a new multipolar world with the
19 increasing relevance of China. As a result, the Amazon experienced the accelerated expansion of
20 extractive sectors and agri-business, mostly soybean cultivation, cattle ranching, iron and other
21 metal mining, oil and gas, coupled with the building of large infrastructure and energy projects.
22 Between 1990 and 2011, Brazilian soybean, iron ore and beef exports increased more than 18
23 times, with a cumulative annual growth rate of 15% (CEPAL 2020). Oil and gas expansion were
24 particularly relevant in Colombia, Ecuador, and Peru. Illegal drugs played a significant role in
25 Colombia and Peru, often coupled with violence and land grabbing. Domestic markets also
26 contributed to expanding demand, particularly in the case of beef. China is not only as the main
27 commodity importer from the Amazon region, but also as a credit provider and a direct investor
28 in extractive and infrastructure projects. Different transnational corporations in agrobusiness,

1 mining and oil are participating, often in alliance with national public and private companies, in
2 the extractive expansion.

3 The process took different forms according to the distribution of natural endowments and
4 mineral reserves, national policies, foreign investment, and social conflicts. Shifting commodity
5 prices had defined periods of accelerated expansion, stabilization or even decline in extractive
6 activities.

7 The current prominence of agricultural commodity interests fails to see broader opportunities for
8 economic development, as embodied in green finance, sustainability trends in the financial
9 sector, international trade requirements and the geopolitics related to it. It also fails to perceive
10 standing forests as the bedrock for developing even the conventional commodities of soy and
11 beef (others too), since these depend on steady rainfall patterns and pollination services. They
12 also need to satisfy an increasingly conscious market in terms of sustainability (SPA Section III).

13 Conservation policies, promoted by indigenous peoples, conservationist institutions and other
14 actors, also became globalized, receiving significant support from international institutions and
15 even governments in developed societies. They have achieved significant results, such as the
16 expansion of protected areas and indigenous territories, which currently cover 47% of the
17 Amazon Basin (Chapter 16), and the 84% reduction in deforestation rates in Brazil during the
18 2005-2012 period. The expansion of protected areas and indigenous territories has been a rather
19 continuous trend in almost all Amazon countries since the 1960s, intensified during the last two
20 decades.

21 In contrast, the successful -albeit currently reversed- conservation policy in 2005-2012 Brazil is
22 the most important national departure from state policies that generally promote, and somehow
23 regulate, the extractive-developmental strategy in the region (section 16.3). The success is the
24 result of a high political priority given to conservation at the national level, with participation of
25 national government, local authorities, the civil society, and strategic international cooperation.
26 Its current significance arises from the future potential replicability of the experience as a pan-
27 Amazonian level or trough coordinated national strategies.

1 Brazil achieved important outcomes in curbing deforestation and expanding protected areas and
2 indigenous lands. However, results in sustainable economic diversification and improving living
3 conditions within the limits of ecosystem preservation were less impressive and are still limited
4 in the whole Amazon region. The achievement of a sustainable Amazon implies substituting the
5 limited commodity-dependent economy by economic diversification, increasing productive
6 linkages, expanding services based on biodiversity, and improving the living conditions of
7 Amazon peoples, as section 3 of this report analyzes.

8 Nevertheless, the conservation paradigm has not been strong enough to control or detain the
9 main adverse environmental and social impacts of the extractive developmentalist model. As a
10 result, extractivism still remains the leading paradigm guiding public policies and private
11 investment. The Brazilian case highlights the complex politics linked to the ‘epochal processes’
12 of hegemonic and counter-hegemonic movements. On the one hand, the challenges posed by
13 environmentalism to the extractive developmentalist hegemony provoked strong reactions in the
14 latter’s advocates, reversing many of the advances made in the 2000s (section 16.4). On the other
15 hand, the subjugation of environmental policies by these hegemonic processes jeopardizes its
16 resilience to changes in the natural environment (e.g. Lovejoy & Nobre, 2017) or broader
17 geopolitical and economic preferences (section 16.4). A middle ground needs to be found.

18 Despite important achievements of conservation, policies and private strategies in the Amazon
19 remain linked to a dominant extractive paradigm. Although the region was deeply transformed
20 by a sustained expansion of commodity production both for international markets and domestic
21 demand, and a rapid process of migration and urbanization reshaped the region demographic
22 profile, the transformation failed to bring about sustained and equitable improvement in living
23 conditions, rather social exclusion, poverty, and lack of political participation of indigenous
24 peoples and other marginalized sectors prevail. Moreover, deforestation, rainforest degradation
25 and biodiversity loss are close to a tipping point, where a self-sustained process of savannization
26 may be unleashed, jeopardizing not only rainforest integrity, but also critical climate services to
27 South America and the world (Lovejoy & Nobre, 2017) .The lack of social distribution and
28 sustainability are critical failures of the current extractive development strategy in the Amazon,
29 which leads the region to an unequal development process, as rents and profits are frequently
30 appropriated and reinvested elsewhere, and labor remuneration remains at subsistence levels.

1 The current development model of the Amazon not only failed to generate a sustainable,
2 participatory, and equitable improving in human capabilities, but also lacks solid theoretical
3 basis. There is strong criticism on the lack of applicability of neoclassical economic theory to
4 current development problems. Conventional economic theory does not have an adequate
5 framework to explain neither the interaction of the economic system with the environment, nor
6 market distortions generated by monopolies and transnational corporations (Lefebvre 1991,
7 Stiglitz 1998,2002, 2013, Stiglitz, Sen y Fitoussi 2008).

8 A new sustainable and equitable development strategy is necessary for the Amazon, to maintain
9 the provision of environmental benefits from rainforests, the integrity of indigenous cultures, and
10 at the same time, improving living conditions for most of the population, while keeping cultural
11 diversity, and achieving decent employment generation, eliminating poverty and reducing social
12 inequality.

13 The building of new paradigmatic strategies may also need a departure from conventional
14 economic thinking, towards more comprehensive and integrated approaches, such as the
15 emerging framework of ecological economics (Brown and Timmerman 2015, Common and
16 Stagl 2005, Martínez Alier and Roca 2000, Daly 2010).

17 **6. KEY MESSAGES AND RECOMMENDATIONS**

18 1: Globalization and widespread changes in consumption have drastically altered the type and scale of
19 human intervention of in the Amazon, generating social and environmental impacts of unprecedented
20 magnitude and gravity. Together with countries from the Global North, China is an increasingly dominant
21 actor in the process. Environmental and social sustainability must be embedded and mainstreamed into
22 global and local political decision making and business incentives. Non-amazon countries, particularly
23 developed countries and China are important actors in the response to degradation and must be part of the
24 solution.

25 2: The example of Brazil demonstrates that deforestation control implemented as strategic state policy,
26 with the commitment and involvement of multiple government areas, not exclusively restricted to
27 environmental authorities, can succeed in reducing deforestation.

1 Brazil’s experience can be replicated in other Amazon countries, adapted to local conditions and realities.
2 Country by country strategies may be complemented by trans Amazonian coordinated policies, within the
3 framework of the Leticia Pact.

4 3: Deforestation reduction and forest conservation policies are vulnerable to changing governments and
5 political priorities.

6 Institutional agreements transcending changing political cycles must be implemented to ensure continuity
7 of policies for forest conservation, as the international climate change strategy suggests.

8 4: Initiatives to reverse deforestation must involve participation of all stakeholders (different levels of
9 government, multiple sectors of the economy, civil society actors, indigenous peoples, international
10 cooperation).

11 The participation of indigenous peoples and local communities is essential for sustainable forest
12 management, and must include a socio environmental perspective where sustainable, healthy livelihoods
13 and conservation are coupled.

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1

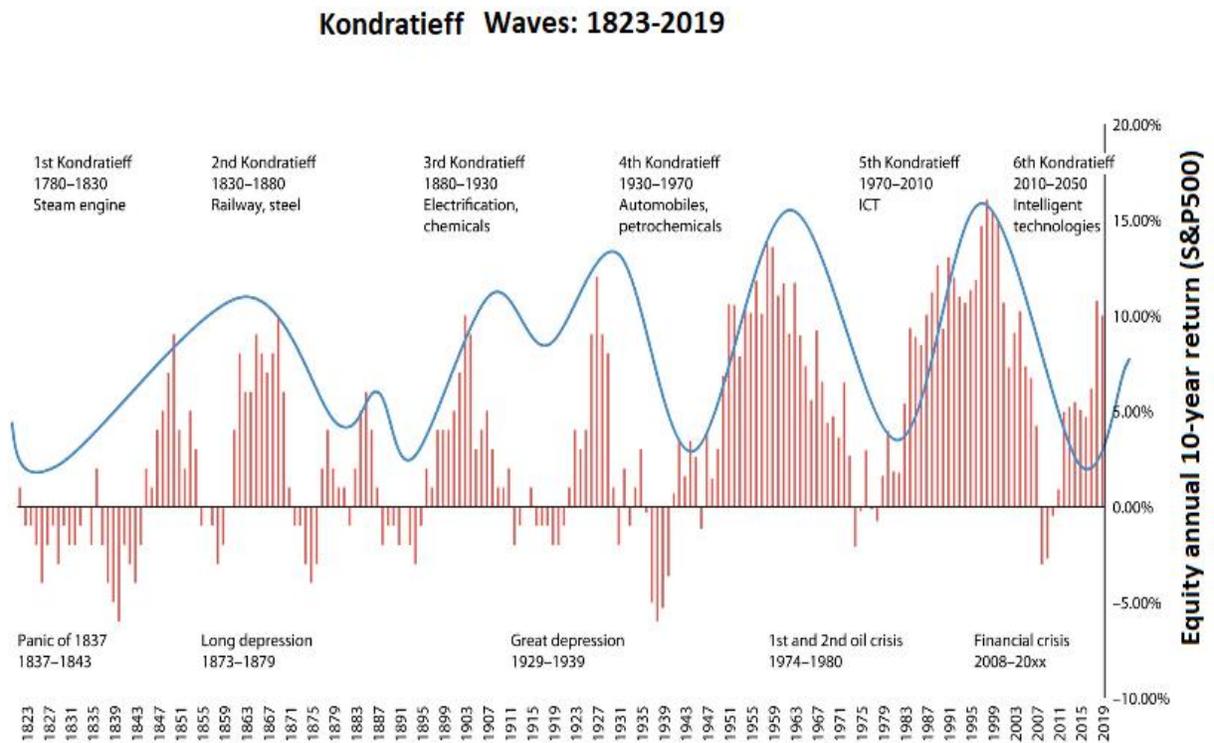
SPA Chapter 16

2

APPENDIX

3 Chart 1

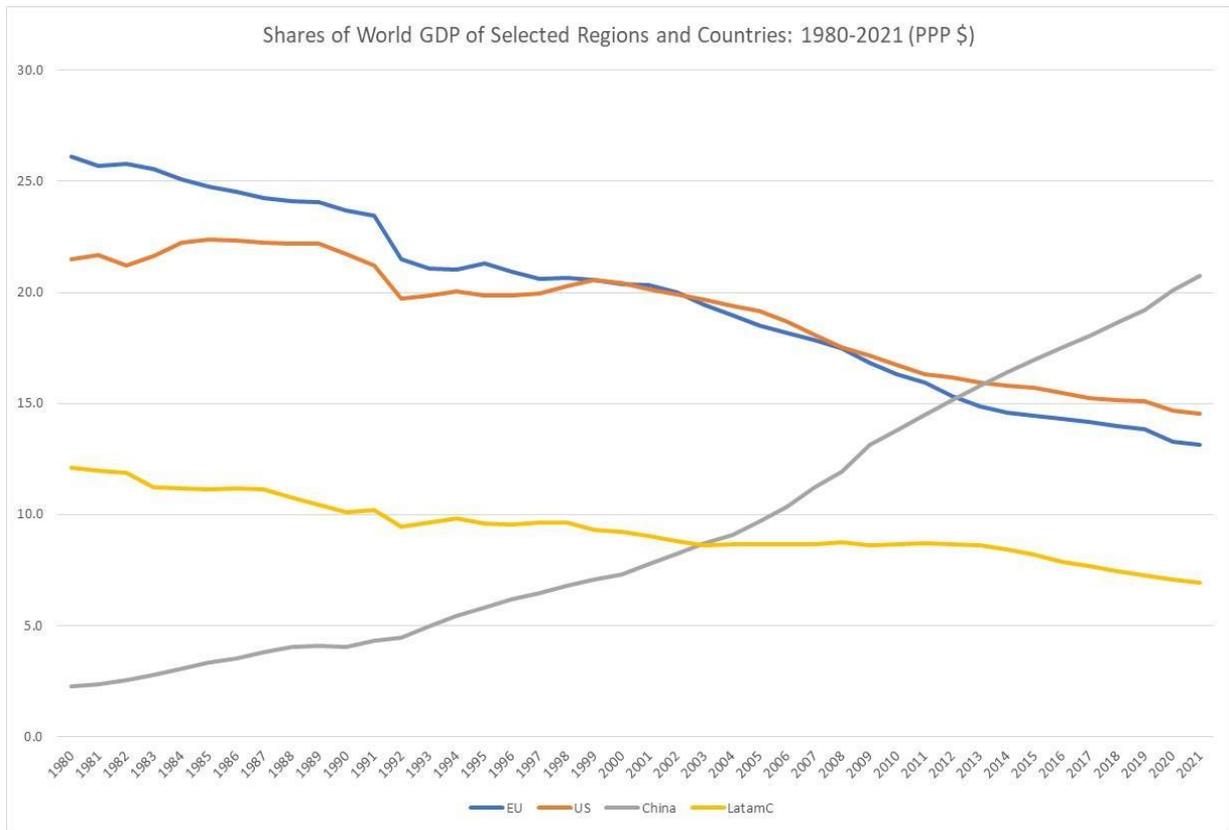
4 World Economy Kondratieff Waves (1823-2019)



5 Source: Sachs, Jeffery, 2020. *The Ages of Globalization*. New York: Columbia University Press.

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1 Chart 2



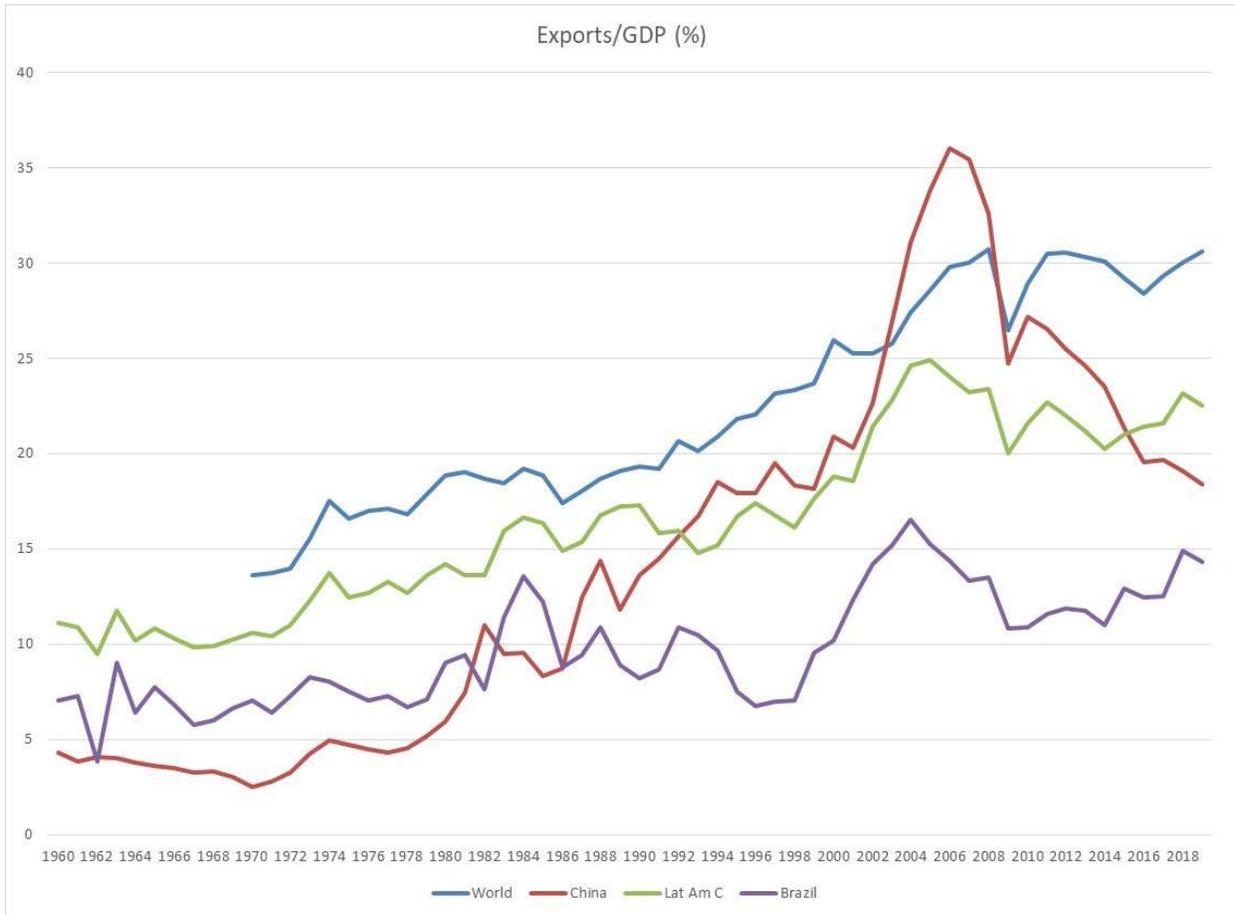
2 Global GDP Shares of Selected Regions and Countries: 1980-2021

3 Source: IMF 2020. World Economic Output, April 2020.

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5

1 Chart 3



2 Exports/GDP of selected countries and regions

3 Source: World Bank. World Development Indicators, 2020.

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5

1 Table 1
 2 Export structure in several Amazon countries: 2019

Country	Main products			Main Partners	
	Order	Name	Share (% total)	Name	Share
Brazil	First	Soybeans *	11.4	China	27.6
	Second	Crude oil	10.6	US	13.2
	Third	Iron ore *	10.0	Argentina	4.3
Colombia	First	Crude oil *	32.2	US	30.7
	Second	Coal	15.9	China	11.3
	Third	Coffee	5.9	Panama	5.8
Ecuador	First	Crude oil *	34.3	US	29.5
	Second	Bananas	15.0	China	12.5
	Third	Crustaceans	17.0	Chile	6.6
Suriname	First	Gold *	78.4	Switzerland	38.5

3
 4 (*) Products from the Amazon.

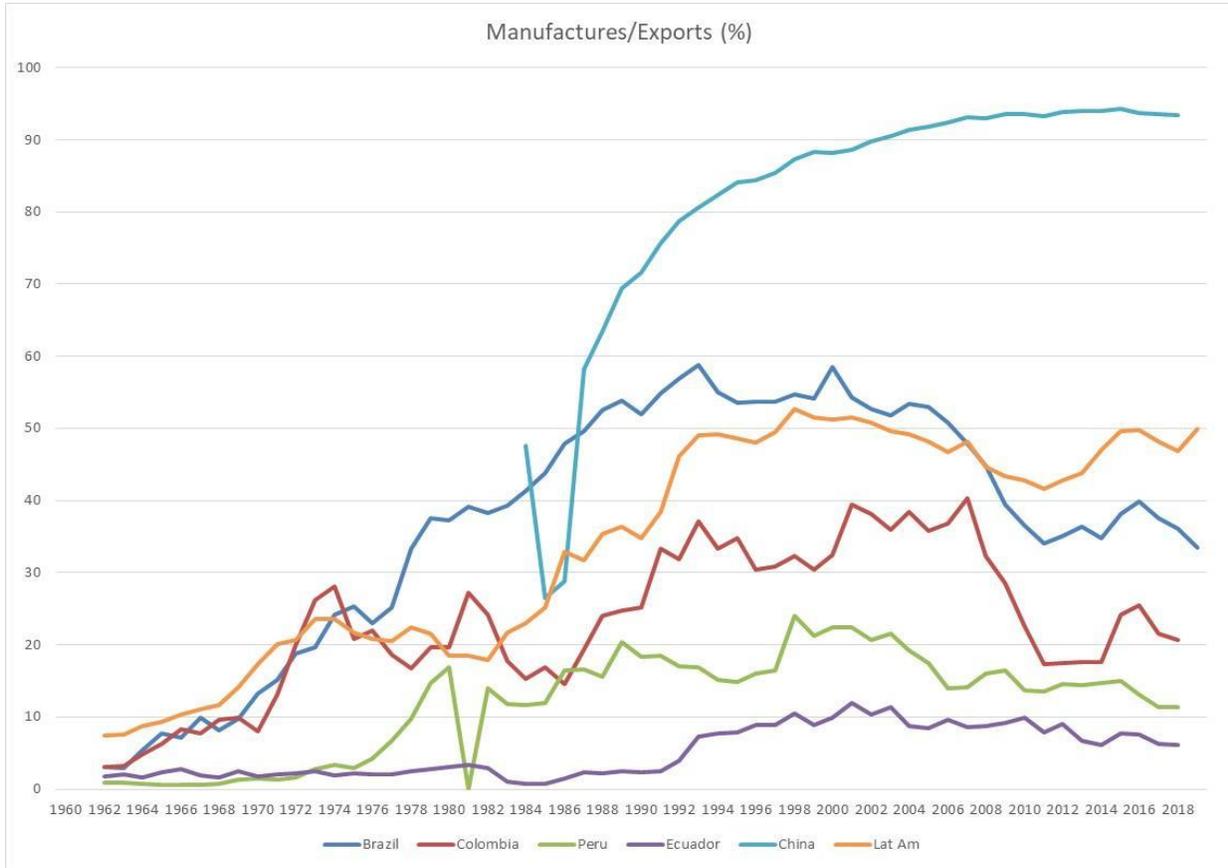
5 Source: The Observatory of Economic Complexity (OEC) 2020. <https://oec.world/>.

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1 Chart 6

2 Manufacture Share in Exports (%)

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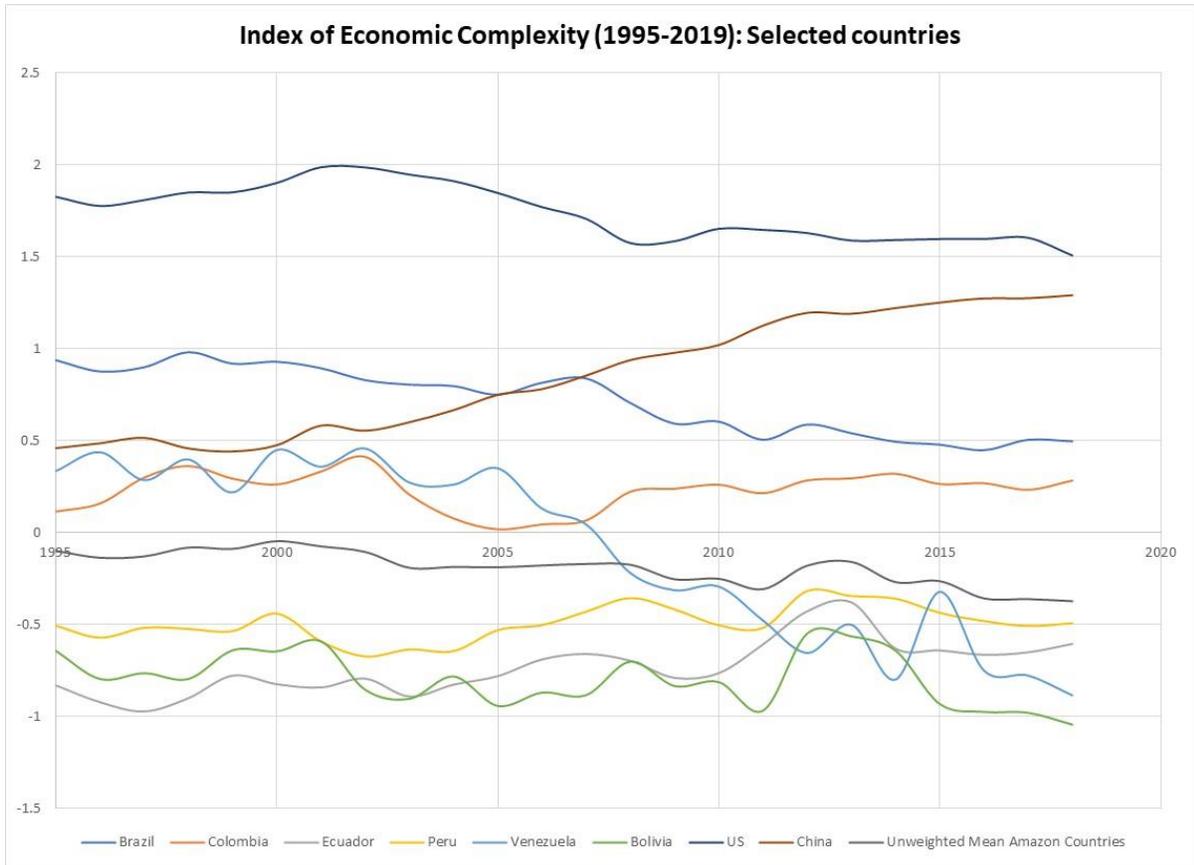


4 Source: World Bank, World Development Indicators, 2020.

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6

1 Chart 7



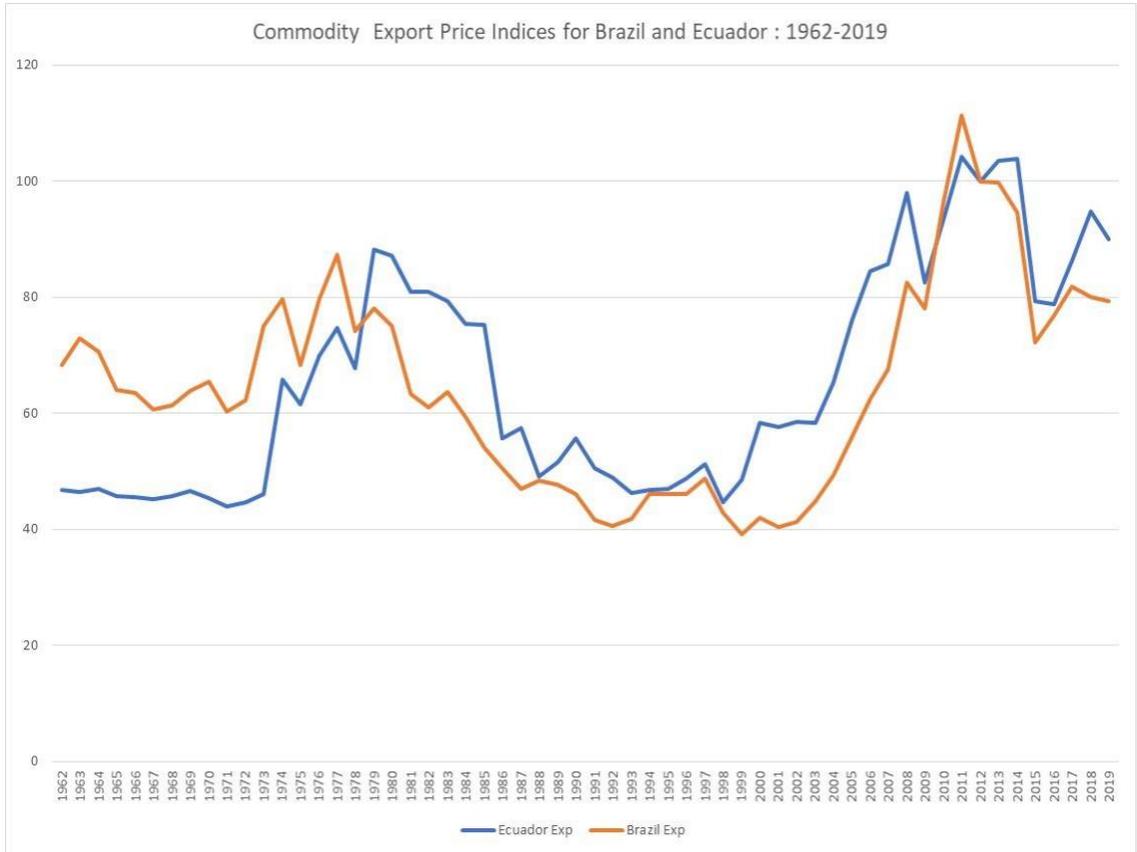
2 Index of Economic Complexity of Selected Countries: 1995-2019

3 Source: OED 2021. <https://oec.world/> .

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1 Chart 8

2 Commodity export price indices of Ecuador and Brazil: 1962-2019



3

4 Source: IMF 2000. IMF Primary Commodity Prices.