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Aos povos nativos da minha terra,
que lutam pela floresta,
e pelo direito de existir.

Statutory Declaration

I declare that I have authored this thesis independently, that I have not used other than the declared sources / resources, and that I have explicitly marked all material which has been quoted either literally or by content from the used sources.

Vienna, 20 of July 2019.

A handwritten signature in black ink, reading "Rhavena Tertu". The signature is written in a cursive, flowing style.

Rhavena Layssa Tertu Madeira

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I. List of Acronyms and Abbreviations

Art.	Article/ Articles
ECOSOC	Economic and Social Council of the United Nations
FAO	Food and Agriculture Organization
FC	Brazilian Federal Constitution of 1988
FUNAI	National Indian Foundation
GDP	Gross Domestic Product
IACHR	Inter American Court of Human Rights
ILO	International Labor Organization
INCRA	National Institute for the Coordination of the Agrarian Reform
INPE	National Institute of Spatial Research
MST	Movement of the Landless People
NGO	Non Governmental Organization
PNPCT	National Policy of Sustainable Development of the Traditional People and Communities
REDD	Reducing Emissions from Deforestation and Degradation
SNUC	National System of Nature Conservation Units
UN	United Nations

UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Program
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
UNEP	United Nations Environment Program

II. Glossary

Tropical forests

Tropical forests are forest landscapes in tropical regions, the largest one is the Amazon Rainforest.

Forests occurring near the equator, within the area bounded by latitudes 23.5° north and south. These forests are characterized by the greatest diversity of species and distinct precipitation seasonality. Temperature varies little throughout the year and averages 20–25°C. Precipitation is distributed throughout the year but with clear wet/dry seasonality and annual rainfall generally exceeds 2000 mm. Tropical forests are recognized by high carbon stocks in the above and below ground biomass¹.

Deforestation

According to the Food and Agriculture Organization of the United Nations, deforestation is defined as ‘permanent loss of forest cover below the minimum of 10% threshold’². In this paper, the term deforestation is employed to encompass the process of clear cutting the trees and converting the land to another use, for example, pasture or agriculture³. It is therefore, broadened to cover the process of removal of original vegetation within the Legal Amazon.

Land use change

Land use change is a broad and encompassing term to comprehend the anthropogenic action of converting and transforming land to its subsistence purposes⁵.

¹ Jean Pierre Ometto, Ana Paula Dutra Aguiar and Luiz Antonio Martinelli, ‘Amazon Deforestation in Brazil: Effects, Drivers and Challenges’ (2011) 2 Carbon Management 575, 576.

² fao.org, ‘SOFO 2018 - The State of the World’s Forests 2018’ (www.fao.org) <<http://www.fao.org/state-of-forests/en/>> accessed 6 June 2019.

³ Ometto, Aguiar and Martinelli (n 1).

⁵ A Shvidenko, ‘Deforestation’ in Sven Erik Jørgensen and Brian D Fath (eds), *Encyclopedia of Ecology* (Academic Press 2008) <<http://www.sciencedirect.com/science/article/pii/B9780080454054005863>> accessed 23 May 2019.

General term for the human modification of Earth's terrestrial surface. The history of humankind describes a path of land modification to obtain food and other essentials. However, the extents and intensities of land use changes in the past hundred years are far greater than ever in history, driving unprecedented changes in ecosystems and environmental processes at local, regional and global scales. These changes encompass the greatest environmental concerns of human populations today, including climate change, biodiversity loss and the pollution of water, soils and air, which are associated to this process⁶.

Carbon emission

Given the link between deforestation and climate change, the release or transferal of carbon dioxide to the atmosphere becomes relevant to understand the consequences of the issue.

Carbon emissions generally refer to:

The transferring of carbon from the biosphere to the atmosphere, naturally through the carbon cycle and through human activities, such as the burning of fossil fuels and biomass. Processes normally associated to emissions of CO₂ and CH₄⁷.

Amazon Biome

The Amazonian Ecological Domain or Amazonian Bio-geographical Domain is the set of forest ecosystems existing in the Amazon Basin⁸.

From the geographical region located in South America, largely covered by tropical rainforest. The Amazon Basin, the largest in the world, defines the limits of the region. Although most of the basin is located in Brazil, this area encompasses more than 7 million square kilometers, belonging to nine nations⁹.

⁶ Ometto, Aguiar and Martinelli (n 1).

⁷ *ibid.*

⁸ Daniel P Cerejeiras, 'Atlas de Pressões e Ameaças às Terras Indígenas na Amazônia Brasileira' [2010] Confins. Revue franco-brésilienne de géographie / Revista franco-brasileira de geografia 6 <<http://journals.openedition.org/confins/6539>> accessed 20 June 2019 (Translated by this Author).

⁹ Ometto, Aguiar and Martinelli (n 1).

The nine countries in which is distributed are Bolivia, Brazil, Colombia, Ecuador, Guyana, French Guiana, Peru, Suriname and Venezuela. In Brazil, including transitional areas and stretches of other plant formations, the Amazon Biome has 4.2 million square kilometers¹⁰.

Legal Amazon

Legal Amazon is the official name given to the region by the Brazilian government. It corresponds to two thirds of the country¹¹.

a region legally defined for purposes of regional planning and public policy with a total area of 510 million ha (an area that is sufficiently large to accommodate all of western Europe), encompassing all of the northern region and parts of the centre-west and northeastern regions. It includes a total of seven states (Acré, Amapá, Amazonas, Pará, Rondônia, Roraima and Tocantins) and parts of two other states (Maranhão and a very small part of Goiás State)¹².

¹⁰ Cerejeiras (n 8).

¹¹ *ibid.*

¹² Antonio Carlos do Prado, Francisco José de Barros Cavalcanti and Paulo José Prudente de Fontes, 'Computerized Data Gathering and Networking as a Control and Monitoring System for the Improvement of and Reporting on Forest Management in the Amazon: The Case of Brazil' (Forest Resources Development Service, Forest Resources Division, FAO 2005) Forest Management Working Papers Working Paper 27 <<http://www.fao.org/3/j5416e/j5416e05.htm#TopOfPage>> accessed 6 July 2019.

1.Introduction

O agro é pop.

Agri-Business aphorism in Brazil

Every year, globally, approximately ‘13 million hectares of forest are converted for other land use or devastated by natural causes’¹³. The impact of of this destruction is tremendous: large scale CO2 emissions released by the felled trees, a loss of biodiversity, soil erosion, and a wide array of associated human rights violations. In Brazil, an array of reinforcing factors - spanning from recent political events, weak environmental enforcement as well as land tenure conflicts - come together to explain why, after a decade of decrease, deforestation rates are again rising. The timing could not be worst, as the world faces it ‘biggest global health threat of the twenty-first century’¹⁴: the climate crisis .

This research analyzes the deforestation of the Brazilian Amazon rainforest through a human rights lens. Accordingly, it turns an eye to vulnerable groups,¹⁵ those on the frontline of the of deforestation: the indigenous people who live in the Amazon basin¹⁶. This study explores the ways in which deforestation negatively impacts human rights in Brazil, especially the rights of indigenous people. Following this, this work engages with the most recent

¹³ FAO, ‘Global Forest Resources Assessment’ (UN Food and Agriculture Organization 2010) FAO Forestry Paper 163 <<http://www.fao.org/forestry/fra/fra2010/en/>> accessed 12 June 2019.

¹⁴ ‘Protecting Health from Climate Change: Connecting Science, Policy and People.’ (World Health Organization 2009) <https://apps.who.int/iris/bitstream/handle/10665/44246/9789241598880_eng.pdf> accessed 12 June 2019.

¹⁵ There are several groups living and experiencing deforestation impact on the Amazon. These groups are classified into one sociological umbrella term: the ‘traditional people’. In this category are included the indigenous groups, together with other local groups, such as the ‘river people’ and rubber extractors. For further reading: Juliana Santilli, *Socioambientalismo e novos direitos - Proteção jurídica à diversidade biológica e cultural* (Editora Peirópolis LTDA 2005).

¹⁶ M. F. Porto., “Environmental Justice”, Vol. 5, Issue.2, 24 April, 2012, Available from <https://www.liebertpub.com/doi/pdf/10.1089/env.2011.0012>, (accessed on 22 January 2019).

environmental studies¹⁷ in Brazil which indicate that indigenous rights are precisely the key to save the forest.

Understanding how Amazonian deforestation impacts the human rights of indigenous people is important for two reasons. Firstly, these groups are facing, more than ever, a diminishing representation in rights and power, particularly in the age of Bolsonaro¹⁸. Secondly, as the vast majority of their lands are within the Amazon rainforest¹⁹, indigenous lands and resistance constitute a barrier to the advance of deforestation in the Amazon basin; their presence and sovereignty serves as a bulwark in resisting ecological devastation and preventing the expansion of the deforestation frontier. Their protection is a matter of cultural diversity while also urgent in terms of environmental protection and climate change action.

The state is positively established as the primary actor responsible for protecting the environment, both in international environmental and human rights law. With that in mind, this study departs from the state obligation to fulfil the right to a healthy environment, to protect and prevent harm, and, in case harm has taken place, to mitigate the negative effects as much as possible²⁰. In this context, the Brazilian government is placed in the spotlight,

¹⁷ José Maria Cardoso da Silva, Shivangi Prasad and José Alexandre Felizola Diniz-Filho, 'The Impact of Deforestation, Urbanization, Public Investments, and Agriculture on Human Welfare in the Brazilian Amazonia' (2017) 65 Land Use Policy 135.

¹⁸ The new elected Brazilian president Bolsonaro has publically stated "not even an inch more will be given to the indigenous" during his campaign. For further reading: E. Londoño, 'Jair Bolsonaro, on Day 1, Undermines Indigenous Brazilians' Rights' *The New York Times*, 3 January 2019, available from: <https://www.nytimes.com/2019/01/02/world/americas/brazil-bolsonaro-president-indigenous-lands.html> (accessed 20 February 2019); 'Brazil Farm Lobby Wins as Bolsonaro Grabs Control over Indigenous...', *Reuters*, 2 January 2019, Available from: <https://af.reuters.com/article/worldNews/idAFKCN1OW0S8> (accessed 19 February 2019).

¹⁹ 'Indigenous Land Demarcation Sparks Divisions in Brazil | DW | 09.08.2017', *DW.COM*, Available from: <https://www.dw.com/en/indigenous-land-demarcation-sparks-divisions-in-brazil/a-40024186> (accessed 19 February 2019).

²⁰ Inter-American Court of Human rights, Advisory Opinion OC-23/17, 15 November 2017, para.3.

this work investigates how the state developmental agenda has and continues to undermine the social and environmental conditions for those living amidst deforestation.

But why is the Amazon so important?

The Amazon rainforest is the largest remaining tropical forest of the planet, covering 7% of the Earth's surface and almost half of South America²¹. It is also the most biodiverse biome on the planet, with almost 30% of all existing species²².

In Brazil, it is home to more than 30,000 species of plants, 1.8 thousand of continental fish, 1.3 thousand birds, 311 mammals and 163 amphibians. The reason for such formidable multiplicity of species and ecosystems is attributed to variations of past and current climate, and geological and geographical forms of occupation²³.

Sprawling over nine countries, 'it has vital importance for the regional climate and biodiversity'²⁴. Hence, the Amazon directly concerns all of South America, although Brazil²⁵ holds the largest fraction (approximately 70%).

²¹ Marcia C Castro and Burton H Singer, 'Malaria in the Brazilian Amazon' in Janine MH Selendy (ed), *Water and Sanitation-Related Diseases and the Environment* (John Wiley & Sons, Inc 2011) <<http://doi.wiley.com/10.1002/9781118148594.ch32>> accessed 5 June 2019.

²² João Meirelles Filho, *O livro de ouro da Amazônia: mitos e verdades sobre a região mais cobiçada do planeta*. -- (Ediouro 1900) 67 (Translated by this author).

²³ Cerejeiras (n 8).

²⁴ Yadvinder Malhi and others, 'Climate Change, Deforestation, and the Fate of the Amazon' (2008) 319 *Science* 169.

²⁵ Brazil has a territorial surface of 851 million ha, of which approximately 560 million ha are covered by native forests and other wooded vegetation. Of this total, more than two-thirds are formed by the Amazonian tropical rain forest and the rest by transition forests, cerrados, caatinga, Atlantic coast forest and its associated ecosystems. From a political-administrative point of view, the country is divided into five big geographical regions. The northern region, which has the largest surface, occupies an area of more than 358 million ha. Together with the centre-west region, both occupy 64 per cent of Brazilian territory. Notwithstanding this, the population of this enormous territorial space corresponds to only 15 per cent of the total population of the country. The high population concentration in Brazil occurs in the northeast and southeast regions, that together make up 29 per cent of the national territory, and where nowadays 71 per cent of Brazilians live. In: do Prado, Cavalcanti and de Fontes (n 6).

Several names hang over the Amazon region. In the 1970s, during the military's attempts to penetrate and occupy the region, government officials referred to it as "green hell". Later, as environmental protection grew in international concern, the world began to call it "the world's lungs", or the "biggest tropical forest of the world" with "the longest river". But long before all of these monikers, the indigenous people of the forest who had lived there for centuries, called it "mother".

Perhaps this way of relating to the land would explain why, worldwide, 'much of the remaining tropical forest is also indigenous territory'²⁷. In the indigenous culture, the forest is not seen as a resource, a separate entity from which one can take things. Indigenous people 'do not see themselves as outside the realm of nature, but as part of nature'²⁸. The Yanomani people (an indigenous tribe of the Amazon) see the forest as "our mother": *nossa mãe*. In a speech for a conference in 2013²⁹, the Yanomani leader, Davi Kopenawa, explained how his people are worried with the devastation of the Amazon, and urged "the white people" to stop destroying the mother land.

Indeed, it seems that in Brazil the perception of what the forest means, and its importance, changes according to the sector one looks at. For corporations and the agro-elite, the forest is business. For indigenous communities, it is a source of life.

On that note, this study aims to :

²⁷ William J Sutherland, 'Parallel Extinction Risk and Global Distribution of Languages and Species' (2003) 423 *Nature* 276.

²⁸ Vereinte Nationen and Permanent Forum on Indigenous Issues (eds), *State of the World's Indigenous Peoples* (United Nations 2009) 52.

²⁹ Ana Maria Rabelo Gomes and Davi Kopenawa, 'O Cosmo segundo os Yanomami' (2015) 22 *Revista da Universidade Federal de Minas Gerais* 22 <<https://periodicos.ufmg.br/index.php/revistadaufmg/article/view/2743>> accessed 14 July 2019 (Translated by this author).

- a) Demonstrate the illogical cost-benefit thinking behind deforestation: of targeting exclusionary short-term gains by provoking long-term damage; and how trading the forest for commodities produced in an unsustainable way is *not* development (at least not from a sustainable and collective point of view); Reinforce how the Brazilian predatory model of forest governance violates its international commitments;
- b) Examine the social impact of deforestation in Brazil: studying the Amazon illustrates how destroying forests brings immediate damage to local people, and long term damage to the biosphere;
- c) Show how indigenous lands are important barriers to deforestation: understand how deforestation can be halted by enforcing the protection of the indigenous lands of the Amazon Basin, where the exploitation of natural resources is illegal.
- d) Shine a light on the perception that the destruction of the Amazon rainforest is not a Brazilian problem, but a global problem.

Following the aforementioned aims and objectives, firstly, a brief analysis on international environmental law and the intersection with human rights law will be provided. This will draw upon the main legal concepts and state obligations deriving from ‘greening human rights’³⁰.

Secondly, this work will analyze the process of deforestation, its direct and indirect causes, with a focus on the factors underlying the destruction of the Brazilian Amazon. Once again, bearing in mind that the Amazon deforestation is not a Brazilian problem, but a regional and ultimately global problem, this chapter also includes a global perspective of the phenomena. The direct and underlying factors of deforestation, including of the Amazon, are both

³⁰ Greening Human Rights essentially means ‘examining and highlighting the relationship of existing human rights to the environment’. In: John H Knox, ‘Report of the Independent Expert on the Issue of Human Rights Obligations Relating to the Enjoyment of a Safe, Clean, Healthy and Sustainable Environment: Mission to Costa Rica’ (Social Science Research Network 2014) SSRN Scholarly Paper ID 2510948 <<https://papers.ssrn.com/abstract=2510948>> accessed 25 July 2019.

embedded within and beyond national and regional borders. Many major contributors to deforestation are connected to the international trade of forest products, such as the global demand for tropical hardwood.

It is also essential to comprehend how deforestation is inextricably linked to development³¹, as overwhelmingly the loci of the problem are located in developing tropical countries while deforestation is driven by international demand for forest products exports. In fact, this research sets out to contextualize the ways in which deforestation is a tropical problem with global consequences.

Still building on the link between deforestation and state responsibility, Chapter 4 will present an overview of the phases of Brazilian forest governance from the period of 1970 to 2010, and how the government has been trading the Amazon for pasture and cash-crops. Next, it will be applied an analysis on human rights violations associated with deforestation. In essence, the study makes an attempt to critically assess the social and environmental cost of Brazil's forest based economy. It is important to highlight that Brazilian Amazon deforestation is a complex historical process, which this research does not aim to exhaust, but rather contextualize and explore the human rights issues and possible violations associated.

It will then be presented how the predatory model of forest exploitation is affecting the indigenous people living in the Amazon, mainly by disruption of their culture and livelihood. For that, first it is clarified what being indigenous in Brazil means, their rights framework,

³¹ In this study, the term development is strictly used within the economical analysis of land use and forest capital the country's economy. See: Ewers, 2006. Interaction effects between economic development and forest cover determine deforestation rates. *Global Environmental Change* 16, 161–169; Culas, R.J., 2007. Deforestation and the environmental Kuznets curve: an institutional perspective. *Ecological Economics* 61 (2–3), 429–437; Rudel, T.K., Coomes, O.T., Moran, E., Achard, F., Angelsen, A., Xu, J., Lambin, E., 2005. Forest transitions: towards a global understanding of land use change. *Global Environmental Change Part A* 15 (1), 23–31.

on both domestic and international spheres. Additionally, it is also provided the main legal basis of indigenous land rights in force in Brazil. With that cleared, it is possible to contextualize all the pressures and threats surrounding the indigenous territories and their people, and understand how these groups have been surviving against the political, economical and social forces behind deforestation.

The last chapter will focus on ways forward. First, it is presented how deforestation is being stopped or controlled by the existence of indigenous lands, leading to the key idea of indigenous land rights enforcement as a priority action to the rain forest preservation. Secondly, bearing in mind deforestation is an ultimate process that starts with the underlying factors involving land use management, this study will briefly address the Elinor Ostrom's theory of Common Pool Resources within environmental governance. The theory is presented as a contribution to understand the post developments of the sustainable standards integrated in the Brazilian environmental legislation during the social-environmentalism, and to (hopefully) pave the way to solutions that can be applied in in the Amazon governance.

Methodology

The research method to conduct this thesis was of a qualitative nature, relying on secondary sources as well as the interrogation of primary documents. In order to draw the intersections between human rights and tropical deforestation in Brazil, an interdisciplinary and focus-oriented approach was employed. The interdisciplinary and goal-oriented focus was particularly important in navigating the multiple and distinct academic fields of study engaged in this study, chiefly: Forest Ecology and Conservation; Brazilian as well as International Law; Brazilian History; Anthropology; Sociology; and Political Science.

Forest and Ecological Research Approach

Regarding ecological and forest science research, the research attempts to understand and clarify relevant scientific concepts and principles required to understand what constitutes deforestation, how it is measured, as well as what the main drivers and consequences are. It is important to emphasize that this paper did not aim to accurately describe the phenomena of deforestation, but rather to apply a sociological reading to it. The sociological focus is applied in order to comprehend the relationships and interactions of the degradation of the Brazilian Amazon with the role and responsibility of the state, as well as private deforesting activities. Understanding the factors within this analysis were essential in order to analyze the social impact of deforestation in Brazil.

Legal Research

The legal literature review had the main goal of identifying the crossroads of International Environmental Law, Brazilian Environmental and Indigenous Law and Human Rights, while prioritizing the human rights approach to environmental issues and an analysis of indigenous rights in Brazil. The analysis of Brazilian Environmental and Indigenous law was conducted through exploratory research of the pertinent legislation, administrative policy papers and reports, as well as judicial court cases and documents.

Legal research and analysis was conducted on the following laws and regulations:

- a) Brazilian Federal Constitution of 1988
- b) The Demarcation process of Indigenous Lands Decree no.1775 of 1996
- c) Indigenous Statute, Law no.6.001 of 1973
- d) Forest Code, Law no. 4771 of 1965
- e) Conservation Units System, Law no.12.651/2012
- f) Public Forest Management Law Decree 5.975 of 2006
- g) Environmental Crimes, Law n.9.605 of 1998
- h) The International Labor Organization Convention no.169
- i) United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP)

Brazilian Environmental Governance History

Having established the main legal standards as well as the direct and underlying forces of deforestation, the case study of the Brazilian Amazon is presented through a chronological approach, with a historical analysis of the country's forest governance phases. With a sociological approach, the period of 1970 to 2010 of Brazilian history was presented to highlight the main policies and legislative developments regarding forest governance, as well as the growth of the social-environmental and indigenous rights movements.

Greening Human Rights

By applying a greening human rights approach to the analysis of environmental governance in Brazil, the research examined and highlighted the relationship of Human Rights to the environment. Hence, within the analysis of the social impact of deforestation, this study identifies human rights issues in Brazilian Amazon degradation. For this, it once again applied a literature review, as well as an examination of journal articles, media pieces, official governmental documents, as well as local and international NGO reports.

2. The Environment and Humans: Conceiving State Obligations from the Relationship Between Human Rights and Environmental Protection

States have sovereignty over their natural resources. This a primary and fundamental rule of international environmental law, applicable to all members³² of the international community. Conversely, states must not damage the environment. The second principle aims to limit the state's power to exploit their own natural resources. In essence, states must abide by international standards designed to prevent harm that permeates beyond a state's jurisdiction, or harm that compromises existing and future generations³³.

The do-no harm rule is often indicated by extensive doctrine³⁴ as the cornerstone of international environmental law. It is enshrined in both Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration. These are alongside other relevant principles that have a broad, if not universal, endorsement from all states³⁵ such as:

- the principle of sustainable development;
- the principle of preventive action;
- the precautionary principle;
- the principle of co-operation;

³² It is important to note that regarding the discussion of statehood of indigenous people, in Brazil they are considered an ethnic group part of the Brazilian nation. Or, in the words of Minister Ayres Britto in a recent demarcation case of the Supreme Constitutional Court: "'Nenhuma das comunidades indígenas brasileiras detém estatuto normativo para comparecer perante a Ordem Jurídica Internacional como Nação, 'País', 'Pátria', 'território nacional', ou 'povo' independente. Sendo de fácil percepção que todas as vezes que a Constituição de 1988 tratou de 'nacionalidade' e dos demais vocábulos aspeados foi para se referir ao Brasil por inteiro. Sem divisão ou separatismos.'" 'None of the Brazilian indigenous communities hold normative capacity to appear before the International Legal Order as a "Nation", "Country", "Pátria", "national territory", or independent "People". Is therefore, easy to understand that whenever the Constitution of 1988 used the term "nationality" and the other previously mentioned terms, it did so with the intent of referring to Brazil as a whole. Without division or separatisms' *Ação Popular Demarcação da Terra Indígena Raposa do Sol* [2009] Supremo Tribunal Federal - Tribunal Pleno Pet: 3388 280 (Translated by this author).

³³ Philippe Sands, *Principles of International Environmental Law* (3rd edn, Cambridge University Press 2012) 187.

³⁴ *ibid* 25.

³⁵ *ibid* 188.

- the principle of common but differentiated responsibility.

These principles shape the way that societies abiding by the rule of law and international standards relate to their environment as well as how the government manages and controls the exploitation of its natural resources. In fact, the human dimension has traditionally been the central concern for sustainability as envisaged in the United Nations Conference on Environment and Development process (from which the Rio declaration³⁶ was created).

Accordingly, Principle 1 of the United Nations Conference on Environment and Development's Rio Declaration states, 'human beings are at the center of concern for sustainable development' and that they 'are entitled to a healthy and productive life in harmony with nature'³⁷.

The concept of sustainable development was coined with the Brundtland Report of 1987, defined as 'development that meets the need[s] of the present without compromising the ability of future generations to meet their own needs'³⁸. It is key in addressing state responsibility towards forest degradation and deforestation. Studies have shown that countries facing high deforestation rates -all of which are tropical or subtropical countries, Brazil in particular- have development models that place neoliberal demands at the center of their environmental policies rather than ecological protection and conservation ³⁹. Market

³⁶ 'Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26'.

³⁷ *ibid.*

³⁸ Gro Harlem Brundtland, 'Report of the World Commission on Environment and Development: "Our Common Future."' (United Nations 1987).

³⁹ For further information on the causes of deforestation and the relationship with development *see* Arild Angelsen and David Kaimowitz, 'Rethinking the Causes of Deforestation: Lessons from Economic Models' (1999) 14 *The World Bank Research Observer* 73; Jean-Louis Arcand, Patrick Guillaumont and Sylviane Guillaumont Jeanneney, 'Deforestation and the Real Exchange Rate' (2008) 86 *Journal of Development Economics* 242; Madhusudan Bhattarai and Michael Hammig, 'Institutions and the Environmental Kuznets Curve for Deforestation: A Crosscountry Analysis for Latin America, Africa and Asia' (2001) 29 *World Development* 995; Peter Mann de Toledo and others, 'Development Paradigms Contributing to the Transformation of the Brazilian Amazon: Do People Matter?' (2017) 26–27 *Current Opinion in Environmental Sustainability* 77.

driven environmental governance in economies that heavily rely on forest capital provides cover for unsustainable practices by relegating the environment to industrial purpose⁴⁰.

In tropical forest regions, traditional development usually follows the frontier model, in which forests are replaced by other types of land better suited to the production of quick economic gains. Such a model does not embrace long-term concern about environmental sustainability⁴¹.

However, this principle, in a nutshell, ostensibly ensures that the economic exploitation of natural resources does not lead to irreparable environmental damage and to a permanent commitment to the resources themselves, especially as these resources can be exhausted⁴².

Sustainable development aims to preserve the environment, since – to say the obvious – it is a pre-condition for human existence. Again, although one could point to the self-evident nature of the aforementioned statement, environmental protection is not a mandatory guide for many contemporary state policies and developmental models. As it will be discussed in chapter 3, this scenario is far from ideal. This is clear in the unprecedentedly critical state of the earth's climate caused by anthropogenic action.

However, in 1992 the future seemed more optimistic, as international concern for environmentalism and sustainability was at its apex. At that time over 170 countries finally agreed that:

⁴⁰ Jaboury Ghazoul, 'Deforestation and Land Clearing' in Simon A Levin (ed), *Encyclopedia of Biodiversity (Second Edition)* (Academic Press 2013) <<http://www.sciencedirect.com/science/article/pii/B9780123847195002811>> accessed 21 May 2019.

⁴¹ Bertha K Becker, 'Geopolítica da Amazônia' (2005) 19 *Estudos Avançados* 71. Translated by this author.

⁴² Sands (n 33) 9.

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it⁴³.

Principle 4 of the Rio Declaration represents an international understanding on sustainable development insofar as it ‘requires the attachment of environmental conditionalities to all development lending by states and multilateral development banks, and the integration of environmental considerations into all economic and other development’⁴⁴. This Principle established that environmental concern is mandatory for any developmental projects and ought to be fulfilled by integrating appropriate protection and impact mitigating measures. The right to development had been established in its forbearer, Principle 3, while Principle 4 is its necessary corollary.

In 1972, with the signing of the Stockholm Declaration⁴⁵, states had already internationally recognized that environmental degradation affects the realization of human rights⁴⁶. The relationship between the environment and human rights was then formally established. Afterwards, equally important international conventions followed, both in environmental protection and human rights. In fact, very important human rights treaties specifically provided for the right to a healthy environment, which were bolstered by decisions from international courts including the European Court of Human Rights and the Inter American Court of Human Rights.

⁴³ ‘Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26’ (n 36).

⁴⁴ Sands (n 33) 43.

⁴⁵ *ibid* 30.

⁴⁶ Human Rights Council, A/HRC/RES/19/10, 19 April 2012, para. 25.

The relationship between environmental law and human rights also departs from the acceptance that the most wide-reaching human rights are directly susceptible to environmental harm.⁴⁷ This includes:

- the right to life;
- the right to the highest attainable standard of health;
- the right to an adequate standard of living including access to safe food and water; access to housing;
- and the right to property.

Accordingly, states hold primary responsibility in ensuring the right to a healthy environment, to protect and prevent harm, and, in cases where harm has taken place, to mitigate its effects as much as possible⁴⁸.

The rights that are especially related to the environment have been classified in two groups: (i) the rights whose enjoyment is particularly vulnerable to the degradation of the environment, also identified as substantive rights (for example, the rights to life, personal integrity, health or property), and (ii) the rights whose exercise contribute to better environmental policies, also identified as procedural rights (such as the rights to freedom of expression and association, to information, to participation in decision-making and to an effective remedy)⁴⁹.

Following this logic, recognizing states as both the primary international legal persons and, once again, the primary responsible for protecting the environment, the field of international legal environmental protection has traditionally been subject to inter-state relations. These relations mostly take the form of multilateral treaty-making overseen by the United Nations⁵⁰.

⁴⁷ D. Shelton, *'Human Rights, Environmental Rights, and the Right to Environment'*, 28 Stanford Journal of International Law 103, 1991, p. 56.

⁴⁸ Sands (n 33) 15.

⁴⁹ 'Inter-American Court of Human Rights, Advisory Opinion OC-23/17'.

⁵⁰ Sutherland (n 27).

This process has been the main source of guiding treaties and declarations regarding environmental conservation⁵¹.

This multilateral process also generated a growing number of international organizations and programs developed from these conventions, such as the United Nations Environment program (UNEP), the United Nations Development Program (UNDP), and the United Nations High-level Political Forum on Sustainable Development under the Economic and Social Council of the United Nations (ECOSOC)⁵². Additionally, the decisions of courts and tribunals as well as the writings of jurists also constitute subsidiary sources of international environmental law⁵³. In the human rights sphere, 'environmental concerns have also been increasingly addressed, especially in economic and social fields'⁵⁴. In fact, the monitoring committees of various human rights treaties as well as the Human Rights Council itself have environmental competencies within the United Nations system.

Remaining on the the nexus between human rights and international environmental protection, it is important to note that involvement in the international legal order of environmental concern is not restricted to states, as its membership is expanded to encompass non-state actors. This is also with regard to issues of negotiation, implementation and enforcement of international environmental agreements⁵⁵. Such participation was recognized in the Rio Declaration, as well as in Agenda 21⁵⁶ which summarized the agreements and commitments reached during the Rio process.

⁵¹ Sands (n 33).

⁵² *ibid* 63.

⁵³ *ibid* 95.

⁵⁴ *ibid* 49.

⁵⁵ *ibid* 12.

⁵⁶ 'Results of the World Conference on Environment and Development: Agenda 21.' (United Nations 1992) UNCED United Nations Conference on Environment and Development, Rio de Janeiro.

This is particularly important in the development of international environmental law, given the active role of stakeholders such as the scientific community, the corporate sector, and environmental non-governmental organizations provides unique characteristics to the decision-making of international Environmental Law. Indeed, the scientific community seems to play a key role in the development of International Environmental Law. The Human Rights Council Resolution 19/43, one of the most important documents regarding the relationship between human rights and the environment, was largely based on scientific inquiry⁵⁷.

In a summary, the field of International Environmental Law is substantially driven by scientific findings and considerations. (...) On the other hand, environmental NGOs bring the extremely important share of advocating for concerns often not pursued by states, and bringing domestically ignored problems to the attention of the international community. They're also fundamental in the implementation monitoring and enforcement, mainly through reporting the situation to the competent bodies⁵⁸.

Another cornerstone in the link between human rights and the environment is the human right to a healthy environment. Defined by the Inter American Court of Human rights as 'a right in itself', it is autonomous, encompassing both the individual and collective spheres. Furthermore it is provided in Article 11 of the San Salvador Protocol, of which Brazil is a signatory.

The human right to a healthy environment is a right with both individual and collective connotations. In its collective dimension it constitutes a universal value that is owed to both present and future generations; while, due to its individual dimension and its relationship to other rights, such as the right to health, life or personal integrity, its violation may have direct or indirect repercussions on the individual. Environmental degradation may cause irreparable damage to human beings.

⁵⁷ Sands (n 33) 57.

⁵⁸ *ibid* 58.

Therefore, a healthy environment is a fundamental right for the existence of humankind⁵⁹.

The intersection of the human rights and environmental field grows in substance and clarity as the international community faces the human dimensions of the climate emergency⁶⁰. The negative impact of environmental events is experienced differently in various communities, and so is the nature of the impacts of the crisis on their human rights. Although it is certain that groups that lack basic human rights are often the ones most affected by environmental disasters⁶¹. This is a tendency that will persist as the consequences of anthropogenic climate change indelibly shape our world⁶².

A human rights perspective highlights the unequal way in which people experience the impact of environmental problems, which has often translated into uneven domestic access to consultation and the legal protection of vulnerable groups. These inequalities are mutually reinforcing, as the effects of environmental problems caused by natural resource exploitation tend to be more severe when local communities' livelihoods rely on land and water resources and when these communities have cultural and religious connections to the local environment, as in the case of indigenous communities⁶³.

2.1 The Importance of a Human Rights Perspective in the Amazon

The Brazilian experience with forest governance in the Amazon offers many lessons regarding sustainable development, forest resources and people⁶⁴.

⁵⁹ 'Inter-American Court of Human Rights, Advisory Opinion OC-23/17' (n 49).

⁶⁰ Considerable part of the advocacy groups and scholars on the issue defend the term 'emergency' and 'crisis' are more befitting than 'change', given the responsiveness of general society is higher with these terms. *See*: Editorial, 'The Guardian View on the Climate Emergency: A Dangerous Paralysis | Editorial' *The Guardian* (10 July 2019) <<https://www.theguardian.com/commentisfree/2019/jul/10/the-guardian-view-on-the-climate-emergency-a-dangerous-paralysis>> accessed 12 July 2019.

⁶¹ David Archer and Stefan Rahmstorf, *The Climate Crisis: An Introductory Guide to Climate Change* (Cambridge University Press 2010).

⁶² Stephen Humphreys, *Human Rights and Climate Change* (Cambridge University Press 2009).

⁶³ Shelton (n 47).

⁶⁴ de Toledo and others (n 39).

Fundamentally, the people living on the frontline of Amazonian destruction are not powerful groups but have persisted amidst sustained oppression and dispossession. The indigenous people and river communities have been marginalized and threatened throughout the process of developing the Amazon, and continue to face innumerable threats and land pressure. The current environmental and human rights achievements regarding the enforcement of indigenous rights can be attributed to the *socio-environmental* movement beginning in the 1980s, with its biggest impact on policy-making between 1990 and 2010. This provided assistance to bring indigenous peoples' claims to governmental instances, international bodies and to civil society⁶⁵.

Which is precisely one of the most important aspects of the intertwining of human rights and environmental policy-making: the possibility of groups that are not currently sitting at the table reach out to international organizations.

The growing relationship between human rights and the environmental discourse at the international level has led to individuals having recourse to international human rights norms and procedures including, where available, the right to complain to international bodies⁶⁶.

In 2010 the indigenous communities living alongside the Xingu river, together with national and international NGOs, brought the Brazilian state to the Inter American Court of Human Rights⁶⁷ to respond to the human rights violations and environmental damage caused by the construction of the mega-dam Belo Monte in the Amazon. Not only did the dam displace at least 40.000 people⁶⁸ but it was carried out despite the Inter American Court of Human

⁶⁵ This important environmental mobilization will be further explained in chapter four.

⁶⁶ Sands (n 33) 90.

⁶⁷ Inter-Am. Comm'n H.R., PM 382/10, 'Application for Precautionary Measures, Indigenous Communities of the Xingu River Basin v. Brazil'.

⁶⁸ The Belo Monte had a tragic impact on all the communities living on the Xingu River, not only the indigenous people. The ribeirinhos ('river people'), who economically subsisted from the river were expelled from their

Rights confirming what environmentalists and civil society groups extensively denounced - a fundamental procedural violation of the rights of indigenous communities to participate in the licensing of the project⁶⁹.

The Belo Monte case stands alongside with many others top-agenda developmental projects in the Amazon that prioritized profit above socio-environmental concerns. Brazil is internationally recognized for its active participation in the international debate on environment and development, particularly since the UNCED held in Rio de Janeiro in 1992, but domestic realities and recent catastrophes⁷⁰ have shown the world a more accurate picture of the relationship between environmental degradation and fallout with socially ingrained injustice.

Environmental injustice cases in Brazil result mostly from a historical model of development which concentrates economic and political power and, simultaneously, produces social and territorial exclusion, rendering socially and discriminated groups more exposed and vulnerable to different environmental and hazardous risks. Ethnic discrimination and racism complete the frame of environmental injustice⁷¹.

The resistance of indigenous communities in Brazil exposes a contrast between the competing perspectives within Brazil about the Amazon rainforest - between how the forest is perceived by those living and subsisting from the forest, and those profiting from it. By doing so, the alliance between the environmentalists, human rights activists and indigenous

homes and now live amidst poverty and violence in urban areas. See: Eliane Brum, 'They Owned an Island, Now They Are Urban Poor: The Tragedy of Altamira' *The Guardian* (6 February 2018) <<https://www.theguardian.com/cities/2018/feb/06/urban-poor-tragedy-altamira-belo-monte-brazil>> accessed 14 July 2019.

⁶⁹ Vinodh Jaichand and Alexandre Andrade Sampaio, 'Dam and Be Damned: The Adverse Impacts of Belo Monte on Indigenous Peoples in Brazil' (2013) 35 *Human Rights Quarterly*; Baltimore 408.

⁷⁰ 'Brazil's Deadly Dam Disaster May Have Been Preventable' (*Environment*, 29 January 2019) <<https://www.nationalgeographic.com/environment/2019/01/brazil-brumadinho-mine-tailings-dam-disaster-could-have-been-avoided-say-environmentalists/>> accessed 19 February 2019.

⁷¹ Marcelo Firpo Porto, 'Movements and the Network of Environmental Justice in Brazil' (2012) 5 *Environmental Justice* 100.

groups contributed to elevating the Amazon to global concern while unveiling the problems within Brazilian forest governance and concomitant unsustainable practices. Indeed, ‘the Amazon region offers important lessons in enviro-political studies regarding the interplay between nature and humans in relation to environmental sustainability’⁷².

The Brazilian government’s plans for the amazon should be of world concern, but this is far more complex than it seems. International panels discussing climate stability and biodiversity are extremely concerned with the preservation of forests, which gives many developing states with extensive forests, such as Brazil and Indonesia, significant leverage in negotiations in this respect⁷³. Although the importance of the theme, common understandings between states have proved challenging.

At UNCED states were only able to agree on a non binding statement on forest principles, and a general commitment under agenda 21. Since then, forests have been addressed in inter governmental dialogue only in dedicated forums, as well as under other agreements such as the biodiversity convention; increasingly under the climate change discussions, mainly through the REDD+ initiative. Commodity-related issues are within the purview of the FAO Committee on forestry and the International Tropical Timber Agreement⁷⁴.

It is important to note that ‘attempts to ‘internationalise’ forest issues have thus far been largely unsuccessful in legal terms, and the tropical forest resources of developing countries are guarded as national patrimonies’⁷⁵. In fact, in Brazil it can be argued that a considerable part of the degradation that took place over the 1970s resulted from the Amazonia occupation process sponsored by the military dictatorship, which was extremely concerned with national sovereignty security issues.

⁷² de Toledo and others (n 39).

⁷³ Sands (n 33).

⁷⁴ *ibid.*

⁷⁵ *ibid.*

However, it can not be stressed enough: forests are vital for our survival on this planet. They are carbon sinks amid the onset of climate catastrophe. Forests maintain and enhance the quality of the soil. They are natural habitats for the immense diversity of the world's flora and fauna.

Bearing this in mind, it is worth considering the reasons why forests are disappearing, particularly the reasons concerning the Amazonian rainforest.

3. The Illogical Model Behind Deforestation: Short-Term Gains and Long-Term Damage

3.1 What is Happening to the Last Forests of The World?

The immense literature⁷⁸ that studies the processes of deforestation demonstrates that human clearance of forests is not new. The forests of the world have been gradually disappearing since the onset of agriculture approximately 8.000 years ago. However, it has reached unprecedented rates over the last century⁷⁹. The world's remaining forests are mostly concentrated in underdeveloped or developing tropical regions⁸⁰. In reality, the most industrialized regions of the world cleared out their forests⁸¹. 'Deforestation is the complete or almost complete removal of tree cover and conversion of the land to other uses'⁸², and the is it is now largely concentrated in the tropics, but has a global impact.

The Earth has to date lost ~40% of its original forest cover. Processes of deforestation and degradation of the world's forests have been accelerating substantially during the last two centuries, specifically since the 1950s. During recent decades, deforestation and degradation of forests, particularly in the Tropics, have been continuing at an alarming rate.⁸³

⁷⁸ See Arcand, Guillaumont and Jeanneney (n 39); Angelsen and Kaimowitz (n 39); Bhattarai and Hammig (n 39); Shvidenko (n 5); See: Phillip Fearnside, 'Deforestation of the Brazilian Amazon' [2017] Oxford Research Encyclopedia of Environmental Science <<http://oxfordre.com/view/10.1093/acrefore/9780199389414.001.0001/acrefore-9780199389414-e-102>> accessed 20 February 2019.

⁷⁹ Ghazoul (n 40) 450.

⁸⁰ Olivier Damette and Philippe Delacote, 'Unsustainable Timber Harvesting, Deforestation and the Role of Certification' (2011) 70 Ecological Economics 1211, 1213.

⁸¹ This study employs the terms based on the sole criterias of level of industrialization and the Human Development Index. In: 'Unstats | Millennium Indicators' <<https://unstats.un.org/unsd/mdg/Host.aspx?Content=/Products/SGReports.htm>> accessed 16 July 2019.

⁸² Ghazoul (n 40) 449.

⁸³ Shvidenko (n 5) 855.

Presently the world has roughly ‘1.700 million ha of tropical forest and 1.600 million ha of temperate forest’⁸⁴. The loss of forest cover has substantially increased in the last centuries, as a result of agricultural expansion, industrial revolution and urbanization. Europe, Russia and China lost practically all of their forests by the nineteenth century, followed by North America’s rapid clearance of forest cover with colonial settlement⁸⁵. Soon after, the deforestation of the temperate regions demanded that the remaining tropical forests supply the much of the world’s industrial resources and agricultural lands⁸⁶.

As a result of conservation policies and forest regrowth, the relatively high forest cover observed in western Europe is mostly planted forest rather than the original trees⁸⁷. When analyzing contemporary deforestation, the temporal and geographical indicators are particularly important, given the large regional variations of the phenomena around the globe. But one thing is certain: deforestation has much to do with development:

[...] First, countries experiencing higher deforestation rates are generally developing countries. Second, forest sectors tend to be relatively more important in developing countries. For instance, forest sectors account for 4% of GDP in Brazil, 2.5% in Indonesia and 4.5% in Central African Republic. In smaller countries, it can go up to

⁸⁴ Ghazoul (n 40) 450.

⁸⁵ Ghazoul (n 40).

⁸⁶ Shvidenko (n 5).

⁸⁷ “In temperate countries, and particularly Europe, there is no overall deforestation in terms of net area but rather a small increase in forest cover owing to policies of conservation and afforestation. This, however, disguises a steady and continuing transition from natural or seminatural forest stands to plantation forests. Forest cover in Europe has consistently increased in recent years and a relatively high proportion of its land area is under forest cover. Much of this comprises planted forests or regrowth as most of the original forest cover was cleared centuries ago. Declining population, low land dependencies, concern for protection of the environment, and a well-developed policy and institutional framework all favor further expansion of forest area. The exception to this trend may be Eastern Europe and Russia, where the importance of forest resources as an accessible and tradeable commodity takes priority. This could be compounded by the projected impacts of increasing frequency and extent of fires (due to climate change) in the Russian Federation as well as in parts of Western Europe such as the Iberian Peninsula”. In: Ghazoul (n 40).

13% in Guinea Bissau or 9% in Chad. In contrast, it accounts for only 1.3% in the United States, 0.9% in Germany, and 3% in Canada⁸⁹.

Therefore, it is feasible to infer that governmental developmental models can be a key lever in deforestation, as policy-making typically prioritizes the economic gains of converting forest land rather than the important ecological functions of protecting the forests. Bellow, Figure 1)⁹⁰ displays global forest area as a proportion of total land area 1990, 2010 and 2015.

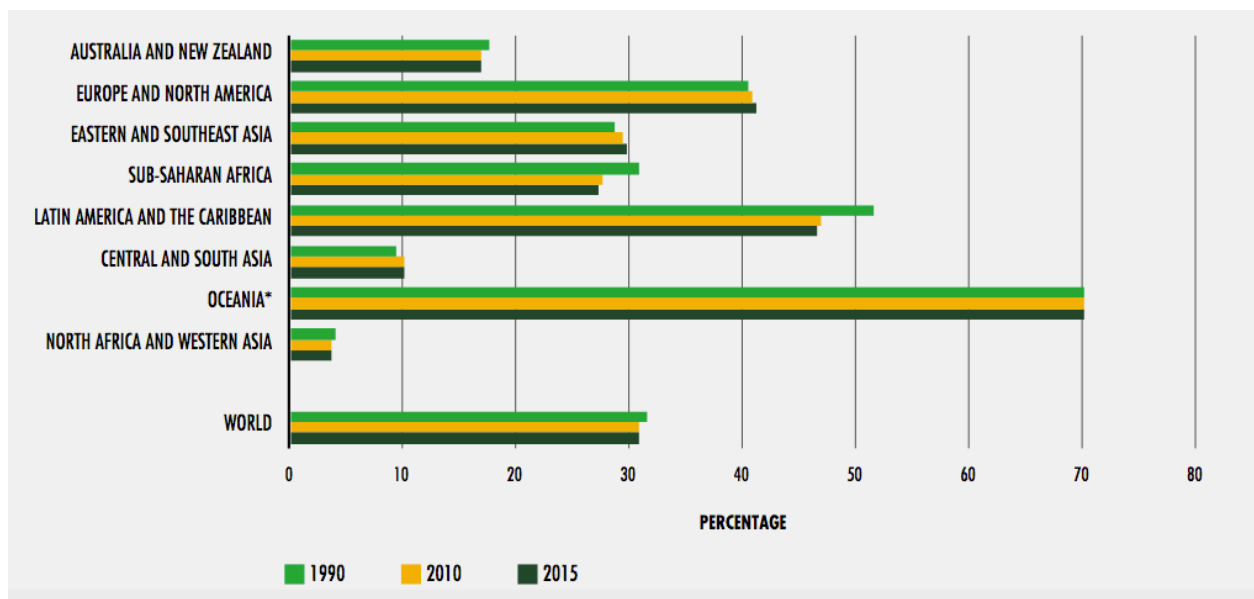


Figure 1) Forest area as a proportion of total land area 1990,2010 and 2015.

Indeed, reports by the Food and Agriculture Organization of the United Nations consistently show that most of the loss of the world's forest cover from 1990 to 2015 is concentrated in developing countries, mainly sub-Saharan Africa, Latin America and Southeast Asia⁹¹.

⁸⁹ Damette and Delacote (n 80) 1213.

⁹⁰ fao.org (n 2).

⁹¹ *ibid.*

Deforestation is now a largely tropical concern, and most deforestation is concentrated in relatively few tropical countries. (...) A large proportion of the world's biodiversity is found within tropical forests, and so tropical deforestation has considerable relevance to biodiversity conservation.⁹²

Unfortunately, Brazil has been consistently amongst the top deforesting countries for the last five decades⁹³. But before analyzing the reasons, *how* deforestation is measured in the first place?

3.2 Measuring Deforestation in the Brazilian Amazon

The official data analysis of the deforestation process in Brazil by the National Institute of Space Research⁹⁴ is mostly based on the study of land use in the Amazon. For instance, knowing whether forest land was converted into croplands or pasture, provides important insights as to the major actors behind deforestation.

The predominant driver of deforestation worldwide is the conversion of forests for agriculture⁹⁶. In Brazil, this is the case with agro-livestock expansion, mainly beef and soy production⁹⁷. 'The rural development in the Amazonia pushed the agricultural frontier swiftly, resulting in widespread land-cover change, but agriculture in the Amazon has been of low productivity and unsustainable'⁹⁸. But converting Amazonian land into pastoral and agricultural lands is the final step in maximum exploitation of resources, following the extraction of logs and minerals as well as human occupation. Understanding this process

⁹² Ghazoul (n 40) 451.

⁹³ fao.org (n 2).

⁹⁴ 'INPE - Instituto Nacional de Pesquisas Espaciais' <<http://www.inpe.br/>> accessed 27 July 2019.

⁹⁶ Damette and Delacote (n 80).

⁹⁷ Fearnside (n 78).

⁹⁸ Carlos A Nobre and others, 'Land-Use and Climate Change Risks in the Amazon and the Need of a Novel Sustainable Development Paradigm' (2016) 113 Proceedings of the National Academy of Sciences 10759.

requires a further analysis of the social, economic and political variables of a forest-based economy.

Furthermore, clear-cutting trees is not a simple consequence of urbanization, or even population growth *per se*. Whether countries are destroying or replanting their forests requires a holistic analysis. Which brings us to a brief overview of the underlying and direct causes of deforestation.

3.3 Direct and Indirect Causes

There are direct and indirect (or underlying⁹⁹) causes to the clearing of forests. This subchapter will analyze elements indicated in scholarly literature¹⁰⁰ about global deforestation but with an emphasis on the causes behind Amazonian deforestation.

3.3.1 Underlying Causes of Deforestation

The analysis of the conditions that make deforestation a suitable economic option, or a necessary behavior, compose the so called underlying causes¹⁰¹. These factors range from, for example, agricultural prices to governmental agendas, and exist both in local as well as international spheres while resulting from political, economic or social factors. Most relevant to this study are:

⁹⁹ Angelsen and Kaimowitz (n 39).

¹⁰⁰ This study, in any way, intends to exhaust the theme of deforestation studies. By analysing the major causes and elements associated with the phenomena, it only aims to give context for the analysis of the Brazilian case. For further reading see: Fearnside (n 78); Sergio Margulis, *Causes of Deforestation of the Brazilian Amazon* (The World Bank 2003) <<https://elibrary.worldbank.org/doi/abs/10.1596/0-8213-5691-7>> accessed 17 July 2019; Shvidenko (n 5); Ghazoul (n 40); Arcand, Guillaumont and Jeanneney (n 39); Angelsen and Kaimowitz (n 39); Tim Boekhout van Solinge, Karlijn Kuijpers and Karlijn Kuijpers, 'The Amazon Rainforest: A Green Criminological Perspective' (*Routledge International Handbook of Green Criminology*, 29 August 2013) <<https://www.taylorfrancis.com/>> accessed 29 May 2019; Frances Seymour and Jonah Busch, *Why Forests? Why Now? The Science, Economics, and Politics of Tropical Forests and Climate Change* (Center for Global Development 2016).

¹⁰¹ Fearnside (n 78).

a) Population Growth and Market Demand

The first underlying cause of deforestation is population growth¹⁰². The human demand for food, energy, water, wood, paper and other products represent a pressure on forest capital and can lead to deforestation.

The world's population is projected to increase from around 7.6 billion today to close to 10 billion people by 2050. The corresponding global demand for food – estimated to grow by 50 percent during this period – is placing enormous pressure on the way we use productive land, particularly in developing countries where the overwhelming majority of the world's 800 million poor and hungry people are concentrated. Deforestation, chiefly caused by the conversion of forest land to agriculture and livestock areas, threatens not only the livelihoods of foresters, forest communities and indigenous peoples, but also the variety of life on our planet. Land-use changes result in a loss of valuable habitats, land degradation, soil erosion, a decrease in clean water and the release of carbon into the atmosphere. How to increase agricultural production and improve food security without reducing forest area is one of the great challenges of our times¹⁰³.

The solution in how to attend the world demand for agricultural products and balance deforestation relies in sustainable land use. Population growth is a factor that needs to be carefully weighted, as the human demand on an isolate basis can serve as pretext for unsustainable practices. A higher demand for food, for example, does not necessarily mean that more forest areas must be cleared, given the already cleared areas can be managed and shifted in order to sustain the production¹⁰⁴.

But there are important considerations that need to precede the land conversion, and the most important one is whether the forest has the ability to sustain agricultural demand in the first

¹⁰² *ibid.*

¹⁰³ *fao.org* (n 2).

¹⁰⁴ Rhett A Butler and William F Laurance, 'New Strategies for Conserving Tropical Forests' (2008) 23 *Trends in Ecology & Evolution* 469.

place¹⁰⁵. Rain forest land, for example, is often not suited for agricultural use, given their soils are acidic and potentially nutrient-deficient, which is often ignored or foreign to small subsistence farmers lacking the knowledge and technical assistance, who will resort to shifting cultivation, leading to further degradation¹⁰⁶. This means that clearing forest to cultivate soil products, especially monocultures, can easily lead to land waste and failure¹⁰⁷. That is because farmers will need to clear new areas once the soil is exhausted, and the depleted areas are then simply reverted to cattle pasture, as is the pattern in the Brazilian Amazon¹⁰⁸.

When the land is suitable for agriculture, generally large single cash crops like rice, citrus fruits, oil palms, coffee, coca, opium, tea, soybeans, cacao, rubber, and bananas are cultivated. Some of these crops are better adapted to such conditions and last longer on cleared forest lands. However, there are several problems with this type of monoculture (single crop plantations) in the tropics, besides the loss of forest. First, such planting of a single crop makes the crop highly vulnerable to disease and pests. In natural rainforest, widespread infestations are rare because individuals of a given species are widely dispersed. Second, the planting of monocultures can be economically risky with the price fluctuations so common in international commodities markets. Additionally, a single cold spell or drought can devastate a substantial segment of the agricultural economy¹⁰⁹.

As demonstrated, there are several problems to assess with developing agriculture in the forest, and some of them are key to determine how much land needs to be cleared. Given the extent to which this activity is being expanded in the Brazilian Amazon, it is worth the concern from the environmental community as to what extent this activity is being practiced sustainably. Additionally, it is worth stressing that the underlying cause of national and

¹⁰⁵ Ghazoul (n 40).

¹⁰⁶ *ibid* 450.

¹⁰⁷ Ghazoul (n 40).

¹⁰⁸ Rhett A Butler and William F Laurance, 'New Strategies for Conserving Tropical Forests' (2008) 23 *Trends in Ecology & Evolution* 469.

¹⁰⁹ *ibid*.

international market demands will lead to deforestation insofar as the country relies on forest products, both for domestic consumption as well as exportation.

b) Development Policies and Public Incentives

On a political and economic level, another important factor are national development policies and tax incentives. This element encompasses the underlying factors of a country's choice to predicate its economy on forest capital, converting forest land into, e.g. large agricultural expansion areas, cattle ranching or energy source projects. Considering how the government provides substantive incentives and subsidies to livestock expansion, for example, it is plausible to say this element is key to understand deforestation in Brazil.

As it will be further demonstrated analyzing the Brazilian development model in chapter four, the Brazilian state has been playing a (at least) contradictory role, by wanting to preserve the forest, while sponsoring the unsustainable activities that destroy it.

c) Access to Land

Brazilian rural poverty is deeply related to tenurial policies and the problem of inequitable access to land. Unfair land distribution inflates land tenure issues as well as small farmers' access to land ownership. This constitutes another drive for deforestation:

Small farmers, who may not have legal title to their land, are frequently displaced or forced to sell their land because of increasing debts. These farmers often move to the forest frontier to clear a new plot of land, a practice that continues because it is usually easier for governments to ignore deforestation than to deal with the difficult issues of land redistribution. Without legal land title there is little incentive to invest in the land to make it more productive, and it becomes more economically logical to pursue short-term gain and to move on to clear new forest land once productivity decline¹¹⁰.

¹¹⁰ Ghazoul (n 40).

Therefore, small farmers, afraid of losing their land, adopt a deforesting behavior to ensure land possession, this is also known as the “slash and burn technique”. In reality, precisely this behavior of deforestation as a means to occupation was the key element behind the major deforestation of the Amazon from 1970 to the late 1990s¹¹¹, as it will be presented next.

d) Resettlement Programs: The Amazon as a Key Region For Agrarian Reform in Brazil

‘Uma terra sem homens (a Amazônia) para homens sem terra (do Nordeste)’.

A land without men for men without land¹¹².

Governmental slogan for the resettlement program of 1970.

Brazil has been struggling with inequitable land concentration and poverty for decades. In the 1970s, landless rural persons reached an estimated (and overwhelming) number of 1.3 million people¹¹³. The Movement of the Landless People (MST, Movimento dos Sem Terra) pressured the government to provide access to land and fairly distribute thousands of hectares of unproductive land concentrated by small groups. At that time an incredible 46.7 million people, almost 50% of the total population, lived below the poverty line¹¹⁴. Undoubtedly this led to great social and political instability caused by such inequality.

Throughout the 1970s Brazil was a military dictatorship whose political drive was focused on the political threat social movement presented to national security (or their power). The social pressure led the government to finally address the issue of the agrarian reform. It then

¹¹¹ Silva, Prasad and Diniz-Filho (n 17).

¹¹² ‘Memorial Da Democracia - Governo Inicia a Transamazônica’ (*Memorial da Democracia*) <<http://memorialdademocracia.com.br/card/governo-inicia-a-transamazonica>> accessed 18 July 2019 (Translated by this author).

¹¹³ François-Michel Le Tourneau and Marcel Bursztyn, ‘Assentamentos rurais na Amazônia: contradições entre a política agrária e a política ambiental’ (2010) 13 *Ambiente & Sociedade* 111.

¹¹⁴ Sonia Rocha, ‘Pobreza e desigualdade no Brasil: o esgotamento dos efeitos distributivos do Plano Real’ [2000] www.ipea.gov.br <<http://repositorio.ipea.gov.br/handle/11058/2365>> accessed 27 July 2019 (Translated by this author).

created an organ called National Institute for the Coordination of the Agrarian Reform (INCRA) to manage a huge resettlement program¹¹⁵. The government-sponsored project's main goal was to identify productive lands for small agriculture cultivation and then relocate hundreds of thousands of landless families, mostly concentrated in the northeast region, to these areas¹¹⁶.

The new areas were then referred to as settlement lands. However, the areas chosen by the state to relocate these people were not unproductive lands owned by elites. The region from which the landless families primarily came from, the northeast, had the highest income concentration as rural elites owned thousands of unproductive hectares¹¹⁷. In the words of Burzdyn, 'the land access issue is resolved following the old Brazilian tendency: not to disturb the consolidated rural elites in older occupied areas'¹¹⁸.

The solution therefore did not involve a redistribution of lands. Instead, this project was aligned to the convenience of other state interests: the solution found by the government was the "Amazon occupation"¹¹⁹. Rather than addressing the problem of the private concentration of lands by elites, the government decided to simply relocate thousands of poor landless families to the rainforest areas.

The impact on the environment was tremendous. To start, many of the settlement lands were allocated in legal conservation reserves, with complete disregard for the protection of those areas¹²⁰. Additionally, the majority of the lands allocated for the resettlements lacked proper

¹¹⁵ Egon Heck, Francisco Loebens and Priscila D Carvalho, 'Amazônia indígena: conquistas e desafios' (2005)

¹¹⁹ Estudos Avançados 237 (Translated by this author).

¹¹⁶ Le Tourneau and Burszdyn (n 113) (Translated by this author).

¹¹⁷ *ibid* (Translated by this author).

¹¹⁸ *ibid*.

¹¹⁹ *ibid*.

¹²⁰ Ghazoul (n 40).

planning and the criterion for their choice was not due to their agricultural or economic characteristics¹²¹. Not to mention many of the settlers invaded partially deforested areas¹²², in which they had great interest to transform the vegetal cover, both to make money and to reassure their presence and occupation.

In any settlement project, the first environmental transformation is the process of clearing a small area for house construction and preparation for cultivation. The most common agriculture practice is slash-and-burn, which increases levels of soil pH, phosphorus, calcium, and magnesium, and decreases levels of toxic aluminum ions. A poor clearing and burning compromises the crop yields, can cause the obstruction of steams, and is likely to leave taller trees standing, providing the necessary partial shade for breeding. This brings up the notion of forest fringe, a frontier between the forest and the property, where anopheline density is very high, and the risk of malaria transmission is augmented¹²³.

This uncoordinated process led to unorganized urbanization, poor living conditions, illegal activities and land tenure disputes, such as land grabbing, drug trafficking and illegal logging and mining, including in protected areas¹²⁴. Though starting in the 1970's, the program only began to address its environmental impact 30 years after, coming to incorporate an environmental plan in 2002. Also during that period the INCRA began to regulate one of the most urgent issues in the settlements: the lack of an environmental licensing process to assess the impact, and possible mitigation measures for the occupation of the land. This process, which was supposed to take place before the families were settled, had never been established, and innumerous settlements were irregular¹²⁵.

¹²¹ Jorge Luis Nascimento Soares, 'A Organização Territorial de Assentamentos Rurais Para Atender a Legislação Ambiental Na Amazônia.' (2008) 3 34 (Translated by this author).

¹²² Le Tourneau and Bursztyn (n 113).

¹²³ Castro and Singer (n 21).

¹²⁴ de Toledo and others (n 39).

¹²⁵ Soares (n 121) (Translated by this author).

But even after the conservation requirements were established, controversial issues can be raised in terms of compatibility between the projects objectives and to what extent it can be expected the settlers to attend the legal standards of conservation:

The role of the settlements in the deforestation is evident, insofar that it would be illusory to expect the settlers to have a familiar agriculture production in small areas where the law requires 80% will be conserved, even 50%. It is evidenced the governmental ambiguity regarding the Amazon, wanting to preserve it and at the same time using it for purposes of an agrarian reform that resembles colonial politics¹²⁶.

In 2008, the Brazil's environmental ministry put the INCRA projects amongst the top six responsible for the amazonian deforestation¹²⁷. Some regions are more evident, like Santarém city (approximately 18.000 km²), where 93% of the area was deforested within approximately 30 years after the projects started¹²⁸. However, considering the extent of rural land in Brazil, and the difficulties of resettling people in rainforest areas, and most accutely, the importance of the forest itself, it is unavoidable to ask: why was the Amazonia chosen to solve agrarian reform?

Studies in Brazil aiming to analyze the necessity of the program taking place in the Amazon have highlighted that there was more than enough land outside the region to accomplish agrarian reform¹²⁹. The official rural land registration indicates Brazil had approximately 110 millions of hectares of unproductive land outside the Amazon. Bursztyn notes the first

¹²⁶ Le Tourneau and Bursztyn (n 113).

¹²⁷ 'Incrá Lidera Lista Dos 100 Maiores Desmatadores Da Amazônia Legal, Diz Meio Ambiente - 29/09/2008 - Poder - Folha de S.Paulo' <<https://www1.folha.uol.com.br/poder/2008/09/450130-incra-lidera-lista-dos-100-maiores-desmatadores-da-amazonia-legal-diz-meio-ambiente.shtml>> accessed 27 June 2019 (Translated by this author).

¹²⁸ Le Tourneau and Bursztyn (n 113).

¹²⁹ Edna Castro, 'Dinâmica socioeconômica e desmatamento na Amazônia' (2008) 8 Novos Cadernos NAEA 17 <<https://periodicos.ufpa.br/index.php/ncn/article/view/51>> accessed 28 July 2019 (Translated by this author).

reasons that stand out are political: the political charge of performing a large scale agrarian reform was too high¹³⁰.

Up until the present day, agribusiness and the cattle industry continue to have enormous political power (known in Brazil as the “the bullet, beef and bible caucus”¹³¹, coalition of the of the agribusiness, Christians and extremist security affairs), attaining one of the most influential part of the congress, with 229 members of 513 spots in the Chamber of Deputies¹³². Hence, a more viable solution was then to target lands that had fragile ownership, rather than lands that were historically owned by influential groups, even if those lands were blatantly unproductive¹³³.

Additionally, it is noteworthy to stress the role of the settlements in the productive structure of the Amazon. Most of the settlements were installed in key areas for the expansion of agribusiness and the cattle industry, providing the necessary tools, such as the labor force, to the neighboring farmlands¹³⁴. Furthermore, the new inhabitants could potentially serve in a politics of patronage as voting foddors to maintain the hold of the ruralist political elite that controlled the region¹³⁵.

¹³⁰ Le Tourneau and Bursztyn (n 113).

¹³¹ For further information on the influential political support of the newly elected President, see: Bruce Douglas, ‘Brazil’s “bullets, Beef and Bible” Caucus Wants to Imprison 16-Year-Olds’ *The Guardian* (17 April 2015) <<https://www.theguardian.com/world/2015/apr/17/brazil-rightwing-caucus-lower-age-criminal-responsibility>> accessed 18 July 2019; ‘Jair Bolsonaro Is Poised to Win Brazil’s Presidency’ [2018] *The Economist* <<https://www.economist.com/the-americas/2018/10/13/jair-bolsonaro-is-poised-to-win-brazils-presidency>> accessed 18 July 2019.

¹³² ‘Bancada BBB se reconfigura e pode ampliar influência nos próximos quatro anos’ [2019] *Brasil de Fato* <<https://www.brasildefato.com.br/2019/02/12/bancada-bbb-se-reconfigura-e-pode-ampliar-influencia-nos-proximos-quatro-anos/index.html>> accessed 28 June 2019 (Translated by this author).

¹³³ Le Tourneau and Bursztyn (n 113).

¹³⁴ Fearnside (n 78) 78.

¹³⁵ Violeta Refkalefsky Loureiro and Jax Nildo Aragão Pinto, ‘A questão fundiária na Amazônia’ (2005) 19 *Estudos Avançados* 77.

On a positive note, the environmental requisites that were integrated in the settlements programs in 2000, opened space for the cooperative management of natural resources. Projects such as the sustainable familiar agriculture programs, implemented by civil society organizations, NGOs and local municipalities, give opportunity to develop extractive sustainable practices, that can be managed by the communities and open a new paradigm for the forest management¹³⁶. This important development will be further explained in chapter four and six.

e) Undervaluation of Forests and Forest Products

How society and the government view the forest can be a key determinant in shaping public policies and land management. The undervaluation of the forest itself, and consequently its products, is a subtler, rarely discussed reason, perhaps as it touches upon cultural aspects difficult to address or to measure. Scientific studies on the perception of the Amazon by the Brazilian population demonstrate a general trend of a mixture of both alienation and undervaluation¹³⁷. In the public discourse, media and literature, the Amazon is generally linked to the dichotomy of heaven and hell. For some, a green hell, and for others, especially indigenous communities, a green paradise.

In this context, it is pertinent to remember the governmental slogan for the developmental projects in the Amazon during the 1970s, “*A Land Without Men for Men Without Land*”, which portrayed the rainforest as a “green hell” that needed to be colonized. The predominant social and institutional failure to recognize the importance of the forest, to truly value forest products and the environmental benefits embedded in its conservation is a fundamental driver for deforestation¹³⁸.

¹³⁶ de Toledo and others (n 39).

¹³⁷ Castro (n 129) (Translated by this author).

¹³⁸ Ghazoul (n 40).

The nontimber benefits and services that trees and forests provide are often more important than their timber products. Environmental benefits, including soil protection, shelter, microclimate amelioration, contribution to regional and global hydrological and carbon cycles, are rarely quantified and hardly ever incorporated in economic assessments. Only when massive downstream flooding is traced back to wanton deforestation in the catchment are such connections made. Thus a major underlying cause of deforestation is the widespread failure to value sufficiently both forest products and the many environmental benefits forests bring. Regrettably, this is largely because simple and widely accepted approaches to such valuations in economic terms do not exist. For example, stumpage, that is the charges that governments demand from loggers for state-owned timber, often undervalues the resource, which encourages waste and makes other land uses more economically attractive¹³⁹.

This factor is particularly relevant regarding the logging activity, as it will be further analyzed next when examining the logging as a direct cause.

f) Weak Government Institutions

When countries have forest legislation and policies adopting sustainability, high deforestation rates comes down to an issue of structural deficiency in enforcement. This is fundamental to understand how Brazil is failing to sustainably manage the Amazon.

... Brazil has implemented a major overhaul of policies and regulations in recent years, though ambiguity in forest legislation remains a common problem across tropical countries. Poor enforcement of forest legislation, through lack of political will, incoherence of the forest laws, or limited capacity, ensures that many of the laws that do exist are routinely flouted. Extensive forests by their very geography are likely to be remote from towns and cities and hence far from the rule of law. It is therefore easy for illegal logging and clearance to continue unseen and unchecked. Furthermore, forest services are frequently the “Cinderella” organization of government, being viewed as inferior to agriculture and even wildlife and tourism. Few resources are attracted, and poorly paid staff often have difficulty in ensuring that sustainable management practices are implemented and in imposing their authority on perhaps large private sector interests¹⁴⁰.

¹³⁹ *ibid.*

¹⁴⁰ *ibid.*

Weak environmental enforcement is deeply related to the general undervaluation of the forest and forest resources previously analyzed, framing a scenario of institutional failure. Corruption, poor monitoring and contradictory policies result from a general uninterest from the state and powerful sectors to preserve the forest, and of course, a certain level of indifference from society.

3.3.2 Direct Causes of Deforestation

Direct causes of deforestation refers to how land clearance is achieved, for example through burnings. Maintaining a focus on the Amazon, the major direct drivers of deforestation in Brazil are: livestock and agricultural expansion, the unsustainable harvest of timber, mining, and energy source and infra-structure projects.

a) Large and Small Agriculture

Small agriculture practices of slash and burn are deeply related to land possession issues. As previously explained, the shifting cultivation drive is related to the government sponsored settlements:

Government policies have also created ‘shifted’ cultivators who are the typical slash-and-burn farmers of recent decades. Unlike the traditional farmers who have practiced shifting cultivation for decades, these shifted agriculturists have been forced by circumstances to cultivate habitats that are unfamiliar to them. Government resettlement and transmigration schemes attract migrants for whom forest cultivation is an unfamiliar means of generating a livelihood and income. In the Amazon, migrant cultivators are attracted to the forest frontier, where they clear and cultivate land for a few years. This land quickly becomes exhausted due to unsuitable soils or farming techniques and the land is sold to cattle ranchers and the “farmers” move on to clear more land¹⁴¹.

Small farmers do shifting cultivation for subsistence purposes, and although it involves deforesting the occupied areas, statistic analysis shows that their role in deforestation is substantially less if compared to industrial agriculture:

¹⁴¹ *ibid.*

Remote sensing data, together with IBGE figures, suggest that the large and mid-size agents are primarily responsible for deforestation in the region. The smaller agents are used as labor or for helping to consolidate land holdings and their possession (the so- called “warming” process). They tend to make only a minimum direct contribution to deforestation. Moreover, deforestation by small agents is more acceptable from a social point of view because it probably leads to improvements in living conditions for poorer population groups, which is not the case of deforestation by larger agents¹⁴².

While shifting cultivation is practiced by small farmers, when it comes to agri-business the actors involved are different: corporations or state enterprises. To start, their presence contributes to the degradation factor previously mentioned, since they push small farmers to other areas where they will have to deforest to subsist. Secondly, again the state plays a contradictory role (rather destroying than preserving).

Land clearance for agricultural development is often subsidized by governments, and because the owners of the agribusiness companies are politically well appointed, there is little interest in forest protection. Areas for conversion are frequently burnt because this is the least expensive method of clearance¹⁴³.

Agribusiness is huge –and popular- in Brazil, it is a synonym for development. In spite of the recent developments of the last 15 years, for too the environmental protection has been portrayed as an obstacle for development, the business fails to realize it doesn’t need to be so.

b) Cattle Ranching and Livestock Grazing

The beef industry in east Amazonia, also known as the consolidated frontier, is highly profitable from the perspective of private actors as revenues are higher than any other region of cattle industry in Brazil. The rate of return on livestock in the strict Amazon (excluding the sale of timber) is consistently above 10%.

¹⁴² Margulis (n 100) 77.

¹⁴³ Ghazoul (n 40).

These values are potentially achieved by cattle ranchers established and capitalized on the consolidated frontier of the Eastern Amazon. The data concerning the land use in the Amazon shows the livestock activity as the main economical activity driver of deforestation in the region. The cattle industry expansion, since the 1970s, has been a continuous process (...) It may be legitimate to argue that the private benefits of large-scale livestock are exclusionary, and have contributed little to reducing economic and social disparities. At the national level, livestock production in the Amazon region has allowed a consistent fall in meat prices in the last five years, when 100% of the national herd growth occurred in Pará, Mato Grosso and Rondônia, and the three states with the highest percentage of deforestation in the Amazon¹⁴⁴.

Thus, recently, the responsibility for deforestation in the Amazon is intensely driven by medium and large-scale livestock activities which are responsible for the resulting logging activities and road construction in which the environmental impact of deforestation is evident, as shows Figure 2)¹⁴⁵ bellow:

¹⁴⁴ Margulis (n 100).

¹⁴⁵ Cerejeiras (n 8) 31 (Translated by this author).

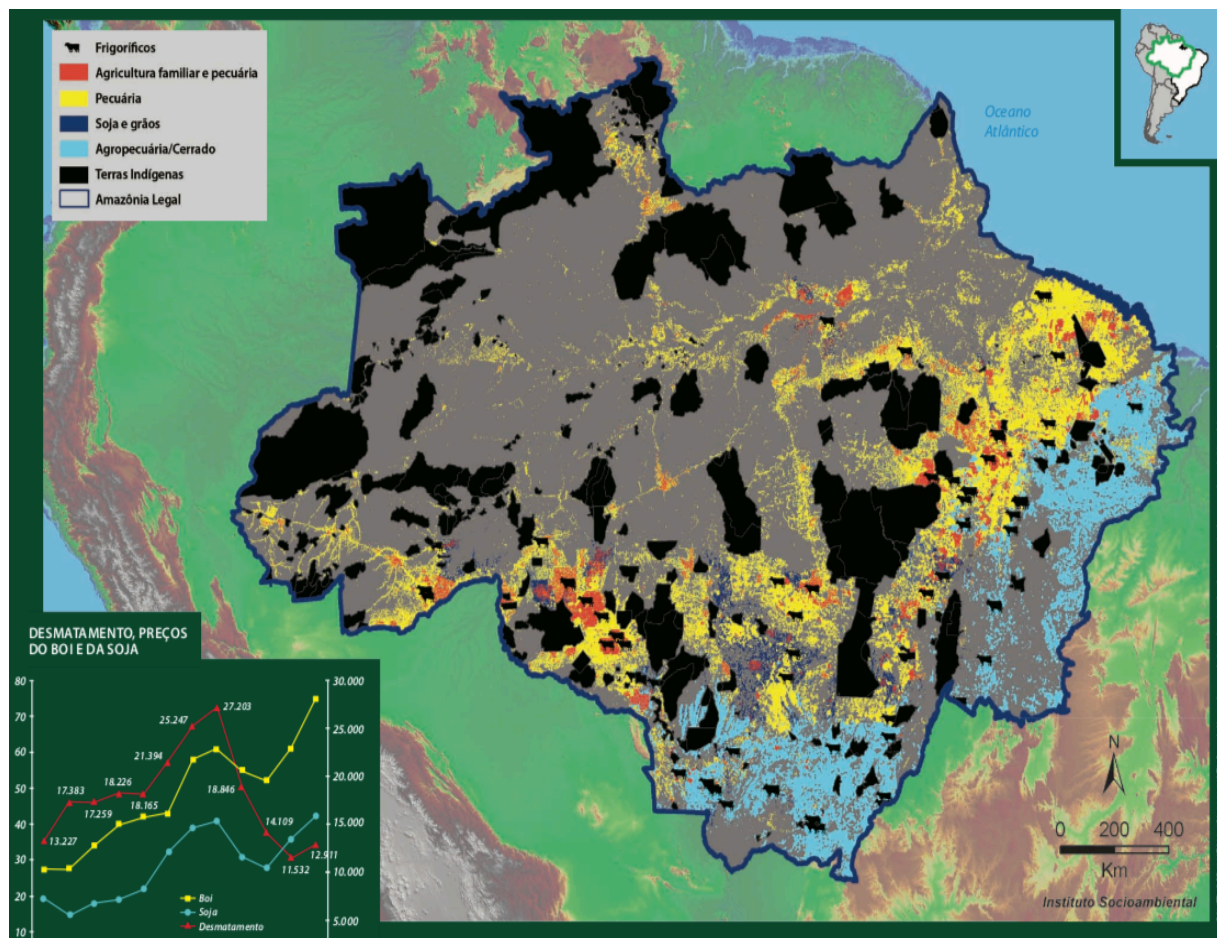


Figure 2) Land use in deforested areas in the Amazon. Displayed (top to bottom): warehouses; familiar agriculture and cattle; cattle; soy beans and grains; agro-livestock; indigenous lands.

Ranching is the most economically established activity in the Amazon, with extremely favorable conditions and government incentives, it defines the economical dynamics of the eastern Amazon¹⁴⁶.

(cattle ranching) was economically attractive due to relatively low risk, little labor, well-established markets, and the availability of various government subsidies. Cattle ranching expanded greatly initially in response to the opening of large markets in North America but has been sustained by the development of the domestic markets for beef.(...) Ranchers cleared forest land by purchasing it directly and employing laborers to clear the forest cover or by purchasing land or dispossessing it from slash-

¹⁴⁶ Margulis (n 100) 54.

and-burn farmers that was then converted to grasslands. The shifting cultivators would move deeper into the forest to repeat the cycle¹⁴⁷.

Thus, on top of the direct devastating effect, as explained above it also enhances the deforestation caused by subsistence farming.

c) Infrastructural developments and energy source projects

The governmental project to develop the Amazon had direct and indirect deforestation impact, specially over the 1970s and 1980s.

The Trans-Amazonian highway opened up millions of square kilometers of previously inaccessible forest to colonization and allowed further expansion of the cattle industry. Such roads improve access to poorly developed areas and therefore tend to increase the adjacent land value for nonforest uses and encourage land speculation and deforestation¹⁴⁸.

This factor will be further analyzed in chapter 4, when looking into Brazilian environmental governance.

d) Logging

Studies on the harvesting of timber on forests worldwide point that logging is overall performed unsustainably, given the consistently positive relationship between the activity and deforestation¹⁴⁹. As mentioned above, the major cause of deforestation is agricultural and livestock expansion, also in Brazil. But the logging plays an interesting role, usually as the first step that precedes the land conversion to agriculture: the logs are extracted when the forest is primarily cleared, the land is then converted to other uses. Hence, the important

¹⁴⁷ Ghazoul (n 40).

¹⁴⁸ *ibid.*

¹⁴⁹ Damette and Delacote (n 80).

factor to understand is: although timber harvesting is not the major cause of deforestation, it 'builds on the conversion of forests to other land uses'¹⁵⁰.

In reality timber harvesting shouldn't be related to deforestation. Actually, with the effective legislation put in place, the activity can be fully compatible with the conservation principle. Deforestation, which means land change use and and long term removal of the tree cover¹⁵¹, doesn't need to be a necessary result of timber extraction. If done sustainably, there isn't permanent change in the land use, given the area will have time enough to recover.

If it is sustainable, harvested timber should either come from secondary forest plantation, or selected harvest in natural forest concessions. In both cases, the harvested area should be replanted or left to recover. In any case, it should not be related to a change in the land use. Timber harvesting (both in volume and value) is positively and significantly related to deforestation, both with fixed effects and double fixed effects. (...) Timber harvesting may also come as a by-product of agricultural expansion, which is the main leading factor of deforestation(...) Indeed, the positive correlation that we find, between timber harvesting and deforestation, shows that timber harvesting builds on the conversion of forests to other land uses¹⁵².

But the logging industry in Brazil is a complex issue. The wood business is compromised to a point it is difficult to establish the legal origin of the Amazonian timber. Several cases have been investigated and prosecuted involving hundreds of logging companies and public sector corruption, uncovering a laundering scheme of illegal timber¹⁵³. The timber is illegal because it comes from areas where it is forbidden to exploit, such as conservation units, and indigenous lands.

¹⁵⁰ *ibid.*

¹⁵¹ Rodney J Keenan and others, 'Dynamics of Global Forest Area: Results from the FAO Global Forest Resources Assessment 2015' (2015) 352 *Forest Ecology and Management* 9.

¹⁵² Damette and Delacote (n 80).

¹⁵³ Jonathan Watts and John Vidal, 'Brazil Laundering Illegal Timber on a "Massive and Growing Scale"' *The Guardian* (14 May 2014) <<https://www.theguardian.com/environment/2014/may/15/brazil-laundering-illegal-timber-on-a-massive-and-growing-scale>> accessed 19 July 2019.

Bellow, Figure 3)¹⁵⁴ shows the extent of the logging industry in the forest, and the centers of illegal harvesting in protected areas and indigenous lands:

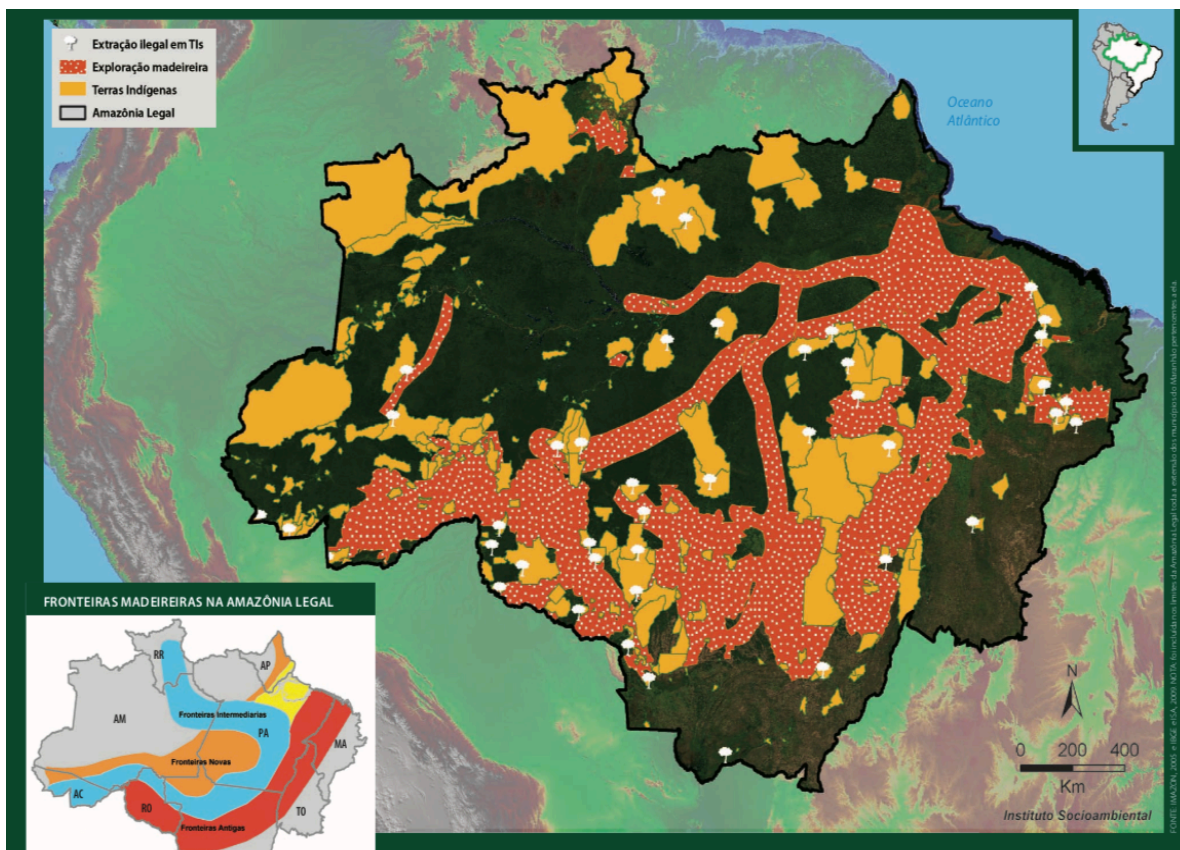


Figure 3) Logging zones in the Amazon. In caption (top to bottom): Illegal extraction in Indigenous Lands; Logging; Indigenous Lands; Legal Amazon.

The issue currently stands as a complex matter of environmental criminal law. In fact, over the last decade, the global environmental NGO Greenpeace has been advocating that the Amazonian timber filling the international chain of wood products and luxury tropical hardwood, has entirely unreliable source¹⁵⁵. The positive note is that Brazil has the

¹⁵⁴ Cerejeiras (n 8) (Translated by this author).

¹⁵⁵ Watts and Vidal (n 153).

appropriate legislation, rendering the logging in protected units as a forestry crime (as it will be further explained in chapter 5). This allows the intuition that the problem then lies in enforcement, not very different from many Brazilian issues.

But considering how environmental costs are not fully integrated in market valuation of timber, not properly reflecting, e.g, the forest value and cost of regrowth, truth is even the legal logging is problematic:

Where logging has preceded and been the first stage in wholesale land clearance, it is often because the value placed on the timber is no more than the cost of extraction and marketing. In this sense, logging is not only unsustainable forest management but also becomes a mining activity in which timber value reflects the ease or otherwise of obtaining the raw material. The value does not reflect cost of replacement or cost of growing beyond what is often a nominal payment of royalty to the owner. If timber was valued to reflect its true cost of replacement, then growing trees to produce timber would become economically worthwhile and hence potentially a sustainable option. Although it is not worthwhile, deforestation, especially in the tropics, is likely to continue because clearance and conversion is perceived as more profitable¹⁵⁶.

Hence, the illegal logging and certification deficiency, as well as the undervaluation of timber expose how the timber harvesting can reinforce deforestation patterns¹⁵⁷. In a nutshell, logging reinforces and interacts with other direct and indirect drivers, contributing to deforestation due to the:

Short-term exploitation of timber products with little or no concern for the future potential of the forest to provide additional resources and revenues (...) This is due to the insecurity of tenure and short concession periods, as well as poor governance, corruption and lack of capacity to enforce forest laws. The length of concessions is very often short term, sometimes less than 10 years, and in the absence of a long-term commitment, logging companies have little incentive to invest in long-term forest management. Concessions are also granted for timber with little regard for the other resources provided by the forest and the impact of the logging on local people.

¹⁵⁶ Ghazoul (n 40).

¹⁵⁷ Damette and Delacote (n 80).

Although the intensity of logging in the tropics is usually low, **removal of only 10% of the timber trees can result in damage to 55% or more of the remaining trees.** Even so, logging operations usually result in degradation of the forest rather than its complete elimination. Deforestation does occur along logging roads, where forest is cleared for several meters on either side of the road, allowing the sun to dry the road surface. Poorly designed roads can result in severe erosion and landslides as well as facilitate movement into the area by illegal loggers, slash-and-burn cultivators and land speculators. Illegal logging remains a substantial problem across tropical forest regions, despite estimates that from 2000 to 2010 the extent of illegal logging fell by 50 to 75% in major tropical timber producer countries. Illegal harvesting is thought to account for 35–72 % of logging in the Brazilian Amazon¹⁵⁸.

e) Mining

The Amazon is rich not only in biodiversity, but also in valuable minerals such as gold, bauxite and copper¹⁵⁹. In fact, mining in the forest has always been a source of tension between mining companies and the environmental and human rights activists. Environmentalist movements in Brazil have consistently raised alarms to the risks and environmental damages associated with the activity. The mining sector is one of the most important parts of Brazil's economy, responsible for almost 4% of the country's GDP¹⁶⁰.

The expansion of mining activities in the Amazon is substantially sponsored by governmental investments. The social benefits produced by the sector are incomparable to private gains. The mining companies count on exemptions and subsidies from the government and a small fraction of its profits remain in the amazon. Mining corresponds to only 7% of the region's GDP and generates only 3% of formal employment¹⁶¹.

158 Ghazoul (n 40).

¹⁵⁹ François-Michel Le Tourneau, 'The Sustainability Challenges of Indigenous Territories in Brazil's Amazonia' (2015) 14 *Current Opinion in Environmental Sustainability* 213.

[illegible]

161 Cerejeiras (n 8).

Nonetheless, like other private activities ongoing, mining is being developed and invested to its full potential. Bellow, Figure 4)¹⁶² gives an idea of the mining penetration in the forest land:

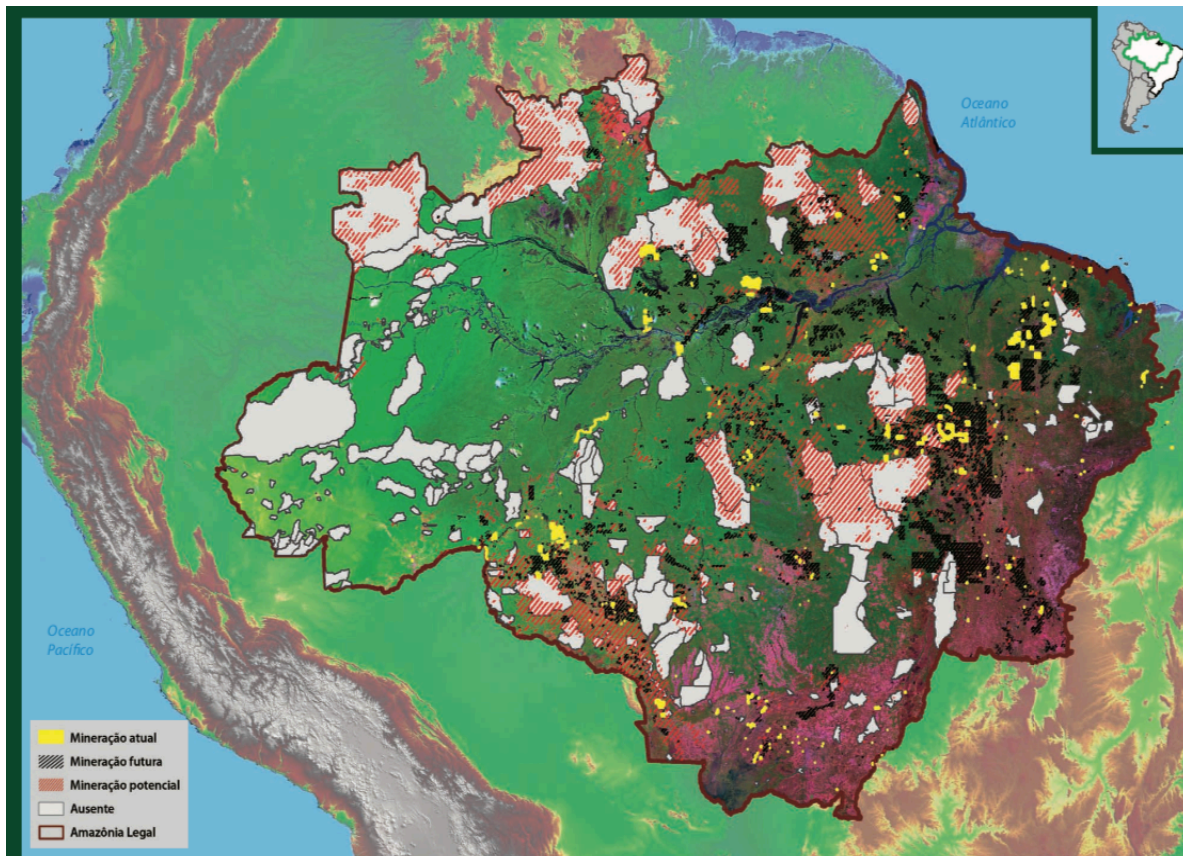


Figure 4) Mining processes in the Legal Amazon. Displayed (top to bottom): current mining; future mining; potential mining; absent; Legal Amazon.

Having analyzed the main factors driving deforestation, it is now time to address the consequences.

¹⁶² *ibid.*

3.4. Consequences of Deforestation

Although a lot has been anticipated regarding the negative consequences of deforestation, the truth is no one knows for sure. The extent of the indirect damage caused by the gradual destruction of a forest that covers 7% of the earth's surface, affecting the ecosystem and climate on a planetary scale, is not possible to measure. Currently, the most recurrent result byproduct raising worldwide concern is climate change.

tropical regions, especially the rainforest, play a critical role in the global carbon budget. As the largest continuous area of remaining tropical forest, the amazon region in South America has particular importance. The Brazilian amazon alone contains more carbon stored in its forest, than the amount of global human-induced fossil fuel CO₂ emissions of an entire decade. The amazon region has been substantially transformed over the last 40 years, mainly by the 'replacement of native vegetation for cattle ranching and subsistence/family agriculture and, lately, large-scale agriculture, such as soy bean cultivation'¹⁶³.

But there are several scales of anthropic perturbation to assess. The consequences of destroying forests have several dimensions given the innumerable ecological functions they have, such as maintaining biodiversity and ecosystems. The degradation goes far beyond clear cutting trees: from hunting pressure, extraction of non-wood products, proliferation of extraneous species, to the penetration of understory burn¹⁶⁴. When one commercial tree falls down, another twenty three species around it are damaged, creating clear cut areas in the forest, and giving breach to forest degradation¹⁶⁵.

The human cost of forest destruction is also multi-faceted, spanning the direct harm caused to local communities by affecting their livelihoods, to the global impact of enhancing

¹⁶³ Ometto, Aguiar and Martinelli (n 1).

¹⁶⁴ de Toledo and others (n 39).

¹⁶⁵ Marcelo Bentes Diniz and others, 'A Amazônia (Legal) Brasileira: Evidências de Uma Condição de Armadilha Da Pobreza.' (2007) 35 34 <<https://core.ac.uk/download/pdf/6357043.pdf>> accessed 15 June 2019 (translated by this author).

greenhouse gas emissions and losing biodiversity. The next chapter will focus on the human cost of deforestation in Brazil, analyzing the governmental policy behind deforestation and related human rights violations with an emphasis on indigenous groups. These communities live and depend on the forest in a different way than the rest of Brazil's society, but they are in political disadvantage. The importance of this analysis lays far beyond providing attention to their human rights concerns: it resides on the realization that we need indigenous people to be in the forest, as statistical studies have shown their presence is vital to keep the forest standing. Indeed, it is well known amongst the environmental community in Brazil that the indigenous lands are the most important barrier to deforestation¹⁶⁶.

¹⁶⁶ Silva, Prasad and Diniz-Filho (n 17).

4. Brazil: Trading the Amazon for Pasture and Cash Crops

4.1 Historical Overview of Brazilian Forest Governance

The Brazilian Amazonia is considered to be a textbook example of the modern frontier development model. Since the 1960s, the expansion of roads, dams, and large mineral projects has led to an intense process of regional occupation that has already claimed roughly 20% of the original forest and caused recurrent social conflicts¹⁶⁷.

Over the past 60 years the Brazilian state has been trying to “bring development” to the Amazon. This political will translated into managing and clearing the region in order to allow the exploitation of its resources. Over the 1960s these projects were consolidated enough to provide the authorities the territory domain and access to intensify the occupation and urbanization process¹⁶⁸. At the same time, several plots of land in Amazonian territory were privatized. From that period a model of development ‘poles’ can be observed as being established through the appropriation of lands to agricultural and cattle expansion, agrarian reform, mining, and more recently, grains exportation¹⁶⁹.

Although previous attempts to integrate the Amazon with the rest of country took place before 1960, it was not until that year, when the federal capital was moved from Rio de Janeiro to the interior of Brazil, and the first road into the Amazon was opened, that the modern Amazon frontier expansion was commenced. The major goal was to build roads linking the coast with the interior of Brazil, promoting national development, and increasing the industrial power of the country¹⁷⁰.

This process was intensified over the 1970s as millions of hectares were devoted to cattle

¹⁶⁷ Y Gradus and Harvey Lithwick, *Frontiers in Regional Development* (Rowman & Littlefield 1996) 70.

¹⁶⁸ Castro and Singer (n 21).

¹⁶⁹ Becker (n 41) 80.

¹⁷⁰ Castro and Singer (n 21).

grazing, colonization and agrarian reform¹⁷¹. With disregard for the social impact, the public lands historically occupied by ‘traditional populations’, “river communities”, indigenous people and the *caboclos* (Brazilians of mixed American Indian and European ancestry¹⁷²) were sold as large-scale plots of land to new investors¹⁷³. The new investors could acquire the plots directly from the government or private owners¹⁷⁴.

The structural degradation which paved this development also plays a key role in damage to the forest: constructing roads, railroads and hydroelectric without the environmental assessment or mitigation measures has intensified degradation. From the 1970s until the present, the Amazon has been subjected to an accelerated and unprecedented loss of biodiversity as well as deforestation¹⁷⁵.

For comparative purposes, according to the National Institute of Spatial Research (INPE) all human occupation in the region until the 1970s amounted to approximately 120.000 square kilometers of deforestation while between 1995-2012 more than 280.000 square kilometers were deforested¹⁷⁶. It wasn't until the late 1990s that Brazil began to gradually integrate sustainable standards into its forest governance. Indeed, the period from ±1990-2010 witnessed a pro-environment phase that projected the country's image as a reference in sustainable development¹⁷⁷.

¹⁷¹ Diógenes S Alves, ‘O processo de desmatamento na Amazônia’ (2010) 6 *Parcerias Estratégicas* 259 (Translated by this author).

¹⁷² ‘Caboclo | Definition of Caboclo by Merriam-Webster’ <<https://www.merriam-webster.com/dictionary/caboclo>> accessed 18 July 2019.

¹⁷³ de Toledo and others (n 39).

¹⁷⁴ Loureiro and Pinto (n 135) (Translated by this author).

¹⁷⁵ Ima Célia Guimarães Vieira, Roberto Araújo Oliveira Santos Junior and Peter Mann de Toledo, ‘Dinâmicas produtivas, transformações no uso da terra e sustentabilidade na Amazônia’ <<http://web.bndes.gov.br/bib/jspui/handle/1408/15060>> accessed 6 June 2019.

¹⁷⁶ ‘INPE - Instituto Nacional de Pesquisas Espaciais’ (n 94).

¹⁷⁷ Santilli (n 15) 43 (Translated by this author).

4.2 The Positive Turn of Socio-Environmentalism: Projecting an Image Internationally of a Sustainable Brazil

With re-democratization in the late 1980s, some positive developments can be observed from public initiatives and civil society engagement, especially regarding the resettlement programs. Over the 1990s, the proposal for conservation units was developed, and the sustainable criteria began to be incorporated in lands attribution, which favored local economies with sustainable practices. Additionally the concept of “traditional populations”¹⁷⁸ was legally created in 1992, and incorporated into the Federal Constitution of 1988 (hereafter FC).

The social environmentalist phase that followed the Rio 92 process witnessed a stronger preoccupation (both domestically and internationally) with sustainable development in the Amazon, finally inviting participation from groups which were previously excluded¹⁷⁹. This was mostly due to recognition of the highly sustainable nature of communities living of the forest and their different practices compared to the highly unsustainable practices of large agriculture and cattle corporative production.

In fact, until now, local production from extractive reserves are pointed out by the national environmentalists as sources of valuable knowledge regarding sustainable practices. Their extractivist methods and organization offer important insights as to sustainable land management use in Amazonia. Local and small familiar productions have been studied and

¹⁷⁸ Traditional people is an intentionally encompassing term whose best defining characteristic points to sustainability. ‘Originally it congregated rubber-tappers and Brazil-nut collectors from the Amazon. It has since expanded to cover other people, such as clam gatherers in the southern Brazil. What all these people have in common is a good environmental record based on low impact techniques and a stake in retaining or regaining control of the territory they exploit’. Manuela Carneiro da Cunha and Mauro WB de Almeida, ‘Indigenous People, Traditional People, and Conservation in the Amazon’ (2000) 129 *Daedalus* 315.

¹⁷⁹ Vieira, Santos Junior and Toledo (n 175) (Translated by this author).

positively related to forest conservation and several studies emphasize that these experiences should be incorporated in public policies¹⁸⁰ (will be further explained in Chapter 6).

The social environmental phase, mainly marked by the adoption of more protective environmental legislation and policies, is the responsible for projecting an image of Brazil as a sustainable country internationally¹⁸¹. The country was also internationally recognized for its promotion of important pro-environment legislative changes over the period of 1990-2009¹⁸², and for its active role in international conferences and treaty-making. Playing a significant role in the environmental geopolitical landscape, most of the conventions and treaties on sustainable development, environmentally and climate action have Brazilian ratification, such as the United Nations Conference on Sustainable Development Rio+20, the Millennium Declaration & Summit and the Paris Agreement.

As anticipated, this positive reputation lasted until the period of political instability marked by the impeachment of former President Dilma Rousseff in 2016. The series of political events that followed the major corruption scandals deflagrated by the federal police “car wash” had enormous impact on Brazilian institutions. The strongest impact was felt in the executive and legislative spheres, as dozens of influential politicians were discovered to be involved in corruption.

Although it might be too soon to draw a concrete analysis of the relationship between the political events and the downgrade in the environmental policy, one thing is certain: the two have been taking place over the last 5 years.

¹⁸⁰ Francisco de Assis Costa, ‘Questão agrária e macropolíticas para a Amazônia’ (2005) 19 *Estudos Avançados* 131 (translated by this author).

¹⁸¹ Santilli (n 15) 78 (Translated by this author).

¹⁸² *ibid* 67 (Translated by this author).

So what lies behind the steady rise in deforestation since 2012? That year marked the enactment of a major weakening of Brazil's Forest Code, removing important restrictions on deforestation — particularly in Amazonia — and making it easier to obtain official permission to clear forests legally. And thanks to the growing and unprecedented political influence of the ruralist landowners, the code pardoned illegal clearing done up to 2008, creating the expectation of future “amnesties.” Soy prices also spiked in 2012, briefly reaching the level (corrected for inflation) they had attained in 2004 and spurring farmers to clear more land. The rise in deforestation over the last five years should not be a surprise, given that the underlying factors behind forest clearing continue to grow year by year. Every year there are more people in the Amazon region, more roads giving them access to the forest, more money pouring in for investment in agriculture and ranching, and more large projects such as hydroelectric dams¹⁸³.

The downgrade and degradation number are striking to the point environmental political studies indicate that Brazil seems to be on a setback: a period referred by some scholars as the ‘post-environmentalism’¹⁸⁴. To understand the up’s and down’s of Amazon governance, below table 1)¹⁸⁵ provides a timetable analysis of the Brazilian governmental models for environmental policy.

¹⁸³ Phillip Fearnside, ‘Business as Usual: A Resurgence of Deforestation in the Brazilian Amazon.’ (2017) 360 *Yale Environment* 1.

¹⁸⁴ de Toledo and others (n 39).

¹⁸⁵ *ibid.*

Table 1) Timeline of Brazilian Environmental Governance 1953-2010.

Development Phase	Economy	Type of Participation	Role of the State	Natural Resources
Developmentalism 1953–1989	Governmental financing of infrastructure and subsidies for large-scale enterprises	Exclusion of traditional populations from public policies	Authoritarian State	Massive destruction of the Natural Capital and substitution of natural ecosystem by exogenous crops
Socio-environmentalism 1990–2009	Diversification of the sources of investment and decentralization of projects and actions	Participative model (e.g. associativism)	State regulator (networks, articulation, participation of private sector)	Valorization of biodiversity and attempts to create sustainable agro-ecosystems
Post-environmentalism 2010–...	Land market, agribusiness, financing of private enterprise	Business management model, forest concessions auctions	State/market alliance for environmental protection	Application of monetary value to environmental and ecosystem services/preoccupation with climate change

Brazil seems to have entered a market driven management model with renewed strength, as political alliances favor the agribusiness bench in Congress¹⁸⁶. In fact, after 15 years of gathering advances in halting the forest destruction, Brazil's current environmental governance opens up room for increasing the rate of deforestation:

¹⁸⁶ Fearnside (n 183).

One thing is clear: most of Brazil's Amazonian deforestation is not "development." Trading the forest for a vast expanse of extensive cattle pasture does little to secure the well-being of the region's rural population, is not sustainable, and sacrifices Amazonia's most valuable resources¹⁸⁷.

Indisputably, deforestation is linked to development practices in the region¹⁸⁹. There is a clear relationship between the advancement of the legal Amazon frontier and the increasing deforestation rate. The highly profitable activities of noble wood extraction and mining as well as the agricultural and cattle industries follow pattern of destruction¹⁹⁰. Generally, clear cutting begins with the official or clandestine building of roads inside the forest, allowing human expansion and irregular land occupation for the logging. Afterwards, the area is converted for cultivation and pasture breeding especially in large areas.

By analyzing the phases of environmental governance it is possible to infer that the Brazilian government has sponsored Amazonian deforestation, although not continuously. The socio-environmental phase had its successes but is currently being replaced by a economic predatory model. The study now provides an analysis as to how the Brazilian development agenda has been undermining human rights.

4.2 Human Rights and Deforestation: The Human Cost of Razing the Forest

The pursuit of development through the exploitation of natural resources in Brazil have become coalesced with an alarming array of human rights violations, from destroying the livelihoods of local communities, to forced labor, poverty, violent rural conflicts and displacement¹⁹¹.

¹⁸⁷ Fearnside (n 78).

¹⁸⁹ de Toledo and others (n 39).

¹⁹⁰ Diniz and others (n 165).

¹⁹¹ Marieke Riethof, 'The International Human Rights Discourse as a Strategic Focus in Socio-Environmental Conflicts: The Case of Hydro-Electric Dams in Brazil' (2017) 21 *The International Journal of Human Rights* 482.

The Amazon has been subjected to a predatory project whose economic drive surpasses the concern for human and environmental safety. This project, also known as ‘the frontier developmental model’, is largely based on¹⁹²:

- a) Exploitation of natural resources;
- b) Road construction;
- c) Mining, timber;
- d) Cattle, agriculture;
- e) Private and government sponsored settlement projects;
- f) Hydroelectric power

A human rights analysis brings attention to what this model lacks: an integration of environmental conservation policies, addressing local needs, improving local livelihoods, and most importantly, providing the local population an opportunity to express what they need in terms of development¹⁹³. Inadequate planning of new settlements, rapid urban growth and environmental degradation combined with the lack of social concern together explain why the Amazonian frontier displays the worst social indicators of the country¹⁹⁴.

Studies on the link between health and deforestation¹⁹⁵ offer important insights as health professionals in Brazil realized that infectious diseases in the Amazon, such as dengue and malaria, were directly related to the clearing of the forest. Intense immigration movement during the 1970s into the Amazon had a deadly effect on existing local communities:

¹⁹² Silva, Prasad and Diniz-Filho (n 17).

¹⁹³ Castro (n 129) (Translated by this author).

¹⁹⁴ Helle Abelvik-Lawson, ‘Sustainable Development for Whose Benefit? Brazil’s Economic Power and Human Rights Violations in the Amazon and Mozambique’ (2014) 18 *The International Journal of Human Rights* 795.

¹⁹⁵ Castro and Singer (n 21).

With such a dynamically changing environment, malaria took its toll. A steady increase in cases can be observed throughout the developmentalist phase. Only regarding malaria, the amazon region accounted for 99% of the cases in Brazil, most of them in agricultural settlements areas, mining camps, and areas of land invasion¹⁹⁶.

Health scientists had to elaborate a new concept named ““frontier malaria””¹⁹⁷ to explain the rapid transmission of malaria in settlement areas’. The outbreaks of the disease attracted the attention of the health ministry and contributed to exposing the poor sanitary conditions of the people living in the Amazonian frontier, and directly exposed to the effects and factors pertaining deforestation. In fact, looking at the region as a whole, malaria was the most severe disease prevailing in the region. Until today within Brazil, malaria only exists in the Amazon¹⁹⁸.

First, at a micro/individual level, vector densities are high, as a consequence of ecosystem transformations (...) Housing quality is poor, thereby rendering indoor residual spraying ineffective. Curative health services are sparsely available, thus limiting antimalarial drug distribution. Second, at a community level, frontier malaria is characterized by weak institutions, minimal community cohesion, political marginality of the settlers, and high rates of both in- and out-migration¹⁹⁹.

The uncoordinated process of occupying the Amazon and its massive migration is key to understanding the precarious living conditions of the region’s communities and the impact on indigenous populations. Indeed, a human rights analysis on the region inevitably raises the point whether the alleged benefits (mostly by the industrial and governmental sectors) of clearing the forest are equally enjoyed by those living there.

¹⁹⁶ *ibid.*

¹⁹⁷ Donald Sawyer, ‘Economic and Social Consequences of Malaria in New Colonization Projects in Brazil’ (1993) 37 *Social Science & Medicine* 1131; N Krieger and others, ‘Assessing Health Impact Assessment: Multidisciplinary and International Perspectives’ (2003) 57 *Journal of Epidemiology & Community Health* 659.

¹⁹⁸ Castro and Singer (n 21).

¹⁹⁹ *ibid.*

4.2.1 Poverty, Violence and Deforestation: Who Benefits from Razing the Forest?

Over the period of 1970 to 1996 the population of the Amazon Basin increased from 7.2 million to 18.7 million, much faster growth than Brazil as a whole²⁰⁰. This process is marked by a high degree of urbanization along with the usual problems of massive uncoordinated urban growth: slums, violence and lack of public services.

In 1970 the population of the Amazon was composed of 63% of rural population and only 37% urban. In 1991 this ratio is reversed, and the population now lives in cities predominantly (56%) and, already in 2000, 69% live in areas defined as urban and 31% in rural areas²⁰¹.

Unsurprisingly the region has alarming levels of severe poverty and violence. Indicators that are very high compared to the national average. This negative social framework has been discrepant with the intense transformations the region's economy has experienced over the last three decades. There has been economic growth resulting from the exploitation of the natural resources abundance, parallel to a scenario of chronic local poverty²⁰². Now the question that arises is: if not the Amazonian people, who is benefiting from razing the forest?

The human rights of the people in the Amazon are directly impacted by deforestation, urbanization, public investments and agriculture. Research on the relationship between human welfare and environmental degradation in the Amazon highlights how the “boom and bust” pattern explains why social development can paradoxically be so poor in regions with high abundance of natural resources²⁰³. The boom and bust pattern operates with the same rationale of the aforementioned logic behind deforestation; of short-term economic gains

²⁰⁰ Diniz and others (n 165) (translated by this author).

²⁰¹ *ibid.*

²⁰² *ibid.*

²⁰³ Silva, Prasad and Diniz-Filho (n 17).

with disregard for long-term social and environmental damage. This pattern takes place when the forest is not managed sustainably and the profits are not reinvested in society:

If the revenues generated by forest use are exported to other places, and if local organizations are not capable of adopting actions that sustain a relatively high growth rate in human welfare levels (...) such places may exhibit a boom-and-bust pattern. This pattern is found when the short-term gains caused by forest clearing trigger a rapid growth rate in average human welfare (“the boom”) which then drops to below national or regional averages (“the bust”) after the forest stocks have declined, thus causing populations to become deprived of the ecosystem services that once sustained their economic activities²⁰⁴.

Additionally, the Brazilian Amazon reproduces two general characteristics of inequality and poverty in Brazil: the first being that Brazil is *not* a poor country, but a country *with* a lot of poverty; and second, that the basis of this poverty does not reside in a scarcity of resources²⁰⁵. Such a framework is illustrated by the social conditions in the Amazon, a region whose natural richness holds more than enough potential to eliminate poverty within its resident population. Besides, poverty in the Amazon is deeply linked to income concentration.

The highly profitable economic activities of the region – livestock, logging and large-scale agribusiness - continue to push the Amazonian frontier. Overall, the cattle industry is ‘considered to be an economic activity that typically occupies large areas, suffers from low productivity, generates few jobs, and drives social conflicts’²⁰⁶. As previously explained, the beef industry in the consolidated frontier of East Amazonia, is highly profitable from the private perspective, given that their revenues are higher than any other region of cattle industry in Brazil²⁰⁷. While the state sponsorship of such activities might be economically

²⁰⁴ *ibid.*

²⁰⁵ Diniz and others (n 165).

²⁰⁶ Cerejeiras (n 8).

²⁰⁷ Margulis (n 100) 56.

justified, from a social and environmental perspective, the cost-benefits are, to say the least, questionable.

Over the last few decades, the legal amazon has been experimenting a process that reinforces a poverty state. The persistence of this state reassembles a poverty trap model. The GDP per capita, in average, as well as the number of poor, are stagnant. This way, the region stays behind the rest of the country's development, although variables change from one state to another²⁰⁸.

Mato Grosso, for example, is consistently one of the regional leaders in forest loss and social conflicts²⁰⁹. Mato Grosso shares this infamous title with the other states in the so called “Arc of Fire”, Pará and Rondônia. Regarding social conflicts, studies on the the relationship between the expansion of the economic frontier and the diffusion of violence in the region is also revealing.

Land conflict violence is not extraneous to Brazilian history, but in the Amazon this scenario gains particular social, political and economic variables. Studies have shown that the diffusion of violence has followed the advancement of the economic frontiers, as figure 5)²¹⁰ bellow demonstrates:

²⁰⁸ Diniz and others (n 165).

²⁰⁹ Patrícia Feitosa Souza and others, ‘The Expansion of the Economic Frontier and the Diffusion of Violence in the Amazon’ (2015) 12 International Journal of Environmental Research and Public Health 5862.

²¹⁰ *ibid.*

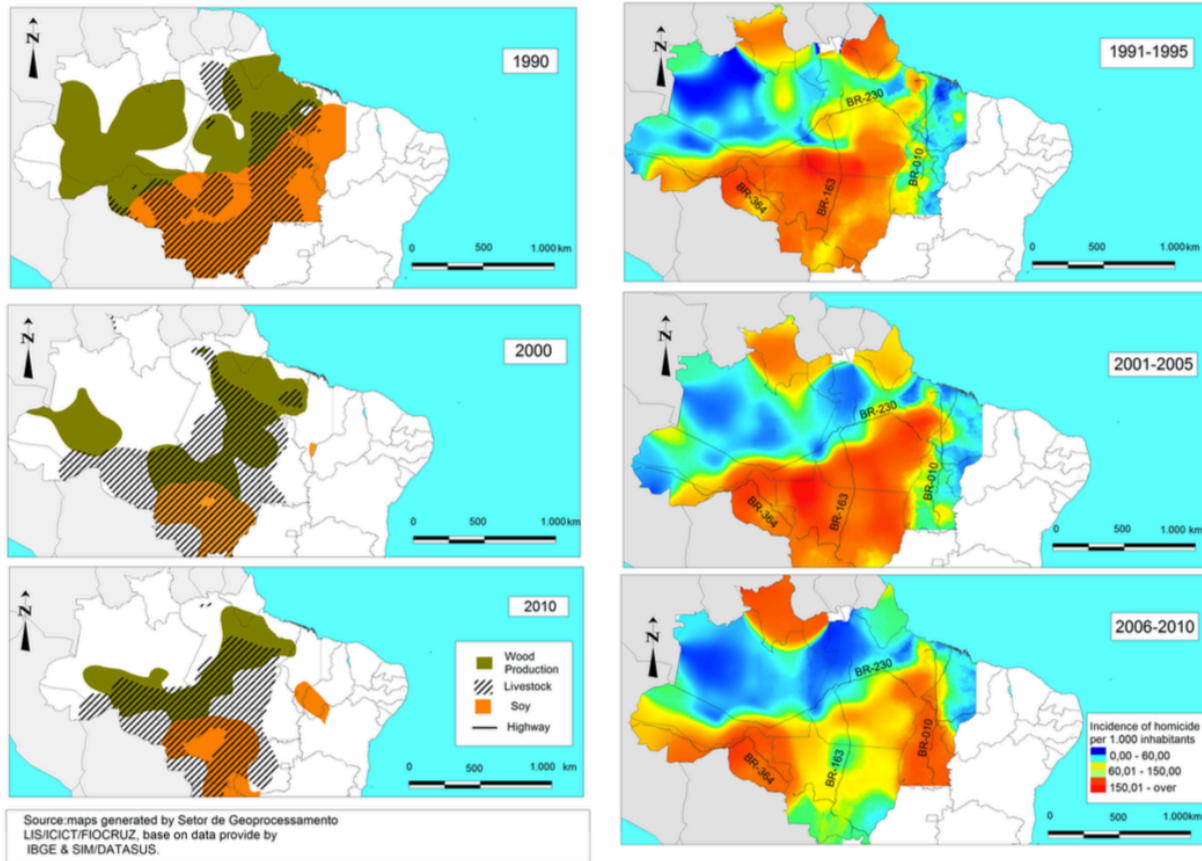


Figure 5) Expansion of Economic Activities and Spatial Diffusion of Homicide Incidence on Pioneer Front, 1990-2010.

The figure provides a visual representation of the distribution of violence, showing that the highest occurrence of violent deaths has consistently corresponded to the Arc of Fire, the most deforested area, expanding in-line with the construction of new roads.

The expansion of homicides followed the areas of establishment of productive activities (such as wood, livestock, and soy extraction). The region containing the arc of deforestation recorded the greatest increase in homicide rates in the second period, and the areas with the greatest number of deaths by homicide in the entire period were the states of Mato Grosso, Rondônia, the south of Acre, and the south and southeast of Pará. At the time, the spatial diffusion of homicides continued to follow the expansion of the wood, livestock, and soy extraction activities. In the final period, after the intense and progressive pace of closure of the pioneering agricultural

frontiers, the spatial spread of homicides in southern Mato Grosso exhibited an inverse pattern in space and time, and the states of Acre and Tocantins exhibited an expansion due to the extension of economic activities²¹¹.

Social inequality is an important component of the situation, together with the land occupation processes, the migration, rupture of the familial and social structures, the absence of state institutions, and impoverishment²¹². Bellow, Figure 6)²¹³ shows the occurrence of homicides in the Legal Amazon from the period between 1980 to 2010.

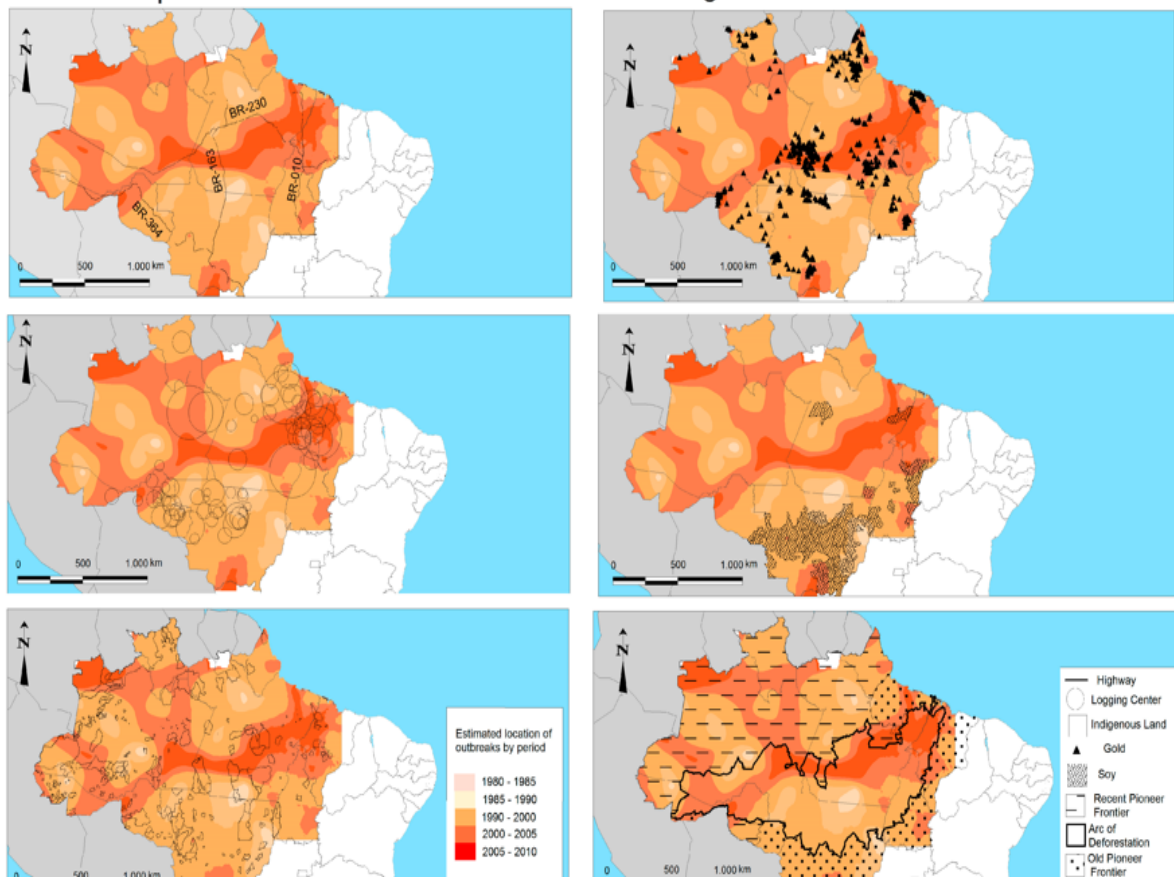


Figure 6) Occurrence of homicides in the Legal Amazon from the period between 1980 to 2010.

²¹¹ ibid.

²¹² Castro (n 129) (Translated by this author).

²¹³ Souza and others (n 209).

It is interesting to note that even during the period that witnessed the greatest improvements on environmental legislation in Brazil, the economic frontier of the Amazon was still expanding, alongside associated social conflicts. Violence in Amazonian municipalities is deeply related to the land occupation process, ‘conflicts over land possession, the predatory use of natural resources, slavery like labor conditions and urban segregation²¹⁴’ underpin this issue.

The region is known for the insecurity, where the process of occupying land is marked by the use of force and coercion. It also needs to be considered that the violent occupation of land:

Occurs in disputes arising from political and economic actions and interests that hover around large agricultural enterprises in the consolidated pioneer area, the intermediary pioneer area (the deforestation arc), and the expanding pioneer area. Conflicts over land possession, the predatory use of natural resources, slave labor, and urban segregation came to represent a distinctive characteristic of violence in the region in the mid-1990s. In this context, indigenous peoples, traditional populations, and small farmers have been the major victims of violence²¹⁵.

In fact, the most vulnerable groups, those struggling for possession of their lands, are most affected by land violence. Indigenous peoples in particular, coming from a history of governmental negligence, facing a lack of proper legal protection while continuing to be exposed to sustained land grabbing and invasions. As it will be further explained on the next chapter, the people of the forest pay the highest cost of the developmental model.

²¹⁴ *ibid.*

²¹⁵ *ibid.*

5. Indigenous Peoples: The Highest Human Cost of the Developmental Model

5.1 Historically Discriminated: The Process of Becoming a Minority

For the sake of providing context and prior to addressing the territorial issues faced by indigenous peoples in Brazil and their legal framework, this study notes that ‘indigenous’ is a colonial term elaborated to identify all the native groups that occupied the pre-colonized lands, including in Brazil. In fact, “‘indigeness’ is, in the first instance, a relationship between the colonizer and the colonized”²¹⁶. Like other parts of the world, the indigenous groups in Brazil also went from being pre-colonial majorities to post-colonial minorities²¹⁷. It is a generalizing term that, aligned with the critical thinking of anthropologists in Brazil, indeed fails to capture the enormous diversity of the groups it contains.

To have an idea of this diversity, in Brazil the indigenous population reaches approximately 800.000 thousand people, organized in 225 groups and speaking 274 languages²¹⁸. For the purpose of this research, the term indigenous will be used for the legal analysis of indigenous rights as it is also the official legal term of the national legislation.

5.1.1 Definition of Indigenous in Brazil Law

As Brazil has ratified and incorporated the International Labor Organization’s (ILO) Indigenous and Tribal Peoples Convention No. 169²¹⁹, the international criteria defined by that document is integrated into the domestic legal definition of indigenous groups.

²¹⁶ Mahmood Mamdani, *Define and Rule: Native as Political Identity* (Harvard University Press 2012).

²¹⁷ Schwartzman Stephan and others, ‘The Natural and Social History of the Indigenous Lands and Protected Areas Corridor of the Xingu River Basin’ (2013) 368 *Philosophical Transactions of the Royal Society B: Biological Sciences* 20120164.

²¹⁸ ‘Atlas de Pressões e Ameaças às Terras Indígenas na Amazônia Brasileira’ (*ISA - Instituto Socioambiental*) <<https://www.socioambiental.org/pt-br/o-isa/publicacoes/atlas-de-pressoes-e-ameacas-as-terras-indigenas-na-amazonia-brasileira>> accessed 20 June 2019.

²¹⁹ International Labour Organization (ILO), *Indigenous and Tribal Peoples Convention, C169*, 27 June 1989, C169, available at: <https://www.refworld.org/docid/3ddb6d514.html> [accessed 28 May 2019]

The ILO convention was formally integrated into national law by Decree no.5.051/2004 and the Indian Statute (Law no.6.001/1973). This statute, in its article 3, defines indigenous as ‘any individual of pre-Colombian origin and ancestry who identifies himself and is identified as belonging to an ethnic group whose cultural characteristics distinguish him from the national society is an Indian or a ‘Silvicola’ (a denizen of the forest)’²²⁰.

5.1.2 Indigenous Policy-Making

In 1940 Brazil began the first stages of indigenous policy by adopting the so called “assimilacionista” (of assimilation) point of view, or a politics of integration²²¹. It was predicated on a prediction for the next decades: ‘based on available census data and evidence of dwindling populations and indigenous assimilation, policy-makers and anthropologists alike concluded that indigenous peoples were a small minority destined, if not to altogether disappear, lose any vestiges of specific cultural identity²²²’. Policy makers of the period from 1940s to the 1960s believed ‘indigenous populations in the Amazon in the mid-twentieth century were probably approaching a historical nadir’²²³. This had a key influence on the indigenous policy of the time.

The National Indian Foundation (FUNAI) was created during the military government, and the underlying idea, based on the ‘assimilationist point of view’, was to place the very small and diminishing population in limited spaces in order to provide them time to fully integrate to the national society²²⁴. In 1972 the Indian Statute was created, giving land rights to

²²⁰ Brazilian Indian Statute of 1973.

²²¹ Beto Ricardo and Fany Ricardo, *Povos indígenas no Brasil: 2006/2010* (Instituto Socioambiental 2011).

²²² Darcy Ribeiro, *O povo brasileiro: A formação e o sentido do Brasil* (Global Editora e Distribuidora Ltda 2015) (Translated by this author).

²²³ Schwartzman Stephan and others (n 217).

²²⁴ Ricardo and Ricardo (n 221).

indigenous peoples. ‘However, indigenous groups and anthropologists found that the land rights guaranteed in the 1973 Indian Statute applied to many more peoples than its framers anticipated’²²⁵. This was followed by a long period of discussions between anthropologists, indigenous rights activists, indigenous people and military leaders of FUNAI until a consensus was reached as to whom could be considered Indian, and therefore whom would have original right to their lands under that condition²²⁶.

This recognition of rights was only possible over the years that preceded the return to the rule of law in Brazil, allied with human rights activism. The re-democratization process that took place during the 1980s strengthened the political movement responsible for finally tying together social and environmental causes in Brazil resulting in the development of the socio-environmental movement previously explained. This mobilization was ignited by environmentalists and reinforced by international dialogues on sustainable development. Socio-environmentalists defended the protection of the Amazonian peoples’ traditional ways of life while arguing that public environmental policies would only have efficacy if the local communities were properly included in the dialogue²²⁷.

5.2 Legal Framework of Indigenous Land Rights

5.2.1 Domestic Framework

The FC – the Constitution of re-democratization, known as the “*Constituição Cidadã*” (citizen constitution) - recognized the right of indigenous groups to maintain traditional cultures permanently, and their original rights to the lands they traditionally occupied.

[the Constitution contain] at least two innovative and important concepts in relation to prior Constitutions and the so-called The Indian Statute. The first innovation is the

²²⁵ Schwartzman Stephan and others (n 217).

²²⁶ Ricardo and Ricardo (n 221).

²²⁷ Santilli (n 15) (translated by this author).

abandonment of the assimilationist point of view, which considered the indigenous peoples as a transitory social category, destined to disappear. The second innovation is that the rights of the indigenous peoples over their lands are defined in the concept of original rights that are prior to the creation of the State itself. This is a result of the de facto historical recognition that the indigenous peoples were the first occupants of Brazil²²⁸.

Indeed, terms such as “assimilation, integration, or incorporation”, were left out of the constitutional text, and it is recognized that indigenous groups have their own forms of social organization, customs, languages and beliefs. Finally, the conception of viewing indigenous groups as a temporary group, destined to disappear, is put aside. In fact, this means that any type of policy-making decision or act that intends to restrict indigenous rights or undermine their ethnical condition and self-determination, such as the discourses about fostering integration, are considered unconstitutional and discriminatory. Indeed, raising questions as to how much an indigenous person is “integrated”, or “adherent” to the “modern society”, as a measurer of having rights, jeopardizes the entire legal protection of indigenous people²²⁹.

The constitutional threshold is given by:

- a) Articles 231 and 232 of the FC²³⁰ which provide:
 - The Right of Demarcation: indigenous people have the original rights to the lands they traditionally occupy. This right also places a duty upon the Union to demarcate the lands traditionally occupied by indigenous peoples and to protect and ensure respect for all their property;

²²⁸ Ricardo and Ricardo (n 221) 59.

²²⁹ Brazil’s current president himself, Jair Bolsonaro, has resorted to such discourse, and has adopted several political measures that weaken indigenous rights already in the first months of presidency. See: Dom Phillips, ‘Brazil: Indigenous People Rally in Capital to Protest against Bolsonaro Onslaught’ *The Guardian* (24 April 2019) <<https://www.theguardian.com/world/2019/apr/24/brazil-indigenous-people-bolsonaro-protest>> accessed 16 July 2019.

²³⁰ Brazilian Federal Constitution of 1988, Chapter VII, articles 231 and 232.

- Indigenous lands are inalienable, unseizable and imprescriptible;
- The protection of the lands, especially in relation to the exploitation of natural resources, and protection against dispossession or forced removal from their lands;
- Exclusive use over the resources of the soil, the rivers and the lakes to the indigenous people.

Hence, the legal basis for the large-scale demarcation of indigenous lands in the Amazon has been primarily guaranteed in the Constitution. It is important to note that the bare ownership of the lands belongs to the Federal Union but the legal system gives the indigenous communities full possessory rights over their lands²³¹.

The demarcation process is described in Decree no.1775 of 1996 which attributed the FUNAI legal responsibility of identifying and demarcating indigenous lands. The FUNAI, with the support of the federal police, is in charge of monitoring the lands, defending and protecting its natural assets which are of exclusive use by the communities²³².

Additionally, the infra-constitutional legislation complements the framework of indigenous land rights:

- b) Indigenous Statute: in a nutshell, determines that the indigenous lands are destined to their living and subsistence, and cannot be subject to any kind of juridical act that restricts the full enjoyment of their ownership²³³.
- c) Forest Code, Article 3, Paragraph 2: Defines the Vegetation Cover of the Indigenous Lands as a Permanent Preservation Unit²³⁴.

²³¹ São Paulo, 'Avoided Deforestation (REDD) and Indigenous Peoples' biodiversity conservation 148.

²³² Decree no.1775 of 1996

²³³ Brazilian Indigenous Statute (Law no.6.001 of 1973), articles 18, 26 and 27.

²³⁴ Forest Code (Law 4771 of 1965) articles 3, para. 2, and 16.

It is important to note that there are three types of protected areas in Brazil's environmental protection system, all of which are instituted through federal law. The permanent preservation units have the highest protection status. It was instituted by law no.12.651/2012²³⁵, article 3, II, and is automatically attributed once the geographical condition legally defined is observed, regardless whether it is a public or private area, rural or urban. Additionally, in the Amazon biome another category of protection must be observed: every area of the Amazon must maintain 80% of native forest cover.

- d) Public Forest Management Law, article 11, IV: expressly forbids indigenous lands from being subjected to forest concession by private companies²³⁶.
- e) Environmental Crimes Law n.9.605 of 1998²³⁷, articles 38, 39, 40, 50-A and 51: defines the activities of taking resources from indigenous lands as crimes, punishable with monetary fines to imprisonment.

5.2.3 International Framework

Brazil is a signatory to the most important documents setting international standards for indigenous rights enforcement: the previously mentioned ILO Convention 169, and the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP).

The country ratified the ILO convention in 2002 and incorporated it into national law. However, now it will be further explained how one of the cornerstones of this legal document, the right of indigenous people to prior and informed consent, is not effectively applied in Brazil. In reality, as 'there have not been any legislative or regulatory developments regarding the consultation and consent, the state has unilaterally disposed of natural resources

²³⁵ Federal Law no. 12.651 of 25 May 2012, article 3, II.

²³⁶ Public Forest Management Law No 11.284, of 2 March 2006, article 11, IV.

²³⁷ Environmental Crimes Law n.9.605 of 12 February 1998, articles 38, 40, 50-A and 51.

within indigenous lands, without the consent of the affected indigenous people²³⁸, as the Belo Monte case previously mentioned has demonstrated.

Having understood the indigenous land rights framework, it is now possible to contextualize all the pressures and threats surrounding the indigenous territories and their people, and understand how these groups have been surviving against the political, economical and social forces behind deforestation.

5.3 *Reduzidos Sim, Vencidos Nunca*²³⁹: Reduced but Never Defeated in the Frontline of Deforestation Impact

We are all sitting in the belly of our mother land. The Hutukara stays with the rock, the land, the sand, the river, the sea, the rain and the wind. We, the indigenous people of Brazil, do not need to grab natural resources. The natural resources can stay with the Hutukara. The precious stones can stay there with the Hutukara (...) We need to respect [Hutukara] because the Hutukara is like us, she is alive. She is the one taking care of us, she is the one feeding us, giving water, and this water is life (...) Hutukara is in pain, but she will not scream like we scream. When they cut your fingers, you will scream. If you cut your finger with a knife, you bleed. The Hutukara is also bleeding. The heavy machines are scraping up the land like a razor blade. The razor blade of the heavy machine is hurting the Hutukara. We can not destroy the Hutukara. Hutukara is our mother, she is the one that lets out child by birth. She was born first when the earth came. Therefore, she is our mother²⁴⁰.

In this speech at the Federal University of Minas Gerais (UFMG/Brazil) in 2013²⁴¹, the Yanomani leader, Davi Kopenawa, explained how the *Hutukara*, the mother land, where we

²³⁸ Paulo (n 231).

²³⁹ During the commemorations of the 500 years of Brazil, this emblematic phrase echoed around the country after the Amazonian Indigenous protest in 2000: we have been reduced, but never defeated. Heck, Loebens and Carvalho (n 115) (Translated by this author).

²⁴⁰ Gomes and Kopenawa (n 29) 146 (Translated by this author).

²⁴¹ Gomes and Kopenawa (n 29).

all belong and live, is only one. As he urges the ‘the white people’ to stop destroying the mother land, he explained how his tribe suffers with the devastation of the Amazon.

Indigenous communities in the Amazon have a different and special relationship with the land, and condemn the activities and behaviors that lead to the deforestation and degradation of the forest. This relationship is based on the view that they are part of nature. In a similar mark to colonialism, several indigenous groups of the region came close to extinction over the second half of the last century, as a consequence of the conflict between their traditional way of living and what the government had planned for the Amazon²⁴².

Indigenous peoples have rich and diverse cultures based on a profound spiritual relationship with their land and natural resources. Dichotomies such as nature vs. culture do not exist in indigenous societies. Indigenous peoples do not see themselves as outside the realm of nature, but as part of nature, and they have their own specific attachment to their land and territory and their own specific modes of production based on a unique knowledge of their environment. Nor do indigenous peoples emphasize a radical duality between the sacred and the mundane as happens in Western culture²⁴³.

To this date, it is known Brazil has indigenous people in almost all federal units, but the large majority lives in the seven states that compose the legal Amazon (approximately 77%)²⁴⁴. The indigenous lands in the Amazon account for almost 20% of the forest²⁴⁵. All these units have been reported to suffer from invasions, occupations and illegal deforestation through logging, burnings, mining, dam construction, agricultural and cattle expansions, sawmills

²⁴² Senilde Alcântara Guanaes, ‘O Estado nacional e as Políticas desenvolvimentistas: o “cerco articulado” contra os guarani na tríplice fronteira do sul.’ (2015) 3 Tessituras: Revista de Antropologia e Arqueologia 307.

²⁴³ Vereinte Nationen and Permanent Forum on Indigenous Issues (n 28) 53.

²⁴⁴ ‘IBGE | Indígenas | Mapas’ <<https://indigenas.ibge.gov.br/mapas-indigenas-2.html>> accessed 3 July 2019.

²⁴⁵ Ricardo and Ricardo (n 221).

and urbanization processes²⁴⁶. Below, Figure 7²⁴⁷ shows the pressure of deforestation in indigenous lands in the Amazon:

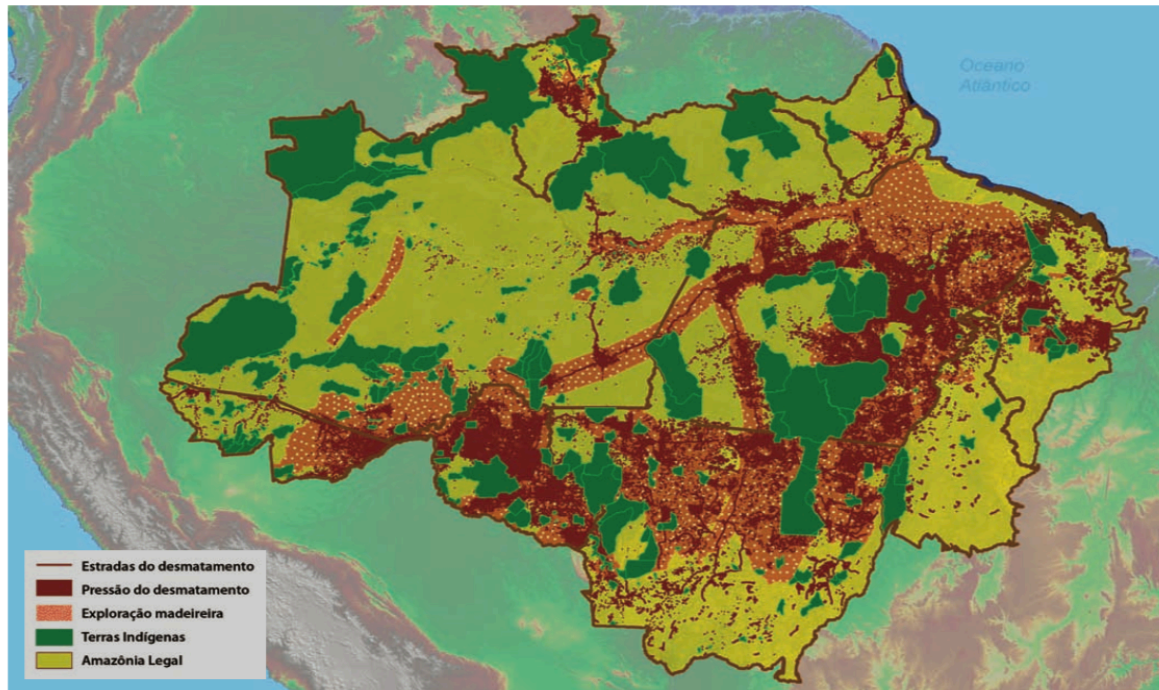


Figure 7) Deforestation Pressure on Indigenous lands in the Amazon. Portrayed (top to bottom): roads of deforestation; Pressure of deforestation; Logging exploitation; Indigenous Lands; Legal Amazon.

The previously explained state sponsored project of Amazonian development had its highest impact on the indigenous people living in the region. The underlying reason for that is their political marginalization, the fact these groups are a minority in rights and in representation. Facing the state neglect and in properly demarcating and protecting their original lands, they remain vulnerable to predatory logging, mining companies and violent rural conflicts, and

²⁴⁶ Cerejeiras (n 8).

²⁴⁷ *ibid* 5.

have little or no influence on the procedures of construction of dams or logging concessions²⁴⁸.

In Brazil, the issue of territorial rights of indigenous peoples is inevitably associated with the current legal environmental framework (...) Indigenous people are legal subjects who have the power to dispose of the natural resources existing in their lands. The only exceptions to this rule are mineral and hydraulic exploration in indigenous lands (...) the necessary legislation to release the realization of these activities within indigenous lands as required in the FC, paragraph §3 of article 231 has not been enacted. Unfortunately, even though the necessary legislation for the exploitation of mineral and hydroelectric exploitation in indigenous lands does not exist, the Brazil State has been promoting the realization of hydroelectric infrastructure works within or affecting indigenous lands, without respecting the constitutional rights of these people, including the right to free, prior and informed consent. See, for example, the case of Belo Monte Hydroelectric Plant in the Xingu River (...) ²⁴⁹.

Hence, although constitutionally guaranteed, it is possible to infer that the state intervention mitigates the territorial rights of indigenous groups, especially when it comes to prioritizing the process of occupation and conversion of forest land into commodities, or the installation of mega infrastructure projects. In simpler terms, these groups have been, and continue to be, forcibly displaced according to the geopolitical interests of the developmental agenda.

5.3.1 Cultural Integrity, Self Determination and Property: Main Violations

There is an Amazonian world unknown to the groups dictating the future of the forest in Brazilian politics and the international community:

This world is occupied by indigenous people in the most varied situations of relationship and contact with non-indigenous societies, notably Western and European. Ranging from the so-called resistant peoples (also called resurgent) to the

²⁴⁸ Jaichand and Sampaio (n 69).4.3

²⁴⁹ Paulo (n 231) 37.

‘free people’ (isolated, with no contact whatsoever with the national society). Together they share the great amazon basin and face the most unbridled and uncoordinated politics of occupation and exploitation. Currently, there are formal procedures under discussion in Congress asking to regulate and allow economical exploitation in all indigenous lands in the Amazon²⁵⁰.

There are many underlying factors of the gradual destruction of the Amazon such as the policy-making and lobbying behind the scenes of public concessions, the gigantic infrastructural projects (like the Belo Monte Hydroelectric), development of roads, agri-business incentives, and environmental legislations reforms. The maintenance and protection of cultural diversity within the indigenous groups living in the Amazon is not a priority of the current developmental agenda. Accordingly, this political context keeps indigenous peoples, in the words of Darcy Ribeiro, in a ‘frank and inexorable process of ethnical transfiguration’²⁵¹.

Within the multi-faceted analysis of relevant human rights violations, these groups are mainly affected in:

a) Impact on the Right to Cultural Integrity

The first aspect to consider is the cultural and spiritual link²⁵² to the land and nature indigenous people have which is disrupted when they are dispossessed or removed from their land. This right is constitutionally guaranteed within their land rights, as the FC determines that the indigenous lands are inextricably tied to customs, uses and traditions. The existence of the group itself is affected by the loss of the forest and natural living space. Indigenous communities practice subsistence cultivation and hunting, depending directly on the land, the forest, the river and all it contains.

²⁵⁰ Heck, Loebens and Carvalho (n 115).

²⁵¹ Ribeiro (n 222) 67 (Translated by this author).

²⁵² Vereinte Nationen and Permanent Forum on Indigenous Issues (n 28).

Accordingly, the land holds cultural significance too; these communities have ‘cultural links to the land that shape their entire livelihood’²⁵³. If the land is taken away, their sacred sites desecrated or if they are forced to evict, the existence of the group is immediately affected by the potential ‘loss of traditional knowledge and cultural heritage, denial of access to traditional resources used for medicines and religious ceremonies, and loss of access to a collective cultural life’²⁵⁴.

b) Impact on the Right to Self Determination and Right to Property

As previously explained, it is constitutionally guaranteed indigenous people in Brazil have the right to own, control and manage their lands, as well as to determine the use of natural resources within their lands in accordance with their own priorities for development. The idea of self-determination comes from the realization that ‘human beings, individually and as groups, are equally entitled to be in control of their own destinies, and to live within governing institutional orders that are devised accordingly’²⁵⁵. The right to self-determination encompasses the right to freely manage the natural resources for the community’s subsistence, and the right to free, prior and informed consent (FPIC)²⁵⁶.

The ILO Convention 169 determines in article 6(1):

Governments shall: (a) consult the peoples concerned, through appropriate procedures and in particular through their representative institutions, whenever consideration is being given to legislative or administrative measures which may affect them directly; (b) establish means by which these peoples can freely participate, to at least the same extent as other sectors of the population, at all levels of decision-making in elective institutions and administrative and other bodies responsible for policies and programmes which concern them.

²⁵³ *ibid.*

²⁵⁴ Oswaldo Ruiz Chiriboga, ‘The Right to Cultural Identity of Indigenous Peoples and National Minorities: A Look from the Inter-American System’ (2006) 3 *Sur. Revista Internacional de Direitos Humanos* 42.

²⁵⁵ James S Anaya, ‘The Right of Indigenous Peoples to Self-Determination in the Post-Declaration Era.’ (International Work Group for Indigenous Affairs Document 2009) 127.

²⁵⁶ *ibid.*

The above principle has been formally integrated in Brazilian legislation. However, considering the pressures and threats surrounding indigenous lands in Brazil -distinctively, but not restricted to, the Amazon- it is possible to conclude that the right of self-determination, in all its dimensions, is the most blatantly violated. The pending regulation of mining and utilization of energy resources in indigenous lands, the demarcation process, the innumerable illegal invasions of loggers, miners, farmers compose the infamous yet constantly ignored pressures²⁵⁷.

To have an idea, in 2005 it was estimated there were more than 5000 procedures of mining exploitation in areas within indigenous lands in the Amazon, within the National Department of Mineral Production (DNPM), many of them were formally authorized²⁵⁸. It is constitutionally provided that mining activity is forbidden in indigenous lands²⁵⁹. An exceptional case would need to be specifically regulated by complementary legislation. This legislation was never enacted. The risks are innumerable: soil erosion; contamination of the soil, water, air; and degradation of vegetal cover amongst others.

The indigenous lands with the highest number of mining licenses (targeting almost 90% of their territories) are the Yanomani, Menkragnoti and Alto Rio Negro in the federal units of Rondônia, Pará and Amapá, respectively (all located in the legal Amazon)²⁶⁰. The state failure to enforce the legal protection of indigenous rights is a clear violation of indigenous possessory rights over their territories and resources as well as their right to self-determination.

²⁵⁷ Cerejeiras (n 8).

²⁵⁸ *ibid* 34.

²⁵⁹ Brazilian Federal Constitution of 1988, art 231, paragraph 7.

²⁶⁰ Cerejeiras (n 8) 34.

Indigenous rights violations are walking side by side with the Amazon deforestation. On the other side of that coin, and now focusing on ways forward, protecting the forest is protecting its people. It is now time to analyze how deforestation is being stopped or controlled by the existence of indigenous lands, and how indigenous land rights enforcement has to be a priority action to the rain forest preservation.

6. It doesn't have to be this way: protecting the forest and empowering the forest people

6.1 Indigenous Rights Enforcement can Save the Amazon

*We, indigenous, are rich of forest, rich of water, rich of rain, rich of everything, this is what we feed on*²⁶¹.

Indigenous lands constitute areas where deforestation has been avoided. In light of what has already been highlighted, there are two main reasons for this: one, the particular way in which these communities manage their territories, practicing subsistence cultivation and hunting, while making sure the 'mother land' is preserved; and two, their own presence. 'No deforestation can be avoided in inhabited lands'²⁶². Areas populated by communities living and depending on the forest are themselves important barriers to invasions and the expansion of mining, logging and agricultural, particularly cattle, expansion.

Considering the studies regarding where deforestation is taking place, studies on the possibility of implementing the United Nations Reducing Emissions from Deforestation and Degradation (REDD)²⁶³ projects in indigenous lands have found that deforestation affecting indigenous lands is still not substantial, affecting less than 2% of the total area constituting these units²⁶⁴.

That new Indigenous lands protected areas reduce deforestation may seem an obvious point, but how much? Since 2002 in the Brazil Amazon, the average probability of deforestation has been 7–11 times lower inside Indigenous Lands Protected Areas (ILPAs) than in surrounding areas. Simulation models suggest that ILPAs established

²⁶¹ Gomes and Kopenawa (n 29).

²⁶² Paulo (n 231) 6.

²⁶³ 'UN-REDD Programme' (*UN-REDD Programme*) <<https://www.un-redd.org>> accessed 6 May 2019.

²⁶⁴ Paulo (n 231).

between 2003 and 2007 could prevent 272,000 km² of deforestation through 2050, equal to 3.3 $\pm$ 1.1 GtC, more than 1/3 of the world's annual CO₂e emissions²⁶⁵.

Indeed, the role of indigenous lands has been equally or even more effective in halting deforestation than conservation units established in the forest, which clear pre-set areas of human presence. This reinforces the message that indigenous communities – not only in Brazil, but globally – have been trying to consolidate over the last decade: that environmental conservation policies *cannot* be separated from indigenous rights. Preservation decision-making cannot exclude the presence of indigenous inhabitants, for that is not only counter-effective, but represents a dangerous threat to their existence.

Indigenous lands have played a key role in conservation: 98,4% of their total area in the Amazon is preserved. Deforestation within their lands accounts for only 1,3% of total amazon deforestation. IL's represent as equally or more efficient in protection than the Conservation Units. Estimates indicates that in Mato Grosso and Rondônia regions, the deforestation may be up to 10 times higher outside legally protected areas than therein. This proportion rises to 20 times higher in Pará²⁶⁶.

But in order for indigenous people to continue to curb ecological degradation, they must be backed up by the law and the state. Their rights require enforcement, and their territories must be respected. An anti-indigenous politics weakens already fragile territorial limits and provides cover for continued land grabbing and violence. Despite data demonstrating that designating public areas for the conservation of biodiversity and protection of traditional as well as indigenous land rights are the most effective means of controlling regional deforestation, across the Brazilian Amazon such areas remain unfunded and ill-protected²⁶⁷.

²⁶⁵ 'Indigenous Lands, Protected Areas, and Slowing Climate Change' <<https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.1000331>> accessed 21 May 2019.

²⁶⁶ Leandro Valle Ferreira, Eduardo Venticinque and Samuel Almeida, 'O desmatamento na Amazônia e a importância das áreas protegidas' (2005) 19 Estudos Avançados 157 (Translated by this author).

²⁶⁷ Adrian Antonio Garda, José Maria Cardoso Da Silva and Patrícia Carvalho Baião, 'Biodiversity Conservation and Sustainable Development in the Amazon' (2010) 8 Systematics and Biodiversity 169.

Additionally, it must be emphasized that the importance of reinforcing indigenous land rights lays far beyond simply avoiding deforestation and slowing climate change:

They [indigenous territories] are cultural spaces which sustain livelihoods that are adapted to the inherent diversity of tropical forests and that are therefore compatible with and beneficial to the maintenance of forests and the equilibrium of ecosystems which provide essential environmental services²⁶⁸.

Hence, it is intuitive to infer that protecting the forest is tantamount to protecting its people²⁶⁹. Not only the indigenous peoples, but also the river and extractive communities, and the settled families that subsist due to the forest. These people need to have a seat at the table in order to share what development means to them and elaborate their own systems of resources governance. This perspective involves another way to look at governance that departs from the traditional model which states that ‘governance is what governments do’²⁷⁰.

For this purpose, bearing in mind the destruction of the forest is an ultimate process that starts with the underlying factors involving land use management, this study will briefly address Elinor Ostrom’s theory of *Common Pool Resources* within environmental governance. The theory is presented as a contribution to understand the practical effects of the integration of conservation standards in the Brazilian environmental legislation during the social-

²⁶⁸ Paulo (n 231).

²⁶⁹ The term forest people here is aligned with the notion previously introduced of “traditional people” of the Amazon, defined in Brazilian Federal Decree 6.040. As previously explained, it is a purposefully category that intends to encompass all small land holders and their communities with small footprints in the environment. It therefore goes beyond indigenous, including the *river people*, extractivist communities, and *quilombolas*.

²⁷⁰ Governance solutions don’t need to rely exclusively with the government, specially when it comes to large-scale problems. For further reading on the theory of polycentric governance applied to environmental management that don’t rely on the role of state see: Michael Dean McGinnis, Indiana University Workshop in Political Theory and Policy Analysis and Indiana University Analysis Bloomington Workshop in Political Theory and Policy, *Polycentric Games and Institutions: Readings from the Workshop in Political Theory and Policy Analysis* (University of Michigan Press 2000); RAW Rhodes, ‘The New Governance: Governing without Government’ (1996) 44 *Political Studies* 652.

environmentalism, and to (hopefully) pave the way towards applicable solutions in the already established settlements in the Amazon.

6.2 Governing Common Goods: Ask the People

Top-down solutions relying on the central role of the state have been a false panacea in the governance of many resources²⁷¹.

What is the most sustainable way to govern the Amazon?

The climate emergency has been mentioned in previous chapters when considering the harmful effects of converting the Amazon forest into simply a commodity supply land. The earth's rise in temperature caused by anthropogenic action is a classic example²⁷² of the so-called "Tragedy of the Commons"²⁷³. This theory exposes that the sum of individual rational behavior can tragically lead to the depletion of a good everyone depends on, such as the atmospheric sinks²⁷⁴. In simple words, it is all about the management of resources that are used in (planetary) common.

So what are the commons? The commons are resources shared by a group of people who are subjected to social dilemmas²⁷⁵. These social dilemmas mainly refer to all the problems that

²⁷¹ Elinor Ostrom and Michael Cox, 'Moving beyond Panaceas: A Multi-Tiered Diagnostic Approach for Social-Ecological Analysis' (2010) 37 *Environmental Conservation* 451.

²⁷² David Feeny and others, 'The Tragedy of the Commons: Twenty-Two Years Later' (1990) 18 *Human Ecology* 1.

²⁷³ The "Tragedy of the Commons" is a famous economic theory coined by Garrett Hardin in 1968, that mainly argues that, in a situation where all individuals have access to a common resource, each user will act rationally and independently according to their self-interest, and contrary to the common good of all users, consequently resulting in the leading to the depletion or destruction of the resource itself. In: Garrett Hardin, 'The Tragedy of the Commons' (1968) 162 *Science* 1243.

²⁷⁴ Looking at the issue of climate change through the perspective of common pool resources, see: Elinor Ostrom, *A Polycentric Approach For Coping With Climate Change* (The World Bank 2009) <<https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-5095>> accessed 23 July 2019.

²⁷⁵ C Hess and E Ostrom, 'Introduction: An Overview of the Knowledge Commons', *Understanding Knowledge as a Commons: From Theory to Practice* (MITP 2007) 66 <<https://ieeexplore.ieee.org/document/6284197>> accessed 23 July 2019.

can arise from the competitive use of resources within society. Refusing the pessimistic scenario of the tragedy of the commons, Elinor Ostrom proposed an alternative view to the idea that ‘unrestricted access to communal resources would inevitably lead to over-exploitation’²⁷⁶.

In a nutshell, Ostrom postulated that when it comes Common Pool Resources, the institutions for its governance are less effective when established by the State instead of the communities that use these resources²⁷⁷.

Individuals will be more likely to create and conserve the commons when they have credible and reliable information about the costs and benefits of resource decisions and (crucially) **when they have an opportunity to decide the rules of the game**. Drawing upon her empirical case material, she identified eight ‘design principles’ that would improve the effectiveness and sustainability of common property regimes: clear resource boundaries (i.e. knowing physical and ecological properties of the resource), clear rules of membership (knowing who is entitled to use the resource), congruence between rules of provision/appropriation and local conditions, arenas for ‘collective choice,’ mutual monitoring, ‘graduated’ sanctions, mechanisms for conflict resolution (i.e. ensuring that resource users are able to monitor and sanction other resource users) and, finally, a state that is willing to recognize (or at least not challenge) local rights of organization²⁷⁸.

By studying ‘solutions to the collective governing of goods, despite rational choice individualism’²⁷⁹, she designed solutions based in cooperative management by local communities. Ostrom’s common pool resources governance theory provided an enormous contribution to sustainable environmental governance²⁸⁰, shining light towards Amazonian

²⁷⁶ Tim Forsyth and Craig Johnson, ‘Elinor Ostrom’s Legacy: Governing the Commons, and the Rational Choice Controversy’ (2014) 45 *Development and Change* 1093.

²⁷⁷ Elinor Ostrom, *Governing the Commons: The Evolution of Institutions for Collective Action* (Cambridge University Press 1990).

²⁷⁸ Forsyth and Johnson (n 276).

²⁷⁹ *ibid.*

²⁸⁰ *ibid.*

forest governance practices, including those that may be well-intentioned but fail to deliver the expected results.

There are several sustainable projects with local communities in the Amazon, both implemented by state and non-state actors, and mainly focused on settlement areas. They exist at the municipal, state and national levels²⁸¹. As anticipated above, during the socio-environmental phase, Brazilian environmental legislation recognized the highly sustainable role traditional people display in living from the forest – highly sustainable, in contrast to the highly unsustainable performance of large agriculture and cattle corporative production.

This recognition was incorporated in two important environmental legal instruments: the National System of Nature Conservation Units (SNUC)²⁸² created in 2000 which established environmental considerations in the agrarian reform program; and the National Policy of Sustainable Development of the Traditional People and Communities (PNPCT).

The creation of ‘mosaics of areas of conservation and sustainable land use units, including agrarian settlements’ gave the people therein the opportunity to use the land differently and according to their needs²⁸³.

These policies explicitly refer to the organizations and institutions of traditional populations that need to be respected²⁸⁴. Accordingly, federal and state governments implemented projects within the settlement areas to enhance sustainable practices, with forest conservation

²⁸¹ de Toledo and others (n 39).

²⁸² Brazilian Conservation Units System Law no.9.985 of 18 July 2000.

²⁸³ de Toledo and others (n 39).

²⁸⁴ Daniel Mendes Pinto, ‘O uso de recursos de propriedade comum em áreas de propriedade estatal por populações tradicionais e assentados da reforma agrária’ <<http://repositorio.unb.br/handle/10482/17787>> accessed 19 July 2019.

standards varying from 50 to 80%. However, studies on the forest loss in the settlement areas point out that the challenge of sustainable practices and preserving vegetal cover remains²⁸⁵:

Ultimately, many agrarian settlements and conservation units are failing in fulfilling their socioeconomic and environmental roles, and as such are becoming vectors of predatory exploitation of natural resources, such as timber and minerals. The post-environmentalist model implemented in the Amazon since 2010 has provided a “green” (dis)guise for business-as-usual development as it continues to over-exploit natural resources, concentrate landholdings, apply non-sustainable technologies, and exclude traditional populations²⁸⁶.

Applying Ostrom’s concept of effective management of the commons, the analysis of the management and organizational powers of the people is enlightening. The effectiveness and viability of the policy instruments, in the words of Barton, depend on ‘how well they interact with the socio-ecological systemic context’²⁸⁷.

In reality, the process of land occupation in the Amazon and of all the associated violence, makes it difficult to realize a scenario wherein the common access character serves as an empowerment to local communities, rather than a threat (or a competitive exploitation). The pre-existing socio-ecological systemic conditions in the settlements need to be addressed by stakeholders that are willing to implement the vision of the forest as a common pool resource:

The institutionalization of forest commons in settlements will require long-term adaptive management involving rights and responsibilities shared between local, NGO, and state actors. Given the prevailing set of practices and perceived technical options in settlements in the Brazilian Amazon – illegal logging and extensive pasture

²⁸⁵ Benno Pokorny and others, *A produção familiar como alternativa de um desenvolvimento sustentável para a Amazônia : lições aprendidas de iniciativas de uso florestal por produtores familiares na Amazônia boliviana, brasileira, equatoriana e peruana* (CIFOR 2010) (Translated by this author).

²⁸⁶ de Toledo and others (n 39).

²⁸⁷ Philip S Barton and others, ‘Guidelines for Using Movement Science to Inform Biodiversity Policy’ (2015) 56 *Environmental Management* 791.

establishment through clear cutting and burning - **settlers see themselves on a trajectory toward capital accumulation via forest conversion, with limited responsibility for broader social and environmental benefits ...** Careful settlement design and planning, emphasizing integrated approaches to ensure the social viability of forest commons, represents an unusual opportunity to address such systemic socio-ecological challenges and so combat a non-commons tragedy²⁸⁸.

Hence, it is possible to infer that although sustainable developmental standards exist in theory, they need to effectively integrated in decision-making by the people of the land, at a community level. Not only in the sense of participation, but as *co-governance*. When top-down regulatory systems are unaccompanied by local and shared governing systems, it is likely they will fail to foster a perception of the forest land as a common pool resource²⁸⁹.

²⁸⁸ RB Davenport and et al, 'A Policy Mix to Prevent a Non-Commons Tragedy for Collective Forest Reserves in Agrarian Settlements in Northwest Mato Grosso.' (2016) 20.3.

²⁸⁹ Joanna Burger and others, *Protecting the Commons: A Framework For Resource Management In The Americas* (Island Press 2001).

7. *A Conta Não Fecha*, It Doesn't Add Up: The Cost-Benefit of the Deforestation Developmental Model

“When I met Trump, I told him, among other things, that I want to open for them to explore the Amazon in a partnership.”

Jair Bolsonaro, President of Brazil,
Washington, 8 April 2019²⁹⁰.

Progress and development have long been associated with the behavior of converting nature to the maximum usage of human beings. Unsurprisingly, so much nature has been lost. Forests are disappearing, and with it also disappears the immense, and still unknown, biodiversity therein. As if that was not bad enough, cutting or burning trees releases the carbon they previously stored into the atmosphere. With this in mind, is deforestation a rational choice?

Rational or not, this is what is happening. How much does it cost to keep the forests standing, and who is to pay the price? Are trees even a commodity, in the first place?

These are the hot questions of the environmental debate amidst the climate emergency. What we have of forests today represents approximately 60% of the earth's forest original cover²⁹¹. Amazônia holds the title of the largest tropical forest of the world, but for how long?

There is a phrase often heard in Brazil: “*The gringos*²⁹² want the Amazon, but the Amazon is ours”. Indeed, at least half of this sentence is unequivocally true: The Brazilian Amazon

²⁹⁰ ‘Brazil’s Bolsonaro Wants U.S. to Join Development Plan for the Amazon’ *Reuters* (8 April 2019) <<https://www.reuters.com/article/us-brazil-environment-amazon-idUSKCN1RK2GH>> accessed 17 July 2019.

²⁹¹ Ghazoul (n 40).

²⁹² Foreigners in Brazil are usually referred as gringos.

belongs to Brazil, being fully under its sovereign power. But there's more to this sentence than it seems. It exhales a combination of fear and power that speaks volumes about the forces behind forest management both in Brazil's past and present. At the time of writing, an 88% increase in the deforestation rate was registered compared to the year before (July 2018 – July 2019)²⁹³.

This study investigated what is being done with the forest and what is being done with its people over the last few decades. Therefore, in light of all of the above, this study draws four main conclusions:

1. Regarding the **issue of Deforestation**:

a) Deforestation and development constitute inseparable elements for analysis. An analysis which, for brevity and research constraint, this study was unable to fully cover. However, why developed countries are replanting forests while developing or underdeveloped countries are destroying them is certainly an unsettling question within international politics. It poses unavoidable questions towards the dynamics of environmental conservation, market forces and the commodification of nature in a world where states balance the duties and costs of halting climate change.

b) Nonetheless, it is indisputable that the deforestation of the Amazon is a global problem. In light of the fact that previous attempts to internationalize forest issues have been both unsuccessful, but at times, also damaging when providing an incentive for national governments to violently occupy forest lands.

2. In light of the developmental choices of the Brazilian government, this work concludes the following regarding the **role and responsibility of the state**:

a) The Role

²⁹³ (Official Institute for Space Research (INPE), a governmental body that handles the monitoring of the amazon, detected this month (July 2019).

a.1) First, states are the primary actors in ensuring environmental protection but not the only ones. This becomes particularly evident in developing a hybrid policy mix approaches for large-scale environmental problems. Solutions must involve multiple actors, especially the people most directly affected. In this regard, human rights plays a fundamental role in providing marginalized communities the right to express their own needs in terms of development.

Second, solutions to environmental degradation do not always need to be state-centered, as Ostrom highlighted regarding the optimal use of common resources. For it is as simple as it seems: the people dealing with these resources will have the answer, but for that they have to be provided the means and opportunity to organize and protect the shared goods themselves.

b) Regarding the Responsibility

b.1) There is a contradiction between the international image projected by Brazil as a sustainable country and its domestic actualities. This contradiction has been falling apart with the post-environmentalism, and as the rise of Amazon deforestation becomes a priority concern within international climate action and biodiversity conservation panels. The newly elected president has been contributing to the dismantling of this contrast, as he actively positions himself against indigenous rights enforcement while institutionalizing setbacks to rainforest preservation efforts.

b.2) There appears to be a historical and continued institutional failure to recognize the importance of the forest and consequently a failure to correctly value forest products – if accepted that trees can even be considered as commodities in the first place - and the environmental benefits embedded in its conservation.

b.3) Deforestation is a result of direct and underlying factors combined with failed governance. The historical model of development that has been based in converting the rainforest into a land commodity supply land has returned as post-environmentalism. Human rights concerns here mainly revolve around the reproduction of social and territorial

exclusions this model contains and the increasing exposure of vulnerable groups to environmental hazards and land violence risks.

b.4) The legal environmental standards and indigenous rights framework are constitutionally guaranteed, but are not sufficiently enforced, as indigenous groups continue to face land grabbing violence from more powerful groups.

3. Regarding the **human rights of the people** of the Amazon:

a) The people living on the frontline of Amazonian destruction are not powerful groups. On the contrary, they have been historically discriminated, persisting amidst sustained oppression and dispossession. The indigenous people and river communities have been marginalized and threatened throughout the process of developing the Amazon, continuing to face innumerable threats and land pressure on the pioneer frontier.

b) Amazonian municipalities display alarming indicators of severe poverty and violence. The distribution of violence has consistently corresponded to the Arc of Fire, the most deforested area, with a greater range of cases on the roads. All this inevitably raises the question of: if not the Amazonian people, who is benefiting from razing the forest?

c) These groups –indigenous peoples in particular- are not the ones profiting from deforestation. The cost-benefit of deforestation, in basic terms, simply does not add up. The gains achieved by the developmentalist model are exclusionary and divisive, enhancing a social dynamic of inequality and rural poverty. It produces immediate private gains while causing long-term irreparable damage to the local population and ultimately, to all living in the biosphere.

d) Indigenous peoples represent historically discriminated groups most exposed to rural violence and land grabbing. All indigenous lands have been reported to suffer from invasions, occupations and illegal deforestation through logging, burnings, mining, dams,

agricultural and cattle expansion, sawmills and urbanization processes. These violations and threats mainly impacts their right to self-determination, cultural integrity and property.

4. Regarding the **solutions**:

First and foremost, establishing protected areas is an urgent priority to conserving the Amazon, and it cannot be done without the forest people. This is for a few reasons:

a) Indigenous lands are spaces where deforestation has been prevented. Both because of their cultural relationship to the land and because indigenous communities are active opponents to the depletion of natural resources. Hence, avoiding deforestation requires enforcing the protection of indigenous lands in the Amazon Basin where the exploitation of natural resources is illegal.

b) Conservation policies must include and integrate local needs, improve local livelihoods, and most importantly, provide communities the opportunity to have a seat at the proverbial table.

c) Local communities and subsistence farmers are empowered by common access and management of shared goods. This can replace the old settlement logic of occupation through destruction (such as the common slash-and-burn technique of newcomers) which has shaped urbanization, and help change the perception of the forest from a land that needs to be occupied to a common pool resource that can benefit all.

That being said, and returning to the quote of the beginning of this section: Bolsonaro said he wants to discuss with Trump the best way to *explore* the Amazon. In light of all that has been stated, and leaving aside the point whether this would be a good or bad option for the Brazilian economy, Bolsonaro ought to be asking the people living there instead.

The current government has flagged the position that conservation units and indigenous lands as barriers to development, and that ‘the people living there cannot expect to have more rights

than the rest of Brazilians'²⁹⁴. As a matter of sovereignty, seems to be out of question that Brazil has the final saying in how Amazonia will be managed. But whether the people of the forest will be excluded from this conversation is the entire point the world should be concerned about. More specifically if this inclusiveness will, ultimately, determine how sustainable the choices will be.

²⁹⁴ Dom Phillips, 'Jair Bolsonaro Launches Assault on Amazon Rainforest Protections' *The Guardian* (2 January 2019) <<https://www.theguardian.com/world/2019/jan/02/brazil-jair-bolsonaro-amazon-rainforest-protections>> accessed 17 July 2019.

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V. Abstract

This research explores the ways in which deforestation is associated with human rights violations - particularly concerning the rights of indigenous peoples in Brazil. Deforestation directly impacts human lives. This concerns especially forest-based economies, where the market-driven forest governance fails to properly value the forest and its products while favouring the privatization of natural resources and fostering unequal access to land. This research analyzes the deforestation of the Brazilian Amazon rainforest through a human rights lens with an emphasis on vulnerable, frontline groups: indigenous peoples. Additionally, bearing in mind that deforestation is an ultimate process that starts with underlying factors involving land use management, this study will briefly address Elinor Ostrom's so-called "Common Pool Resources Theory". This is meant as a contribution to paving the way toward solutions that can be applied in the Amazon governance. Finally, this research aims to contribute to indigenous resistance in Brazil by exposing how their presence serves as a bulwark in resisting ecological devastation and preventing the expansion of the deforestation frontier.

Key words: Deforestation - Brazilian Amazon - Indigenous Land Rights - Human Rights - Development - Forest Governance

Abstrakt

Diese Studie untersucht den Zusammenhang von Entwaldung und Menschenrechtsverletzungen hinsichtlich der Rechte indigener Völker in Brasilien. Abholzung beeinflusst menschliches Leben direkt. Das gilt besonders für forstbasierte Volkswirtschaften, in denen die marktgesteuerte Forstverwaltung den Wald und seine Produkte nicht angemessen wertschätzt und gleichzeitig Privatisierung natürlicher Ressourcen und gleichen Zugang zum Land fördert. Diese Studie analysiert die Abholzung des brasilianischen Amazonas-Regenwaldes von einer menschenrechtlichen Perspektive. Dabei liegt der Schwerpunkt auf schutzbedürftigen indigenen Völkern. Unter dem Aspekt der Entwaldung geht diese Studie auf die sogenannte 'Common Pool Resources'-Theorie von Elinor Ostrom ein, um Lösungswege zu ebnen, die in der Amazonas-Governance angewendet werden können. Schlussendlich zielt diese Forschung darauf ab, zum Widerstand der Ureinwohner in Brasilien beizutragen, indem aufgezeigt wird, wie Forschungspräsenz als Bollwerk gegen ökologische Verwüstung und Entwaldungsstopp beiträgt.

Schlagworte: Abholzung - brasilianisches Amazonasgebiet - Rechte des indigenen Landes - Menschenrechte - Entwicklung - Forstverwaltung