



**STRUCTURAL VIOLATION OF THE RIGHT TO A CLEAN, HEALTHY AND  
SUSTAINABLE ENVIRONMENT PERPETRATED BY THE BRAZILIAN  
GOVERNMENT: A SUBMISSION ON ENVIRONMENTAL DESTRUCTION, CLIMATE  
CHANGE AND HUMAN RIGHTS ABUSES IN BRAZIL**

To  
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Special Rapporteur on Human Rights and the Environment;

Mr. José Francisco Cali Tzay,  
Special Rapporteur on the Rights of Indigenous People;

Mr. Michael Fakhri,  
Special Rapporteur on the Right to Food;

Mr. Pedro Arrojo-Agudo,  
Special Rapporteur on the Human Rights to Safe Drinking Water and Sanitation;

Mr. Ian Fry,  
Special Rapporteur on Climate Change;

Ms. Fernanda Hopenhaym,  
Chairperson of the Working Group on the Issue of Human Rights and Transnational  
Corporations and Other Business Enterprises;

Mr. Saad Alfarargi,  
Special Rapporteur on the right to development;

Mr. Balakrishnan Rajagopal,  
Special Rapporteur on the right to adequate housing;

Mr. Olivier De Schutter,  
Special Rapporteur on extreme poverty and human rights.

## I. INTRODUCTION

1. This submission sets out the ongoing violation of the right to a clean, healthy, and sustainable environment ('right to a healthy environment' or 'R2HE') suffered by Indigenous Peoples and other traditional communities in Brazil, by Brazilian citizens, and by present and future generations worldwide, as a result of acts and omissions of Brazil.

2. *Articulação dos Povos Indígenas do Brasil – APIB (Articulation of the Indigenous Peoples of Brazil)*<sup>1</sup>, *Conectas Direitos Humanos (Conectas Human Rights)*<sup>2</sup>, *Instituto Socioambiental – ISA (Socio-environmental Institute)*<sup>3</sup>, *Laboratório do Observatório do Clima - OC (Climate Observatory Laboratory)*<sup>4</sup> and *WWF-Brasil*<sup>5</sup> have extensively catalogued points of grave concern in Brazil's environmental laws and practices, which we recount below. As this submission will show, these laws and practices violate the R2HE in several respects. Violations of the R2HE, and a range of other human rights, are also apparent from widespread attacks on Indigenous Peoples living in the Amazon and other biomes, and a sharp rise in deforestation and fire rates, which are contributing to galloping climate change and accelerating the loss of biodiversity.

3. We respectfully request that the respective Special Rapporteurs investigate the violations catalogued in this submission and call on Brazil to immediately cease the wrongful conduct, take measures to prevent future violations of the R2HE, and repair the harm caused.

## II. RELEVANT FACTS

4. Loss of natural habitats account for almost half (49%) of Brazil's greenhouse gas emissions, almost all of this resulting from the destruction of the Amazon (77%) and the Cerrado (9.8 %). In 2020, while greenhouse gas emissions dropped worldwide by almost 7% due to the Covid-19 pandemic, emissions in Brazil increased by 9.5%. In 2021, emissions rose

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<sup>1</sup> *Articulação dos Povos Indígenas do Brasil – APIB (Articulation of the Indigenous Peoples of Brazil)* is a representative organization protecting the Rights of the Indigenous Peoples of Brazil. A national benchmark for the indigenous movement in Brazil, this grassroots Association was built from the bottom up. Gathering regional indigenous organizations together, its core purpose is to strengthen union among these peoples, building up links among different parts of Brazil and their indigenous organizations, in addition to mobilizing these people and their organizations against aggressive threats jeopardizing indigenous rights.

<sup>2</sup> *Conectas Direitos Humanos (Conectas Human Rights)* is a human rights organization based in São Paulo, Brazil. Established in 2001, Conectas works to enforce and promote human rights and combat inequalities to build a fair, free and democratic society from a Global South perspective. Since 2006, Conectas holds Special Consultative status with the United Nations Economic and Social Council (ECOSOC).

<sup>3</sup> *Instituto Socioambiental – ISA (Socio-environmental Institute)* is a Brazilian civil society organization founded in 1994 to propose integrated solutions to social and environmental issues with a central focus on the defense of social and collective goods and rights related to the environment, cultural heritage, human and peoples' rights.

<sup>4</sup> *Laboratório do Observatório do Clima - OC (Climate Observatory Laboratory)* is a civil society network composed of more than 70 organizations, with 20 years of experience, dedicated to building a decarbonized, egalitarian, prosperous, and sustainable Brazil, in the fight against the climate crisis.

<sup>5</sup> *WWF-Brasil* is a non-profit, non-governmental Brazilian civil organization that is part of the WWF Network, one of the largest nature conservation organizations in the world. Established in 1996, WWF-Brasil mission is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

by 12.2%, reaching a peak: 2.42 billion tonnes of carbon dioxide equivalent (Gt CO<sub>2</sub>e). This is due to a sharp increase in the rate of deforestation. Annual rates for 2020 and 2021 were well above the targeted goal established by Brazilian National Policy on Climate Change (two times higher in 2020, and three times higher in 2021). In 2021, deforestation in the Amazon set three records: (i) it was the highest level since 2006; (ii) it was the first-time rates increased three times consecutively during the same presidential mandate, since 1988 when rates began to be assessed; and (iii) it was the first-time rates increased four times in a row (from 2018 to 2021). Fires in the Amazon in September 2022 reached a tragic peak: a 70% increase in comparison with the historical average of the last ten years. Deforestation inside Indigenous Lands, which are the most protected areas in the Amazon, increased 138% in the last three years (2019 to 2021) compared to the three previous years (2016 to 2018). Inside Protected Areas, it increased 130%, in the same period (elaboration of all these matters can be found in Annex A).

5. Conflicts in rural areas have also risen in the last years. Between 2019 and 2021, conflicts over land increased 32% in comparison with the historical average of the last ten years. Most of these cases affect Indigenous Peoples and other traditional communities (68%, between 2015 and 2021), especially in the North of Brazil (approximately 40%, in 2021), where the Amazon and Cerrado are located. In 2021 alone, deforestation impacted 155 Indigenous Lands, affecting 32,864 hectares (three times the size of Paris). Invasions in indigenous Lands increased in 2021 for the sixth consecutive year. Three hundred and five cases of “possessory invasions, illegal exploitation of resources and damage to property” have been reported this year in 226 different Indigenous Lands. This is three times higher than 2018 level (elaboration of violations of Indigenous People’s rights can be found in Annex C).

6. Further evidence, included in the Annex E to this petition, shows an alarming acceleration in the pace of natural habitats destruction in Brazil, which directly impacts the fight against climate change and threatens peoples’ rights to life, health and food security. Deforestation in the Amazon is “*affecting the capacity of the Amazon Basin to supply good and services essential to humanity*” and “*could reach a tipping point where continuous forest can no longer exist and are replaced by degraded forests*”, as the Scientific Panel for the Amazon states (elaboration can be found in Annex E).

7. This human and environmental tragedy is directly linked to acts and omissions of the Brazilian Government. In recent years, Brazil has dismantled its socio-environmental regulations and policies, which has led to a rapid increase in the destruction of Amazon forests. The most relevant policy to counter deforestation in Brazil (PPCDAm) was formally terminated in 2020, after being abandoned for over a year. Even though more than 90% of deforestation in the Amazon presents evidence of illegality, environmental inspections dropped sharply and have been highly insufficient in the past three years. The Federal Environmental Agency (Ibama) have seen the numbers of public servants decrease. Highly qualified and experienced head positions were removed from federal conservation structures. They were either replaced by non-technical staff or their positions were left vacant. The Amazon Fund, which used to be one of the main sources of funding for conservation activities, was dismantled. Its assets, amounting to more than R\$ 3.5 billion, have been frozen. Access to environmental

information decreased, and public participation in environmental decision-making processes suffered a harsh decline. At the same time the Ministry of the Environment, and its affiliated entities have also suffered severe restrictions in budget and budget spending (elaboration of all these matters can be found in Annex B). No new Indigenous Peoples Lands were demarcated (elaboration can be found in Annex C). Meanwhile, the National Congress has been discussing several bills that weaken or revoke environmental legislation and Indigenous people's rights, creating expectations that illegal activities would be legalized; and high political authorities, including the President and the Minister of the Environment, have delivered addresses which could be interpreted as encouraging the practice of illegal deforestation, generating a widespread feeling of impunity (elaboration can be found in Annex D).

8. The destruction of Amazon forests, and violence against Indigenous Peoples and other traditional communities, besides being deeply problematic in itself, also threatens the global climate, the hydroclimatic stability of South America and Brazil, and the life, health and food security of Brazilian people and people elsewhere. Failure to enforce the law and protect nature put Brazil in breach of the R2HE, as we demonstrate below.

## II. THE RIGHT TO A HEALTHY ENVIRONMENT

9. Legal sources of the R2HE. The R2HE is protected under *customary international law* and thus binding upon all States, including Brazil. Customary international law is understood to refer to the body of international law composed of ‘those rules of international law that derive from and reflect a general practice accepted as law.’<sup>6</sup> Determining the existence of a rule of customary international law requires evidence of State practice and *opinio juris*.<sup>7</sup>

10. As professor William Schabas notes in his recent book *The Customary International Law of Human Rights*, ‘there is compelling evidence for a human right to a safe, clean, healthy, and sustainable environment under customary international law.’<sup>8</sup> This evidence can be found across various sources, including the vast number of diplomatic statements made by states during the Universal Periodic Review (‘UPR’) process explicitly or implicitly endorsing the R2HE.<sup>9</sup> The R2HE is also included in several major human rights and other treaties, which have been ratified by more than 130 States to date.<sup>10</sup> Further – as the Special Rapporteur on Human Rights and the Environment previously noted - 110 States recognise the R2HE in their respective constitutions.<sup>11</sup> In total, well over 150 States have recognised the R2HE in their international obligations, constitutions, or domestic policies.<sup>12</sup> Further, the Special

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<sup>6</sup> ILC, ‘Second report on identification of customary international law, by Sir Michael Wood, Special Rapporteur’ (22 May 2014) UN Doc A/CN.4/672/171.

<sup>7</sup> ILC 175.

<sup>8</sup> William Schabas, *The Customary International Law of Human Rights* (OUP 2021) 337.

<sup>9</sup> Ibid.

<sup>10</sup> Ibid.

<sup>11</sup> UNHRC, ‘Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment’ (30 December 2019) UN Doc A/HRC/43/53

<sup>12</sup> UNEP, ‘Joint statement of United Nations entities on the right to healthy environment’ (UNEP, 8 March 2021) <<https://www.unep.org/news-and-stories/statements/joint-statement-united-nations-entities-right-healthy-environment>> accessed 28 March 2022.

Rapporteur's academic work catalogues hundreds of instances of constitutional courts around the world routinely enforcing the R2HE.<sup>13</sup> More recently, the Special Rapporteur has noted that '[a] growing number of national courts have [now] recognised the failure of States to take adequate steps to address climate change or to protect healthy ecosystems and biodiversity constitute a violation of the right to a healthy environment and other human rights.'<sup>14</sup>

11. Civil society, experts and UN entities have long stated that the R2HE must be formally recognised as a binding universal human right. For example, the UN Environmental Programme delivered, on behalf of 15 UN entities, a powerful joint statement on 9 March 2021 expressing the view that 'the global recognition of the right to a healthy environment will support efforts to leave no one behind, ensure a just transition to an environmentally healthy and socially equitable world and realize human rights for all.'<sup>15</sup> Further, the UN entities noted and welcomed a pledge dated 10 September 2020 'signed by over [1,100] civil society, child, youth and Indigenous peoples' organizations calling for Member States to recognize the right to a healthy environment',<sup>16</sup> indicating the widespread global support for the formal recognition of the R2HE. Further still, a key outcome of the Stockholm+50 meeting, convened at the behest of the UN General Assembly ('UNGA'),<sup>17</sup> was the recommendation that States '[r]ecognize and implement the right to a clean, healthy and sustainable environment, through fulfilling the vision articulated in principle 1 of the 1972 Stockholm Declaration.'<sup>18</sup> This persistent activism culminated in a groundbreaking and widely celebrated moment wherein the HRC adopted, on 18 October 2021, resolution A/HRC/RES/48/13. Article 1 of this resolution states in clear terms that the UNHCR '[r]ecognizes the right to a clean, healthy and sustainable environment as a human right that is important for the enjoyment of human rights.' The degree of consensus which this resolution enjoyed is also remarkable: it was adopted by a recorded vote of 43 to 0, with 4 abstentions. Building on this, the UNGA adopted a historic resolution on 28 July 2022 which, in a similar vein, unambiguously recognises the R2HE as a human right.<sup>19</sup> In sum, the R2HE's widespread recognition in state practice and *opinio juris* has crystallized the R2HE as a norm of customary international law.

12. *Regional human rights treaties.* Brazil has further obligations to respect, protect and fulfil the R2HE under the Inter-American human rights system. Already a party to the American Convention on Human Rights, Brazil ratified the San Salvador Protocol ['SPP'] in

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<sup>13</sup> David R Boyd, *The Environmental Rights Revolution: A Global Study of Constitutions, Human Rights and the Environment* (University of British Columbia Press, 2012).

<sup>14</sup> David R Boyd para 54.

<sup>15</sup> UNEP, 'Joint statement of United Nations entities on the right to healthy environment' (UNEP, 8 March 2021) <<https://www.unep.org/news-and-stories/statements/joint-statement-united-nations-entities-right-healthy-environment>> accessed 28 March 2022.

<sup>16</sup> UNEP.

<sup>17</sup> UNGA, 'International meeting entitled "Stockholm+50: a healthy planet for the prosperity of all – our responsibility, our opportunity"' (24 May 2021) UN Doc A/RES/75/280.

<sup>18</sup> Stockholm+50, 'Stockholm+50 Agenda for Action, Renewal and Trust - Outputs and outcomes' (Stockholm+50, June 2022) para 2 <[www.stockholm50.global/resources/stockholm50-agenda-action-renewal-and-trust-outputs-and-outcomes](http://www.stockholm50.global/resources/stockholm50-agenda-action-renewal-and-trust-outputs-and-outcomes)> accessed 28 March 2022.

<sup>19</sup> UNGA, Resolution A/RES/76/300 (28 July 2022) (adopted with 161 votes in favour, 8 abstentions, 0 votes against).

1996. Article 11 of the San Salvador Protocol states: ‘Everyone shall have the right to live in a healthy environment and to have access to basic public services.’ In 2017, the Inter-American Court of Human Rights noted in a landmark Advisory Opinion that ‘this right [SPP Article 11] is included among the economic, social and cultural rights protected by Article 26 of the American Convention’.<sup>20</sup> Thus, SPP Article 11 creates obligations for State parties not only to respect the R2HE, but also to ensure it and prevent violations.<sup>21</sup> The Inter-American Court recently affirmed its 2017 opinion in its judgement in *Indigenous Communities of the Lhaka Honhat Association v Argentina*, wherein it found that a State’s failure to stop activities, such as illegal logging, that damaged the forests and biodiversity violated the R2HE.<sup>22</sup>

13. *Domestic law.* Finally, Article 225 of Brazil’s constitution expressly recognises the R2HE, stating: ‘Everyone has the right to an ecologically balanced environment, which is a public good for the people’s use and is essential for a healthy life. The Government and the community have a duty to defend and to preserve the environment for present and future generations.’<sup>23</sup> The article further lays down several obligations for the Brazilian State, including, ‘inter alia, preserving and restoring essential ecological processes, designating and preserving special protected areas, prohibiting all activities that cause extinction, and protecting the national patrimony—the Brazilian Amazonian Forest, the Atlantic Forest, the Serra do Mar, the Pantanal of Mato Grosso, and the Coastal Zone.’<sup>24</sup>

14. This article has been put into action by the Brazilian courts, most recently by the Brazilian Supreme Court in ADPF 708, where the court heavily relied on constitutional environmental rights in its reasoning, entered in a dialogue with the recent precedents of the Inter-American Court of Human Rights on environmental matters, and also referred to international instruments of environmental protection, “to which the court attributed the same status and special normative hierarchy as international human rights treaties in general, i.e. a ‘supra-legal’ hierarchy”<sup>25</sup>, to establish the responsibilities of the Brazilian government

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<sup>20</sup> *The Environment and Human Rights*, Advisory Opinion OC-23/17, Inter-American Court of Human Rights (15 November 2017) para 57; fn 85 <[https://www.corteidh.or.cr/docs/opiniones/seriea\\_23\\_ing.pdf](https://www.corteidh.or.cr/docs/opiniones/seriea_23_ing.pdf)> accessed 28 July 2022.

<sup>21</sup> *Indigenous Communities of the Lhaka Honhat Association v Argentina* (Judgement on Merits, reparations and costs) Inter-American Court of Human Rights (6 February 2020) para 207 <[https://www.corteidh.or.cr/docs/casos/articulos/seriec\\_400\\_ing.pdf](https://www.corteidh.or.cr/docs/casos/articulos/seriec_400_ing.pdf)> accessed 28 July 2022.

<sup>22</sup> David R Boyd para 46.

<sup>23</sup> UNHRC, ‘Recognition of the Right to a Healthy Environment in Constitutions, Legislation and Treaties: Latin America and Caribbean Region’ (Annex VII to the Special Rapporteur’s Report, 30 December 2019) UN Doc A/HRC/43/53/Annex VII 8.

<sup>24</sup> David R Boyd para 49.

<sup>25</sup> Ingo Wolfgang Sarlet, Tiago Fensterseifer; , ‘Verfassungsblog on matters constitutional’. Guardian of the Amazon. On the Brazilian Supreme Court’s ‘Climate Fund Case’ Decision. 06 July 2022. <https://verfassungsblog.de/guardian-of-the-amazon/> accessed 28 July 2022. Note that in 2017, the Supreme Court had already equated international instruments of environmental protection to international human rights treaties. According to Sarlet and Fensterseifer: “With regard to environmental law treaties, Justice Barroso held that „treaties on environmental law constitute a species of the genus of human rights treaties and, for this reason, enjoy supranational status“. The STF already had a precedent in this direction in 2017. In a decision on the constitutionality of legislation banning the use of asbestos, Justice Rosa Weber attributed supra-legal status to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989), equating it to international human rights treaties”. Ibid.

regarding climate change and environmental protection. The court's reasoning consolidated and strengthened an approach with deep roots in STF jurisprudence. Since at least 1995 (MS 22.164, Reporting Justice Celso de Mello, DJ 17.11.1995) the Court has developed the doctrine of the human right to a healthy environment, with many decisions reaffirming and advancing this concept, such as ADI 4901 (among many others), mentioned by Justice Edson Fachin, in his reasoning in ADPF 708. Also, "the STF consolidated the understanding in a judgment from 2008 that the international human rights treaties ratified by Brazil (...) are endowed with supra-legal normative status, i.e. standing above the level of ordinary laws"<sup>26</sup>. Further, Brazil has several domestic regulations which implicitly recognise the R2HE.<sup>27</sup>

15. *International environmental law.* Norms of international environmental law are also relevant to this complaint. These norms are binding on Brazil by virtue either of their customary international law status, or because of their incorporation in multilateral environmental treaties that Brazil is party to. In resolution A/RES/76/300, the UNGA "*affirms* that the promotion of the human right to a clean, healthy and sustainable environment requires the full implementation of the multilateral environmental agreements under the principles of international environmental law".<sup>28</sup> The recent Human Rights Committee decision in *Billy et al v. Australia* underscored the importance and appropriateness of referring to other treaties and agreements, in this case, the 2015 Paris Agreement, in interpreting a State Party's obligations under the ICCPR.<sup>29</sup> In addition, the promotion of the R2HE requires compliance with relevant norms of customary international law, including the norm of harm prevention.

16. *Harm Prevention.* Brazil's acts and omissions that are resulting in accelerating the rate of deforestation of the Amazon and escalating climate impacts breach the binding customary international law principle of harm prevention and the duty of 'due diligence' that attaches to this principle. The harm prevention principle obliges States 'to use all the means at [their] disposal in order to avoid transboundary harm from activities occurring in their territories or under their jurisdiction'.<sup>30</sup> In defining the risk that triggers the application of this rule, the International Law Commission's (ILC) Draft Articles on Prevention of Transboundary Harm from Hazardous Activities indicate a range from 'a high probability of causing significant transboundary harm' to 'a low probability of causing disastrous transboundary harm'.<sup>31</sup>

17. Brazil's acts and omissions in relation to the protection of the Amazon forests have a high probability of causing significant transboundary harm (elaboration in Annex E). The rapid and accelerating loss of the Amazon forests have a devastating impact on the global climate,

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<sup>26</sup> Ibid.

<sup>27</sup> These include the Law of Public Civil Action Law, Law No. 7347 of 1985 (Article 4) and the Environmental Crimes Law, Law No. 9605 of 1998, among many others.

<sup>28</sup> UNGA, Resolution A/RES/76/300, para. 3.

<sup>29</sup> Daniel Billy et al, Views adopted by the Committee under article 5 (4) of the Optional Protocol, concerning communication No. 3624/2019, Human Rights Committee, CCPR/C/135/D/3624/2019 (22 September 2022), para 7.5.

<sup>30</sup> *Pulp Mills on the River Uruguay (Argentina/Uruguay)* (Judgement) [2010] ICJ Rep 14, 55-56.

<sup>31</sup> Report of the International Law Commission on the work of its fifty-third session (2001), UN Doc A/56/10, ch V. E – 'Draft articles on prevention of transboundary harm from hazardous activities, article 2(a), 151-152, available at: [https://legal.un.org/ilc/texts/instruments/english/commentaries/9\\_7\\_2001.pdf](https://legal.un.org/ilc/texts/instruments/english/commentaries/9_7_2001.pdf)

not only because the Amazon constitutes a major carbon sink, but also for the central role it plays in the balance of carbon and water. Current high rates of deforestation and fires result in the release of large amounts of carbon stored in trees, plants, and soil. It causes regional warming and decreases precipitation, exacerbating the climate stress experienced across the Amazon region, within Brazil and in neighbouring countries. It also impacts countries further south in the continent.

18. *Due Diligence – Standard:* Brazil’s acts and omissions breach the high standard of due diligence required of States in relation to climate harms. The nature and extent of due diligence required from States is influenced and shaped by the objective, purpose and goals of the UN climate change regime. The objective, purpose and goals of the UN climate change regime have been progressively crystallised from the 1992 UN Framework Convention on Climate Change to the 2015 Paris Agreement, both instruments with near-universal participation. Article 2.1 of the Paris Agreement, identifies the goal of ‘[h]olding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels,...’. This long-term temperature goal builds on the FCCC objective (FCCC Article 2) of ‘prevent[ing] dangerous anthropogenic interference with the climate system’ by setting out, in terms of avoided temperature rise, the limits of what is ‘dangerous’. The 2021 Glasgow Climate Pact, a decision of the Parties to the Paris Agreement, further finetunes this goal to reflect an understanding that a temperature increase of more than 1.5°C would be dangerous.<sup>32</sup> This subtle yet significant shift is triggered by the landmark 2018 IPCC 1.5 degrees C Report that found ‘robust’ differences between a temperature increase of 2°C and 1.5°C.<sup>33</sup> This is also the level at which the right to a safe climate, as an extension from the R2HE, is ensured.

19. An additional factor enhancing the standard of due diligence is the nature and degree of harm that would be suffered in the absence of due diligence or the ‘risks involved in the activity’<sup>34</sup>. The International Law Commission notes that the standard for due diligence should be ‘appropriate and proportional to the degree of risk of the transboundary harm’.<sup>35</sup> This builds on the *Alabama Claims* decision that due diligence ought to be exercised in ‘exact proportion to the risks’.<sup>36</sup> The ‘risks involved in the activity’ also engage the precautionary principle, which falls within the scope of due diligence. The ITLOS *Seabed Mining Advisory Opinion*, indeed, found the precautionary approach to be ‘an integral part of the general obligation of due diligence’.<sup>37</sup> The nature and degree of harm that would be suffered in the absence of due

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<sup>32</sup> Glasgow Climate Pact, Decision 1/CMA.3, FCCC/PA/CMA/2021/L.6 (13 November 2021), available at: [unfccc.int/sites/default/files/resource/cma2021\\_L16\\_adv.pdf](https://unfccc.int/sites/default/files/resource/cma2021_L16_adv.pdf), paras 21 and 22.

<sup>33</sup> See Masson-Delmotte et al, *Global Warming of 1.5°C: An IPCC Special Report on the Impacts of Global Warming of 1.5°C Above Pre-industrial Levels and Related Global Greenhouse Gas Emission Pathways, in the Context of Strengthening the Global Response to the Threat of Climate Change, Sustainable Development, and Efforts to Eradicate Poverty* (2019), para C.1. available at: <https://www.ipcc.ch/sr15/>

<sup>34</sup> ITLOS, *Seabed Disputes Case*, para. 117.

<sup>35</sup> ILC, Draft Articles on Prevention, commentary to art. 3, paragraph 11, 155.

<sup>36</sup> *Alabama claims of the United States of America against Great Britain*, Award of 14 September 1872, UN RIAA 29, 124-134, 129.

<sup>37</sup> ITLOS, *Seabed Disputes Case*, para. 131.

diligence by States in relation to transboundary climate harm is well established. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), released in 2021, finds ‘unequivocal’ evidence that human influence and the release of greenhouse gas emissions (GHGs) has warmed the globe. This warming is ‘unprecedented over many centuries to many thousands of years’ and is ‘already affecting many weather and climate extremes in every region across the globe’.<sup>38</sup> It is increasing the frequency of ‘heat waves, droughts, floods, cyclones and wildfires’ and revealing the ‘significant vulnerability and exposure of some ecosystems and many human systems to current climate variability’.<sup>39</sup> Slow-onset events like sea-level rise, which is predicted to continue rising over the 21<sup>st</sup> century,<sup>40</sup> and sudden-onset natural disasters, have profound impacts including ‘alteration of ecosystems, disruption of food production and water supply, damage to infrastructure and settlements, morbidity, and mortality, and consequences for mental health and human well-being’.<sup>41</sup> Such effects are exacerbated for the poor, vulnerable, and marginalized.<sup>42</sup>

20. In addition to the general evidence of severe, pervasive, and irreversible impacts of galloping climate change, discussed above, is the specific risks that attach to Brazil’s actions in the Amazon.

21. The Amazon forest generates at least half its own rainfall by recycling water, passing it along a conveyor belt – forest to atmosphere to forest to atmosphere – east to west across the basin<sup>43</sup>. This moisture recycling system maintains an ‘aerial river’, feeding rain to areas to the south of the basin<sup>44</sup>. There are areas of the basin where evapotranspiration contributes more than 70% of local rainfall<sup>45</sup>. Land cover changes have been observed to weaken regional

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<sup>38</sup> IPCC 2021, ‘Summary for Policy Makers’, in Masson-Delmotte et al (eds), *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* (2021) (‘IPCC AR6 WGI SPM’), paras A.1-A.3.

<sup>39</sup> IPCC 2015, ‘Summary for Policy Makers’ in Pachauri et al (eds), *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2015) 7.

<sup>40</sup> IPCC AR6 WGI SPM, para C.2.4.

<sup>41</sup> ‘IPCC, 2014: Summary for Policymakers’, in Field et al (eds), *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (CUP, 2014) 6 (‘IPCC AR5 WGII SPM’).

<sup>42</sup> IPCC AR5 WGII SPM, 6-7.

<sup>43</sup> LOVEJOY, Thomas E.; NOBRE, Carlos. *Amazon Tipping Point*. ScienceAdvances. 12 Feb. 2018. Vol 4, Issue 2. Available at: DOI: 10.1126/sciadv.aat2340 (last seen: 04.11.2022). SALATI, Eneas; et all. *Recycling of water in the Amazon Basin: an isotopic study*. Water Resources Research. Volume 15, Issue 5 p. 1250-1258. Available at: <https://doi.org/10.1029/WR015i005p01250> (last seen: 04.11.2022)

<sup>44</sup> Science Panel for the Amazon (2021). Executive Summary of the Amazon Assessment Report 2021. C. Nobre, A. Encalada, E. Anderson, F.H. Roca Alcazar, M. Bustamante, C. Mena, M. Peña-Claros, G. Poveda, J.P. Rodriguez, S. Saleska, S. Trumbore, A.L. Val, L. Villa Nova, R. Abramovay, A. Alencar, A.C.R. Alzza, D. Armenteras, P. Artaxo, S. Athayde, H.T. Barretto Filho, J. Barlow, E. Berenguer, F. Bortolotto, F.A. Costa, M.H. Costa, N. Cuvi, P.M. Fearnside, J. Ferreira, B.M. Flores, S. Frieri, L.V. Gatti, J.M. Guayasamin, S. Hecht, M. Hirota, C. Hoorn, C. Josse, D.M. Lapola, C. Larrea, D.M. Larrea-Alcazar, Z. Lehm Ardaya, Y. Malhi, J.A. Marengo, M.R. Moraes, P. Moutinho, M.R. Murmis, E.G. Neves, B. Paez, L. Painter, A. Ramos, M.C. Rosero-Peña, M. Schmink, P. Sist, H. ter Steege, P. Val, H. van der Voort, M. Varese, Zapata-Ríos (eds.) United Nations Sustainable Development Solutions Network, New York, USA. 48 pages. Available at: <https://www.theamazonwewant.org/amazon-assessment-report-2021/> (last seen: 04.11.2022)

<sup>45</sup> VAN DER ENT, Rudi; et all. *Origin and fate of atmospheric moisture over continents*. Water Resources Research, Volume 46, Issue 9. First published: 22 September 2010. Available at:

moisture recycling and reduce rainfall<sup>46</sup>. The unique underpinning of the hydrological cycle by evapotranspiration means that land surface change in Brazil has the potential to cause transboundary changes to the hydrological cycle downwind<sup>47</sup>. Disruption of this cycle risks inflicting harm on communities within, and also beyond, Brazil's boundaries.

22. One of the main transboundary regions maintained by the Amazon's evapotranspiration moisture feed is the Rio de la Plata basin covering areas of Uruguay, Paraguay, Bolivia and Argentina<sup>48</sup>. The downwind impacts of deforestation in this region include increasing the ecological vulnerability of the remaining forest to additional stressors (logging, fire, and extreme drought). Zemp et al (2017) observe the impacts of deforestation on rainfall reductions downwind and argue that forest protection strategies are needed to maintain forest moisture recycling if changes in rainfall over South America are to be avoided. Studies based on modelling the impacts of historical deforestation (1980 to 2010) have identified the La Plata basin as a region remotely influenced by deforestation<sup>49</sup>. IPCC WG2 reports that<sup>50</sup> decreases of around 10mm per year are reported for western Amazon<sup>51</sup>.

23. Further, the Scientific Panel for the Amazon has found that:

*“Interannual precipitation reduction due to El Niño or a warmer tropical North Atlantic may reduce atmospheric moisture transport and respective recycling of precipitation due to deforestation and land-use change in climate-critical regions. This induces a self-amplified drying process which would further destabilize*

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<https://doi.org/10.1029/2010WR009127> (last seen: 04.11.2022); ELLISON, David; et al. *Trees, forests and water: cool insights for a hot world*. Global Environmental Change, Volume 43, March 2017, Pages 51-61. Available at: <https://www.sciencedirect.com/science/article/pii/S0959378017300134#bib0630> (last seen: 04.11.2022)

<sup>46</sup> MU, Li. *Forests Mitigate Drought in an Agricultural Region of the Brazilian Amazon: Atmospheric Moisture Tracking to Identify Critical Source Areas*. Geophysical Research Letters. First published: 11 February 2021. Available at: <https://doi.org/10.1029/2020GL091380> (last seen: 04.11.2022). Science Panel for the Amazon (2021) – Op.Cit. LI, Sichen; et al. *Atlantic-induced pan-tropical climate change over the past three decades*. Nature Climate Change, Volume 6, pages275–279 (2016). Available at: <https://www.nature.com/articles/nclimate2840>

<sup>47</sup> BAKER, Jessica C.A.; et al. *An Assessment of Land–Atmosphere Interactions over South America Using Satellites, Reanalysis, and Two Global Climate Models*. Journal of Hydrometeorology. Volume 22: Issue 4 Published-online: 29 Mar 2021. Available at: <https://doi.org/10.1175/JHM-D-20-0132.1>

BAUDENA, Mara; et al. *Effects of land-use change in the Amazon on precipitation are likely underestimated*. Global Change Biology. Volume 27, Issue 21 p. 5580-5587. Available at: <https://onlinelibrary.wiley.com/doi/full/10.1111/gcb.15810>

<sup>48</sup> ZEMP, D.C.; et al. *Deforestation effects on Amazon forest resilience*. Geophysical Research Letters. Volume 44, Issue 12 p. 6182-6190. First published: 08 June 2017. <https://doi.org/10.1002/2017GL072955>

<sup>49</sup> JIANG, Yelin; et al. *Modeled Response of South American Climate to Three Decades of Deforestation*. Journal of Climate. Volume 34: Issue 6. Published-online: 18 Feb 2021. DOI: <https://doi.org/10.1175/JCLI-D-20-0380.1>

<sup>50</sup> IPCC, 2022: Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Lösche, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. Cambridge University Press, Cambridge, UK and New York, NY, USA, 3056 pp., doi:10.1017/9781009325844. Section 4.2.1.2 Observed and Reconstructed Changes in Evapotranspiration. P.568-569

<sup>51</sup> MIRALLES, D.; et al. *Mega-heatwave temperatures due to combined soil desiccation and atmospheric heat accumulation*. Nature Geosci 7, 345–349 (2014). <https://doi.org/10.1038/ngeo2141>

*Amazonian forests in downwind regions, i.e., the southwestern and southern Amazon regions, and reduce moisture export to west-central Brazil (including the Pantanal), southeastern Brazil, the La Plata Basin, and the Andean mountains. In these downwind regions, reduced moisture transport from the Amazon may favor drought, increase fire risk, decrease water availability for rainfed agriculture and fishing, and affect energy security in regions to the south of the Amazon. Hydropower plants in the coming decades may operate less than half of the time because the minimum river flow will not be reached. Fisheries, which contribute more than USD 400 million annually across the basin and support about 200,000 fisherfolk in Brazil alone, will be impacted by climate change”<sup>52</sup>.*

24. There is overwhelming support for the proposition that a high degree of due diligence is required of Brazil in relation to the protection of the Amazon, both for the impacts within and beyond Brazil’s borders, and there is extensive evidence that Brazil is not meeting this standard of diligence, as required by the binding obligation of harm prevention. Deforestation has risen exponentially, especially after 2018. Annual rates for 2020 and 2021 were well above the targeted goal established by national legislation (two times higher in 2020, and three times higher in 2021). In 2022, fires reached their highest level in over a decade: September’s rate was the highest since 2010. Deforestation has risen even in protected areas and Indigenous territories, where it is generally forbidden (elaboration in Annex A). Violence against Indigenous Peoples (such as possessory invasions, illegal exploitation of resources and damage to property) and other traditional communities has also increased (elaboration in Annex C). Brazil ended the decade with its emissions at a peak, more than a third of it resulting from the destruction of the Amazon.

25. *Due Diligence – Vigilance in Enforcement.* In addition, it is evident that even where relevant domestic rules and measures exist to help Brazil exercise the due diligence required, these are either being repealed or not being enforced with vigilance. The International Court of Justice (ICJ) has held that due diligence ‘entails not only the adoption of appropriate rules and measures, but also a certain level of vigilance in their enforcement and the exercise of administrative control applicable to public and private operators, such as the monitoring of activities undertaken by such operators’.<sup>53</sup> Brazil has terminated its most effective policy to counter deforestation (PPCDAm). It has decreased law enforcement, inter alia, by reducing environmental inspections and the issuance of penalties for violation of environmental regulations. Environmental agencies have been systematically weakened through de-funding and staff shortages, and, no new Indigenous Peoples Lands have been demarcated in recent years. Further the National Congress is currently considering bills that aim to further erode environmental legislation and revoke Indigenous people’s rights. Top authorities also routinely deliver inflammatory messages against the environment and Indigenous Peoples generating a

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<sup>52</sup>Executive Summary, Science Panel for the Amazon, Amazon Assessment Report 2021 Copyright @ 2021, Science Panel for the Amazon. Message 11.

<sup>53</sup> Pulp Mills Case, at 79.

culture of impunity for environmental and human rights violations (elaboration in Annexes B and D).

**26. It is evident from the facts set out above that Brazil is in breach of the binding customary international law principle of harm prevention and the duty of due diligence that attaches to it. Brazil is bound by this principle both independently as a matter of customary international law, as well as in the context of implementing the R2HE.**

27. Content of the R2HE. The R2HE creates substantive, procedural, and special (towards persons in vulnerable situations) obligations for all States, including Brazil. The HRC has recognised that the substantive elements of the R2HE include the protection of the rights to clean air, a safe climate, healthy and sustainably produced food, safe water, adequate sanitation, non-toxic environments in which to live, work and play, and healthy ecosystems and biodiversity.<sup>54</sup> The obligations of States with regard to each of these elements are detailed below.

28. *Clean air.* The seven steps outlined by the Special Rapporteur which states must take to protect the clean air component include: ‘(a) monitor air quality and impact on human health; (b) assess sources of air pollution; (c) make information publicly available, including public health advisories; (d) establish air quality legislation, regulations, standards and policies; (e) develop air quality action plans at the local, national and, if necessary, regional levels; (f) implement air quality action plans, and enforce the standards; and (g) evaluate progress and, if necessary, strengthen plans to ensure that the standards are met’.<sup>55</sup>

29. Uncontrolled deforestation and fires in the Amazon represent a serious threat to the right to a clean air, given their impact in the quality of the air and in people’s health. According to IPCC, “*it is estimated that more than 10 million people are exposed to forest fires in the deforestation arc, a region comprising several Brazilian states in the southern and western parts of the Amazon forest, with several impacts on human health including potential exacerbation the COVID-19 crisis in Amazonia*”<sup>56</sup>. A study<sup>57</sup> showed that the pollutants generated by forest fires during the dry season causes inflammatory process, which has increased the risk of infection by Covid-19.

30. Forest fires are associated with an increase of 23% in respiratory hospital admissions and an increase of 21% in circulatory hospital admissions<sup>58</sup>. In Amazonas State, 87% of the

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<sup>54</sup> UNHRC, ‘Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment’ (30 December 2019) UN Doc A/HRC/43/53 8-18.

<sup>55</sup> Ibid para 39.

<sup>56</sup> Chapter 12 (Pag. 2203): Central and South America

<sup>57</sup> Hacon, S. S.; Gonçalves, K. S.; Barcellos, C.; Oliveira-da-Costa, M. (2021). *Amazônia Brasileira: Potenciais Impactos das Queimadas sobre a Saúde Humana no Contexto da Expansão da Covid-19*. WWF-Brasil e Fundação Oswaldo Cruz. [https://wwfbr.awsassets.panda.org/downloads/nota\\_tecnica\\_covid\\_x\\_queimadas\\_na\\_amazonia\\_arquivo\\_final.pdf](https://wwfbr.awsassets.panda.org/downloads/nota_tecnica_covid_x_queimadas_na_amazonia_arquivo_final.pdf)

<sup>58</sup> REQUIA, W.J.; et all. *Health impacts of wildfire-related air pollution in Brazil: a nationwide study of more than 2 million hospital admissions between 2008 and 2018*. Nat Commun 12, 6555 (2021). <https://doi.org/10.1038/s41467-021-26822-7>

hospital admissions were related to high concentrations of smoke (respirable and inhalable particles), between 2010 and 2020. The percentage was 68% in Pará State, 70% in Mato Grosso State, and 70% in Rondônia State. The respiratory diseases associated with high concentrations of fire pollutants accounted for 70% of the hospital admissions registered in Pará, Mato Grosso, Rondônia and Amazonas<sup>59</sup>. Impacts of deforestation and fires to respiratory health in the Amazon is also acknowledged by IPCC<sup>60</sup>. Particulate matter emitted from the burning of biomass in the Amazon region exposes humans to an increased risk of DNA damage, gene mutations, inflammation, and cancer.

31. *Safe climate*. The right to a safe climate flows from the objective of the FCCC to ‘prevent dangerous anthropogenic interference with the climate system.’<sup>61</sup> The Paris Agreement further adds to the FCCC’s objective by identifying a global limit to temperature increase - ‘well below 2°C’ with an aspiration to reach 1.5°C.<sup>62</sup> Therefore, by extension, the right to a safe climate would evidently be breached if global temperatures rise exceeds these levels<sup>63</sup>. Indeed, in a joint statement in 2019, five human rights treaty bodies noted with concern that States’ current contributions were insufficient to limit global warming to 1.5°C.<sup>64</sup> Using 1.5°C as the standard of assessment in the human rights context effectively operationalises the lower end of the temperature goal identified in the Paris Agreement. This approach is being increasingly argued before national<sup>65</sup> and regional courts<sup>66</sup> and reflects the emerging consensus on the 1.5°C temperature goal in the 2021 Glasgow Climate Pact.

32. The destruction of the Amazon puts the right to a safe climate in peril. The IPCC finds that the, “Amazonian forests constitute one of the major carbon (C) sinks on Earth (...), playing a pivotal role in the climate system and regional balance of C and water (...). Deforestation, temperature increase and any factor affecting the forests ecosystem dynamics will have an impact on the atmospheric CO2 concentration and hence on the global climate”<sup>67</sup>.

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<sup>59</sup> Op. Cit. Hacon, S. S.; et all (2021).

<sup>60</sup> IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press. Chapter 8 (Pag. 1540): Poverty, Livelihoods and Sustainable Development

<sup>61</sup> Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, A/74/161 (15 July 2019), para 43.

<sup>62</sup> Paris Agreement, Art 2(1)(a).

<sup>63</sup> This argument is made without prejudice to the possibility that the right to a safe climate has already been breached at current levels of warming, given the human rights impacts suffered as a result of climate impacts occurring today.

<sup>64</sup> Treaty Bodies’ Joint Statement on Human Rights and Climate Change (2019), available at: <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=24998>. The five treaty bodies were: the Committee on the Elimination of Discrimination Against Women, the Committee on Economic, Social and Cultural Rights, the Committee on the Protection of the Rights of All Migrant Workers and Members of their Families, the Committee on the Rights of the Child and the Committee on the Rights of Persons with Disabilities.

<sup>65</sup> See *Neubauer et al v Federal Republic of Germany*, German Federal Constitutional Court, 1 BvR 2656/18 (24 March 2021).

<sup>66</sup> *Duarte Agostinho et al v Portugal and 32 Other States*, ECtHR App No 39371/20.

<sup>67</sup> IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts,

33. *Healthy and sustainably produced food.* The right to food has had a long and universal recognition since its recognition ‘in the Universal Declaration of Human Rights and the International Covenant on Economic, Social and Cultural Rights as part of the right to an adequate standard of living.’<sup>68</sup> Fulfilling this right in the given context entails the protection of food production and consumption systems in consonance with the protection of habitats and biodiversity.

34. *Safe water and adequate sanitation.* Fulfilment of this component, whose objective is universal access to safe water and sanitation, requires ‘clear articulation of the content of the rights to water and sanitation through laws, regulations and policies governing availability, physical accessibility, affordability, quality and safety, and acceptability... [and] legal frameworks to eliminate discrimination in the provision of water and sanitation services’.<sup>69</sup>

35. On the relation between deforestation and *healthy and sustainably produced food*, and *safe water and adequate sanitation*, the IPCC states the following:

“(…) *high deforestation rates and increased forest burning in many of the Amazonian countries are further exposing vulnerable Indigenous Peoples and Traditional populations to health problems, crop failures and shortages of freshwater supply, especially in the context of extreme droughts and non-supportive governance*”<sup>70</sup>.

“*Also relevant is a trend of Amazonian forest fires spreading from the southern Brazilian Amazon to Bolivia and Peru, indicating that transboundary burning increases are systemic and will lead to extensive economic losses of wildcrops, infrastructure and livelihoods, and requiring a landscape level approach for deforestation and fire management and control*”<sup>71</sup>.

36. *Non-toxic environments.* Noting the global lack of adequate environmental law enforcement, the Special Rapporteur has emphasised that ‘it is essential that Governments enforce environmental laws when polluters violate standards.’<sup>72</sup> Broadly, States must ensure non-toxic environments through refraining from spreading pollutants through their own organs, and having sound anti-pollution laws which are comprehensive and enforced.

37. *Healthy ecosystems and biodiversity.* Human rights are tied to biodiversity; indeed, they ‘may be jeopardized by lack of access to nature’s bounty or by actions taken to protect nature that fail to take rights into consideration’.<sup>73</sup> The obligations that States have in this regard derive

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M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.). Cambridge University Press. In Press. Chapter 12 (Pag. 2199): Central and South America

<sup>68</sup> Duarte Agostinho et al v Portugal and 32 Other States, ECtHR App No 39371/20. Para 74.

<sup>69</sup> Ibid para 81.

<sup>70</sup> Op. Cit. IPCC, 2022: Chapter 8 (Pag. 1548): Poverty, Livelihoods and Sustainable Development

<sup>71</sup> Op. Cit. IPCC, 2022: Chapter 8 (Pag. 1540): Poverty, Livelihoods and Sustainable Development

<sup>72</sup> Duarte Agostinho et al v Portugal and 32 Other States, ECtHR App No 39371/20. Para 102.

<sup>73</sup> Ibid para 103.

from the sum of several international and regional treaties, ‘including the Convention on Biological Diversity<sup>74</sup>, the Convention on International Trade in Endangered Species of Wild Fauna and Flora<sup>75</sup>, the Convention on Wetlands of International Importance especially as Waterfowl Habitat<sup>76</sup>, the Convention for the Protection of the World Cultural and Natural Heritage<sup>77</sup>, the United Nations Convention on the Law of the Sea<sup>78</sup> and International Convention for the Regulation of Whaling<sup>79</sup>.’<sup>80</sup> Taken together, this vast body of law requires the rigorous protection of wildlife and its habitat, as well as the management of and reduction in activities that harm or overexploit biodiversity. Brazil is a party to all these treaties and must comply with the abovementioned requirements.

38. According to the Scientific Panel for the Amazon,

*“The biodiversity of terrestrial and freshwater ecosystems is under threat due to deforestation, habitat fragmentation, overexploitation, pollution, and climate change, both in the tropical Andes and lowland Amazon. Anthropogenic disturbances have put plants and animals, both terrestrial and aquatic, at high risk of extinction, particularly those with restricted geographical ranges. It is also changing the functioning of forests and other ecosystems, impacting carbon storage and sequestration, decreasing its productivity and resilience to disturbance, and disrupting the natural hydrological cycle, affecting the capacity of the Amazon Basin to supply goods and services essential to humanity”<sup>81</sup>.*

39. Further, the procedural elements of the R2HE entail access to information, public participation, and access to justice and effective remedies,<sup>82</sup> which are detailed below as well.

40. *Access to environmental information.* ‘Access to information is a widely recognized human right and is essential for people to be able to protect and defend their human rights from potentially harmful environmental impact.’<sup>83</sup> Thus, following the global trend of making records and data relating to the environment public, States have general obligations to freely provide and not withhold information from their citizens concerning environmental threats, policies, governmental actions, etc.

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<sup>74</sup> Brazil is a party to this treaty: <https://www.cbd.int/information/parties.shtml>

<sup>75</sup> Brazil is a party to this treaty: <https://cites.org/eng/disc/parties/chronolo.php>

<sup>76</sup> Brazil is a party to this treaty:

[https://www.ramsar.org/sites/default/files/documents/library/annotated\\_contracting\\_parties\\_list\\_e.pdf](https://www.ramsar.org/sites/default/files/documents/library/annotated_contracting_parties_list_e.pdf);

<sup>77</sup> Brazil is a party to this treaty: <https://whc.unesco.org/en/statesparties/>

<sup>78</sup> Brazil is a party to this treaty:

[https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg\\_no=XXI-6&chapter=21&Temp=mtdsg3&clang=en](https://treaties.un.org/pages/ViewDetailsIII.aspx?src=TREATY&mtdsg_no=XXI-6&chapter=21&Temp=mtdsg3&clang=en)

<sup>79</sup> Brazil is a party to this treaty: <https://iwc.int/commission/members>

<sup>80</sup> *Duarte Agostinho et al v Portugal and 32 Other States*, ECtHR App No 39371/20. Para 104.

<sup>81</sup> *Executive Summary, Science Panel for the Amazon, Amazon Assessment Report 2021 Copyright @ 2021, Science Panel for the Amazon. Message 12*

<sup>82</sup> *Duarte Agostinho et al v Portugal and 32 Other States*, ECtHR App No 39371/20. 5-8.

<sup>83</sup> *Ibid* para 14.

41. Access to environmental information has drastically reduced in Brazil in recent years. Satisfactory responses to requests for access to information fell by 78% in 2019, compared to 2017-2018. In addition, in 2020, the government began to non-comply with requirements of the Open Data Policy of the Federal Executive. Among 10 federal agencies that manage databases relevant to environmental policies, only 3 had Open Data Plans<sup>84</sup>.

42. *Public participation in decision-making.* Public participation must not be passive; rather, States must ensure that it is broad, inclusive, and racial and gender-sensitive.<sup>85</sup> Further, a crucial aspect of public participation involves ‘the protection of environmental human rights defenders, who are often harassed, intimidated, criminalized or even murdered.’<sup>86</sup>

43. Since 2019, however, this procedural right has been subject to severe restrictions in Brazil. More than half of the 22 relevant national environmental councils and committees were terminated or restructured, with total or significant reduction of civil society participation. Among them, civil society participation dropped most sharply in the National Environmental Council (CONAMA), the longest standing and one of the most important deliberative bodies on environmental issues<sup>87</sup>. The Public Prosecutors Office challenged the Presidential Decree which reduced participation in CONAMA, through an *Arguition of Noncompliance with a Fundamental Precept* (ADPF 623). The Supreme Court started to rule the case, acknowledging the lack of adequate participation in CONAMA, and the breach to the procedural elements of the R2HE. The judgment was suspended by one Justice who request for further information. Months later, the reporting Justice issued a precautionary measure to prevent CONAMA’s meetings and deliberations without adequate participation<sup>88</sup>. The case still waits for final decision from the Court.

44. *Access to justice.* States must address any and all obstacles to environmental justice in their jurisdictions including ‘standing to sue, economic barriers, and lack of judicial expertise in environmental matters.’<sup>89</sup> When read in consonance with the aforementioned obligation to ensure public participation, it is clear that this entails ensuring that environmental litigants are treated fairly during the court process and that the impartiality and independence of the judiciary, or more specifically the particular bench in a case, is maintained.

45. Finally, the R2HE entails specific obligations owed to Indigenous peoples, local communities and peasants. As the Special Rapporteur previously noted, these obligations involve ‘recognizing their land titles, tenures and rights, acknowledging the existence of

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<sup>84</sup> ARTICLE 19, IMAFLORA, INSTITUTO SOCIOAMBIENTAL. *Mapeamento dos retrocessos de transparência e participação social na política ambiental brasileira: 2019 e 2020*. Available only in Portuguese at: <https://site-antigo.socioambiental.org/sites/blog.socioambiental.org/files/nsa/arquivos/imf-retrocessos-publicacao-rev2.pdf>

<sup>85</sup> *Duarte Agostinho et al v Portugal and 32 Other States*, ECtHR App No 39371/20. 5. Para 22.

<sup>86</sup> *Ibid* 27.

<sup>87</sup> *Op. Cit.* ARTICLE 19, et all.

<sup>88</sup> The full precautionary measure, and a synthesis of the case, is available only in Portuguese: <https://portal.stf.jus.br/processos/downloadPeca.asp?id=15349293178&ext=.pdf> . More information on the case available: <https://www.conectas.org/en/noticias/conama-how-environmental-rights-die/>

<sup>89</sup> *Duarte Agostinho et al v Portugal and 32 Other States*, ECtHR App No 39371/20. 30.

different customs and systems, including collective ownership and governance models'.<sup>90</sup> The Inter-American Court has confirmed that States must ensure the effective participation of Indigenous Peoples in the creation of protected areas, continued access to and use of traditional territories, including those within the protected areas, and a fair share of the benefits arising from conservation initiatives. Accordingly, States must 'take appropriate measures to promote and protect the traditional knowledge, innovation and practices of peasants and other people working in rural areas, including traditional agrarian, pastoral, forestry, fisheries, livestock and agroecological systems relevant to the conservation and sustainable use of biological diversity'.<sup>91</sup>

46. Besides the dramatic rise in deforestation, invasion of Indigenous Peoples Lands, and the distressing increase in incidents of violence against Indigenous Peoples, Brazil has also brought to a halt the demarcation of new Lands. Since 2019, in keeping with his electoral campaign promises, President Bolsonaro has frozen the procedures to demarcate Indigenous Lands. This means that, since he took office no new areas have been recognized as Indigenous Lands<sup>92</sup>, even though there are more than 200 areas under formal review, conducted by federal entities, waiting to be declared Indigenous Lands<sup>93</sup>. Since indigenous Lands are the most preserved types of protected areas in the country<sup>94</sup>, the interruption in the demarcation process has left large parts of the territory unprotected and Indigenous populations vulnerable.

47. Violations of Indigenous Peoples' rights in Brazil have already been acknowledged by relevant Special Rapporteurs in several individual cases recently submitted<sup>95</sup>. Considered together, these cases and the evidence presented in the present petition demonstrate the systematic and structural nature of violations of human rights in Brazil.

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<sup>90</sup> David R Boyd para 90.

<sup>91</sup> David R Boyd para 90.

<sup>92</sup> According to information gathered by the Instituto Socioambiental, available at: <https://widgets.socioambiental.org/pt-br/placares> (last seen: 03.22.2022).

<sup>93</sup> <sup>93</sup> According to information consolidated by the Instituto Socioambiental and the Fundação Nacional do Índio (Indigenous National Foundation), an official body of the Brazilian government. Information available, respectively, at:

[https://pib.socioambiental.org/pt/Situa%C3%A7%C3%A3o\\_jur%C3%ADdica\\_das\\_TIs\\_no\\_Brasil\\_hoje](https://pib.socioambiental.org/pt/Situa%C3%A7%C3%A3o_jur%C3%ADdica_das_TIs_no_Brasil_hoje) e <https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/demarcacao-de-terras-indigenas> (last seen:: 03.22.2022).

<sup>94</sup> According to a survey produced by the MapBiomias project, based on official databases. Available at: <https://ipam.org.br/imagens-de-satelite-comprovam-que-terras-indigenas-sao-as-areas-mais-preservadas-do-brasil-nas-ultimas-decadas/> (last seen: 03.22.2022).

<sup>95</sup> OL BRA 4/2022; AL BRA 2/2022; AL BRA 3/2021; OL BRA 2/2020; UA BRA 6/2019. These communications were issued by the following mandates: Working Group on the issue of human rights and transnational corporations and other business enterprises; the Special Rapporteur on the right to development; the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment; the Special Rapporteur on the right of everyone to the enjoyment of the highest attainable standard of physical and mental health; the Special Rapporteur on the rights of indigenous peoples; the Special Rapporteur on the implications for human rights of the environmentally sound management and disposal of hazardous substances and wastes and the Special Rapporteur on the human rights to safe drinking water and sanitation; the Special Rapporteur on the situation of human rights defenders; the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression; and the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression and the Special Rapporteur on the rights of indigenous peoples

### III. BRAZIL'S VIOLATIONS OF THE RIGHT TO A HEALTHY ENVIRONMENT

48. The R2HE requires States to take a rights-based approach to climate impacts and response measures. To meet their substantive obligation to *respect* the right to a safe climate, States should refrain from causing or allowing climate harm. To meet their obligation to *protect* the right, States should protect the climate from harmful interference from others including industry, business and other actors.

49. It is evident from the facts set out above that Brazil is neither respecting nor protecting the R2HE. In connection with a safe climate, States should *fulfil* this right by choosing GHG mitigation contributions that reflect their 'highest possible ambition'<sup>96</sup> or at least constitute a fair share of the global effort in meeting the Paris temperature goal of 'well below 2°C' and '1.5°C'. Brazil is not also discharging the standard of due diligence required of it in this context. Committee member Gentian Zyberi's individual concurring opinion in the recent *Billy et al* decision of the Human Rights Committee noted, based on Articles 4.3 and 4.4. of the Paris Agreement, that 'the due diligence standard requires States to set their national climate mitigation targets at the level of their highest possible ambition to pursue effective mitigation measures with the aim of achieving those targets.' Brazil's current NDC has been rated as 'highly insufficient' by Climate Action Tracker. Brazil's target in 2030 leads to rising emissions when compared with previous NDC from 2015, and if all countries were to follow Brazil's approach, warming could reach over 3°C and up to 4°C.<sup>97</sup> Brazil's NDC also falls far short of its 'fair share' – an analysis that takes into account its development status, and relatively limited historical contribution.<sup>98</sup> It's 'new first NDC' from 2020 has been challenged in national courts as violative of the Paris Agreement's Article 4.3 expectation of 'progression' and 'highest possible ambition' and domestic legal norms relating to 'non-regression.'<sup>99</sup> It has also been challenged for being insufficiently ambitious and inadequately operationalised in domestic regulations.<sup>100</sup> It is worth noting that Brazil's original NDC contained a commitment to reduce deforestation by 80% by 2030. This commitment does not feature in its updated NDC. The evidence suggests that Brazil's acts and omissions, in particular in relation to deforestation of the Amazon, are likely to imperil any effort to limit temperature increase to 1.5°C. And the adaptation component of Brazilian NDC is also problematic, according to WWF evaluation.<sup>101</sup>

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<sup>96</sup> Treaty Bodies' Joint Statement on Human Rights and Climate Change (2019).

<sup>97</sup> Brazil, Country Summary, available at: <https://climateactiontracker.org/countries/brazil/>

<sup>98</sup> See Lavanya Rajamani, Louise Jeffery, Niklas Höhne, Frederic Hans, Alyssa Glass, Gaurav Ganti & Andreas Geiges (2021) National 'fair shares' in reducing greenhouse gas emissions within the principled framework of international environmental law, *Climate Policy*, 21:8, 983-1004

<sup>99</sup> See *Six Youths v. Minister of Environment and Others*, April 2021, available at: <http://climatecasechart.com/climate-change-litigation/non-us-case/six-youths-v-minister-of-environment-and-others/>. For further details see Observatorio de Clima, *The NDC and the Carbon Trick Manouever*, available at: <https://www.oc.eco.br/wp-content/uploads/2020/12/NDC-analysis-EN.pdf>

<sup>100</sup> *Laboratório do Observatório do Clima v. Minister of Environment and Brazil*, October 2021, available at: <http://climatecasechart.com/climate-change-litigation/non-us-case/laboratorio-do-observatorio-do-clima-v-environmental-ministry-and-brazil/>

<sup>101</sup> "The NDC is connected to the next phase of the National Adaptation Plan, that was supposed to be from 2021 to 2025. However, till June 2022, no information has been made available on this update or its process. Another point of concern is that the adaptation component is vague and it is considered Brazil's first adaptation communication, according to art. 7, paragraph 11 of the Paris Agreement. The information required for an

50. As set out above, Brazil have dismantled relevant policies and failed to enforce the law to counter deforestation and protect Indigenous Lands and *protected areas* in the Amazon, breaching the customary international law principle of harm prevention, the duty of due diligence that attaches to it, and all the elements of the R2HE. Brazil has decreased access to environmental information and reduced participation in environmental decision-making processes, violating the procedural elements of the R2HE. Brazil's acts and omissions have led to a sharp rise in deforestation, invasions of Indigenous Lands and human rights violations, which breach all the constitutive elements of the R2HE. Deforestation and fires damage the air quality and cause respiratory illness, constituting a violation of the *clean air obligation*. It releases large amount of carbon to the atmosphere, impacting the global climate, and affecting the hydroclimatic stability of the region, violating *safe climate obligations*. The change in rainfall and droughts has adverse effects on water security and food production in Brazil and many neighbouring countries, violating *healthy and sustainably produced food, and safe water obligations*. It also constitutes loss of nature, violating *healthy ecosystems and biodiversity obligations*. Brazil's acts and omissions that have led to a sharp rise in deforestation in the Amazon constitutes a grave violation of the R2HE, which demands special attention from United Nations Special Rapporteurs.

#### IV. RECOMMENDATIONS<sup>102</sup>

51. We respectfully request that the respective Special Rapporteurs investigate the violations catalogued in this submission and call on Brazil to immediately cease the wrongful conduct, take measures to prevent future violations of the R2HE, and repair the harm caused, recommending Brazil:

***# To immediately halt the destruction of natural habitats in Brazil, through a consistent and continuous reduction of deforestation, reaching zero deforestation by 2030.***

***#To urgently update Brazil's Nationally Determined Contribution to represent its 'highest possible ambition', respecting the principle of progression.***

***# To urgently arrive at and rapidly implement, progressive an effective plan (Action Plan to Prevent and Control Amazon Deforestation – PPCDAm and Action Plan to Prevent and Control Cerrado Deforestation PPCerrado) to halt deforestation in the Amazon and the Cerrado, with thematic axes, strategic guidelines, objectives, priority actions, and expected results, and provide sufficient resources for its appropriate implementation.***

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Adaptation Communication (Dec.9/CMA.1) is not present in the NDC". WWF-International. *NDC Analysis*. June 2022. Available at: [https://wwfint.awsassets.panda.org/downloads/ndcs\\_we\\_want\\_assessment\\_\\_\\_brazil\\_2022.pdf](https://wwfint.awsassets.panda.org/downloads/ndcs_we_want_assessment___brazil_2022.pdf) (last seen: 28.10.2022)

<sup>102</sup> Some of these recommendations were also suggested in a joint submission to the 4<sup>th</sup> Cycle of the Universal Periodic Review of Brazil.

*# To immediately resume Brazilian Institute of Environment and Renewable Natural Resources – IBAMA’s penalty proceedings of federal environmental infractions, issuing consistent sanctions against wrongdoers, and ensuring all procedure are completed in under three years, especially the ones related to deforestation of large areas (more than 50 hectares).*

*# To make IBAMA’s penalty proceeding rules more efficient and effective, and to improve IBAMA’s operational capacity, so these proceedings can be concluded in three years at most.*

*# To immediately resume the Amazon Fund’s operations, as well as other funding mechanisms to promote the inspection, protection and sustainable use of the forest and its protected areas.*

*# To immediately resume actions to halt illegal deforestation, by restoring the budget of the Ministry of the Environment (in updated values based on monetary correction), and hiring staff for law enforcement agencies, such as the Brazilian Institute of Environment and Renewable Natural Resources – IBAMA, and Chico Mendes Institute of Conservation of Biodiversity – ICMBio, so the agencies have the conditions, based on 2014 levels, to inspect and impose penalties against wrongdoers, and take adequate care of Protected Areas.*

*# To immediately resume the implementation of the National Policy for Environmental Management of Indigenous Lands (NPEMIL), allocating resources to the implementation of those Territorial and Environmental Management Plans that have already been elaborated by organizations and Indigenous communities.*

*#To guarantee adequate protection to Indigenous Peoples and other traditional communities, enforcing the law and consistently and continuously reducing conflicts over land in rural areas.*

*# To immediately resume and conclude by 2026 at least 50% of pending Indigenous Lands’ demarcations by the Indigenous Peoples Federal Agency (FUNAI), recognizing adequate land rights to Indigenous peoples.*

*# To immediately cease any legislative changes and new legal measures that may:*

- facilitate or encourage deforestation, especially in the Amazon and Cerrado biomes;*
- allow private appropriation of public land, invaded after December 22, 2011;*
- waive or weaken the environmental impact assessment of large infrastructure projects;*
- allow, without Indigenous Peoples and traditional communities consent, mining hydroelectric exploitation and farming on Indigenous Lands;*
- revoke any right currently recognized to Indigenous Peoples and other traditional communities;*

· *reduce the limits of Indigenous Lands already demarcated.*

*# To abstain from reducing the boundaries of Protected Areas and Indigenous Lands.*

*# To immediately re-establish adequate participation of civil society in environmental decision-making process, in all relevant fora, specially, but not exclusively, in the National Environmental Council (CONAMA), in which civil society participation needs to be significantly increased, and seats to Indigenous Peoples and other traditional communities need to be guaranteed.*

*#To assure free, prior, and informed consent and consultation to all matters that affect Indigenous Peoples and to other traditional communities.*

## ANNEX A

### *Destruction of natural habitats: the Amazon and the Cerrado.*

1. In 2019, Brazil was the sixth largest greenhouse gas emitter, responsible for 2.9% of global emissions<sup>103</sup>. In 2020, while greenhouse gas emissions dropped worldwide by almost 7% due to the Covid-19 pandemic, emissions in Brazil increased by 9.5%<sup>104</sup>. The decade ended with emission rates at its peak: 2.16 billion tonnes of carbon dioxide equivalent (Gt CO<sub>2</sub>e)<sup>105</sup>. In 2021, emissions rose by 12,2%, reaching 2.42 billion tonnes of Gt CO<sub>2</sub>e<sup>106</sup>.
2. Such a worrisome escalation has a well-defined cause: the rise in deforestation and conversion of native vegetation. Indeed, loss of natural habitats account for almost half (49%) of Brazil's greenhouse gas emissions, almost all of it coming from the destruction of the Amazon (77%) and the Cerrado (9,8%)<sup>107</sup>. Among Brazilian cities, 4 out of the top 5 major emitters are champions of deforestation in the Amazon<sup>108</sup>. In fact, among the top 50 emitters, 43 are in the Amazon and have high deforestation rates<sup>109</sup>.

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<sup>103</sup> According to the latest information available, provided by Climate Watch. Available at: [https://www.climatewatchdata.org/ghg-emissions?end\\_year=2019&start\\_year=1990](https://www.climatewatchdata.org/ghg-emissions?end_year=2019&start_year=1990) (last seen: 19.09.2022). On the Brazilian share to global emissions, please refer too: [https://www.climatewatchdata.org/countries/BRA?end\\_year=2019&start\\_year=1990](https://www.climatewatchdata.org/countries/BRA?end_year=2019&start_year=1990) (last seen: 19.09.2022).

<sup>104</sup> OBSERVATÓRIO DO CLIMA (OC). *SEEG 2021*. Análise das emissões brasileiras de Gases de Efeito Estufa e suas implicações para as metas climáticas do Brasil 1970-2020. Piracicaba, 2021. Available at: [https://seeg-br.s3.amazonaws.com/Documentos%20Analiticos/SEEG\\_9/OC\\_03\\_relatorio\\_2021\\_FINAL.pdf](https://seeg-br.s3.amazonaws.com/Documentos%20Analiticos/SEEG_9/OC_03_relatorio_2021_FINAL.pdf). (last seen: 16.09.2022)

<sup>105</sup> OC. 2021.

<sup>106</sup> OBSERVATÓRIO DO CLIMA (OC). *Emissões do Brasil têm maior alta em 19 anos*. Available at: <https://www.oc.eco.br/en/emissoes-do-brasil-tem-maior-alta-em-19-anos/> (last seen: 04.11.2022).

<sup>107</sup> Considering data from 2021. OBSERVATÓRIO DO CLIMA (OC). *Sistema de Estimativas de Emissões e Remoções de Gases de Efeito Estufa (SEEG)*. Available at: <https://seeg.eco.br/> (last seen: 04.11.2022).

<sup>108</sup> According to Greenhouse Gas Emission and Removal Estimating System – SEEG's latest information available, in 2019 the top 5 city emitters were: Altamira (PA), São Felix do Xingu (PA), Porto Velho (RO), Lábrea (AM) and São Paulo (SP). The first 4 belong to the Amazon. Available at: <https://plataforma.seeg.eco.br/cities/statistics> (last seen: 18.09.2022). SEEG is an initiative that includes the production of annual estimates of greenhouse gas (GHG) emissions in Brazil, analytical documents on the evolution of emissions and a web portal to provide simple and clear system methods and data.

According to Measurement of Deforestation by Remote Sensing – PRODES's latest information available, in 2019 the top 4 cities with higher rates of deforestation in the Amazon where: Altamira (PA), São Felix do Xingu (PA), Porto Velho (RO), and Lábrea (AM), likewise. Available at: <http://www.dpi.inpe.br/prodesdigital/prodesmunicipal.php>.

Measurement of Deforestation by Remote Sensing – PRODES (Portuguese acronym), carries out satellite monitoring of clear-cut deforestation in the Amazon and has produced, since 1988, annual deforestation rates in the region, which are used by the Brazilian government to establish public policies. PRODES belongs to the National Institute for Space Research in the Brazilian Ministry of Science and Technology, and all information it produces is considered official information. More information on PRODES available at: <http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes> (last seen: 18.09.2022). Also: <http://terrabrasilis.dpi.inpe.br/en/home-page/> (last seen: 18.09.2022).

<sup>109</sup> SEEG. 2019.

3. Given the ultimate relevance of deforestation to greenhouse gases emissions, in 2009, Brazil enacted its National Policy on Climate Change - NPCC<sup>110</sup>, determining that, by 2020, deforestation in the Legal Amazon had to be decreased by 80% in relation to the average verified between 1996 and 2005<sup>111</sup>. It set a maximum limit of 3,925 km<sup>2</sup> annual deforestation in 2020.

4. In 2012, after 8 years of strong decrease in deforestation rates, Brazil seemed to be on the right track as it almost reached this threshold in the Legal Amazon, with an annual primary forest loss of 4,571 km<sup>2</sup>, thus proving it is possible to achieve the emissions reduction target<sup>112</sup>.

5. However, since 2013, deforestation in the Legal Amazon has risen by 185%, especially after 2018. According to official data<sup>113</sup>, the total deforestation in 2018 was 7,536 km<sup>2</sup>, in 2019 it climbed to 10,129 km<sup>2</sup>, and in 2020 it increased to 10,851 km<sup>2</sup>. This means that in 2020 the deforestation rates in the Amazon were over two times higher than they were allowed to be, according to the goal established by the NPCC. The difference was 6,926 km<sup>2</sup>, an area almost three times the size of Luxembourg<sup>114</sup>.

6. In 2021, the problem worsened as the deforestation rate reached 13,038 km<sup>2</sup> – an area over three times the threshold established by NPCC. The difference between 2021 estimated deforestation and the NPCC established goal for 2020 is about 9.310 km<sup>2</sup>, an area the size of Cyprus<sup>115</sup>.

7. The graph below illustrates this situation.

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110 Established by Brazilian Law 12,187/2009 and regulated by Decree 9,578/2018. Available at: [http://www.planalto.gov.br/ccivil\\_03/\\_ato2007-2010/2009/lei/112187.htm](http://www.planalto.gov.br/ccivil_03/_ato2007-2010/2009/lei/112187.htm) and [http://www.planalto.gov.br/ccivil\\_03/\\_ato2015-2018/2018/decreto/d9578.htm](http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2018/decreto/d9578.htm) (last seen: 23.03.2022).

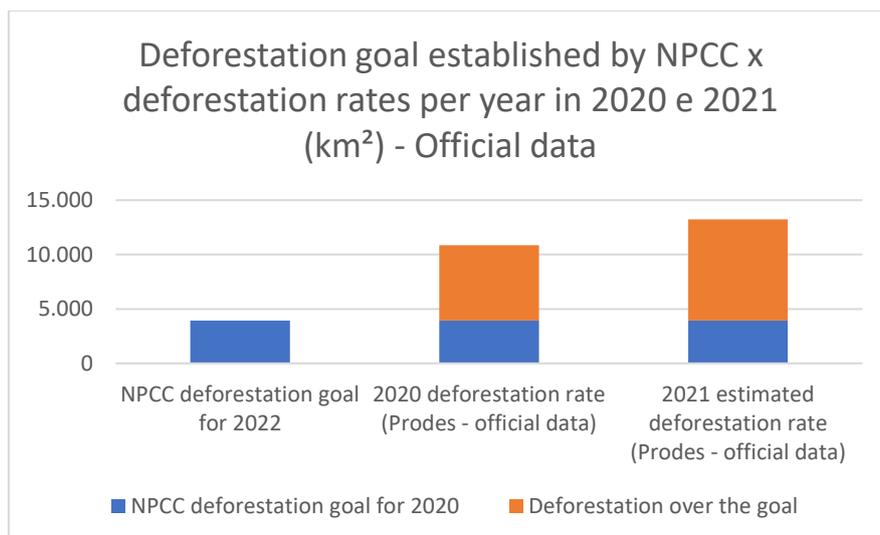
111 Article 12 of the Law 12.187/2009, in accordance with article 19, paragraph 1, item I, of Decree 9,578/2008.

112 All data on deforestation rates was sourced from PRODES. More information available at: [http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/legal\\_amazon/rates](http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/legal_amazon/rates) (last seen: 18.09.2022).

113 PRODES, 2022.

114 According to Food and Agriculture Organization, Luxembourg has 2,574 km<sup>2</sup>. Available at: [http://data.un.org/Data.aspx?d=FAO&f=itemCode%3A6601#f\\_Q](http://data.un.org/Data.aspx?d=FAO&f=itemCode%3A6601#f_Q) (last seen: 15.09.2022).

115 According to Food and Agriculture Organization, Luxembourg has 9,240 km<sup>2</sup>. Available at: [http://data.un.org/Data.aspx?d=FAO&f=itemCode%3A6601#f\\_Q](http://data.un.org/Data.aspx?d=FAO&f=itemCode%3A6601#f_Q) (last seen: 15.09.2022).



8. According to *Observatório do Clima* and based on PRODES national official data, deforestation reached three records in 2021: (i) it was the highest level of deforestation since 2006; (ii) it was the first time deforestation rates increased three times consecutively during the same presidential mandate, since 1988 when rates started being assessed; and (iii) it was the first time deforestation rates increased four times in a row (from 2018 to 2021)<sup>116</sup>. The graph below illustrates this scenario:

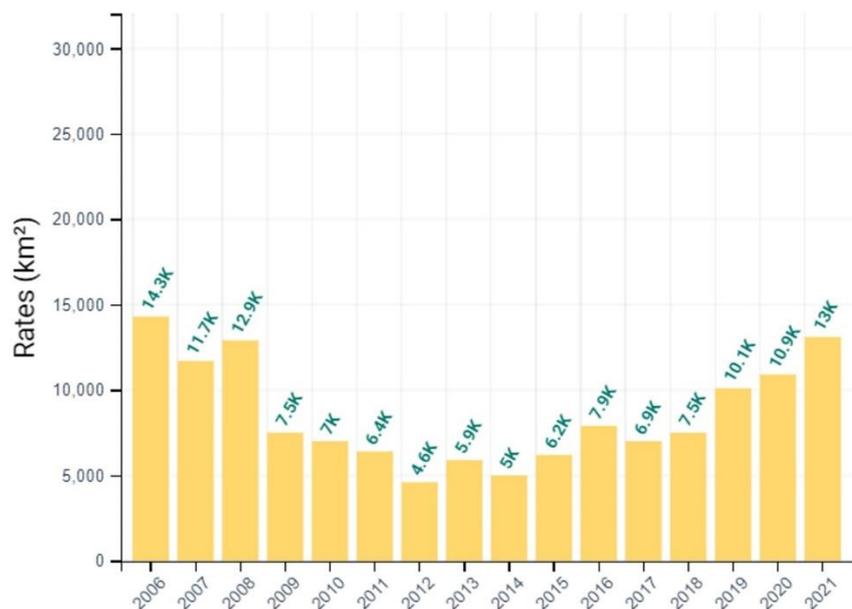


Figure 1: Deforestation rates from 2006 to 2021 in Legal Amazon (in km<sup>2</sup>) according to PRODES. Sources: adapted from TerraBrasilis (INPE).

<sup>116</sup> OBSERVATÓRIO DO CLIMA. The Bill Has Come Due: *the third year of environmental havoc under Jair Bolsonaro*. 2022. p. 13. Available at: <https://www.oc.eco.br/wp-content/uploads/2022/02/Relato%CC%81rio-OC.pdf> (last seen: 03.23.2022)

9. The veracity of these facts is undeniable. In the Climate Fund Case (ADPF 708)<sup>117</sup>, the Brazilian Supreme Court (*Supremo Tribunal Federal*) has acknowledged the aggravation of deforestation in the Amazon and its negative consequences for climate change mitigation. According to the reporting Justice:

*“(...) from 2019 on (same year that the Climate Fund was paralyzed), deforestation has increased even more than it had in the previous decade. Annual deforestation rate in the Amazon went back to 2006/2007 levels. It has risen significantly inside protected areas, such as Indigenous Lands and protected areas, characterizing a worrisome rollback in a context that was already critical.*

*“In this vein, in 2019, clear cut deforestation amounted 10,129 km<sup>2</sup>, which represented a 34% increase compared with the previous year, when the rate was already too high because of the 2013-2018 raise trend. In 2020, the rate was 10.851 km<sup>2</sup>, almost three times the goal established by Decrees n° 7.309/2010 and 9.578/2018, which should had been accomplished that year. In 2021<sup>118</sup>, deforestation raised 22% more and reached 13.235 km<sup>2</sup>, the highest level in 15 years, representing a 76% increase in annual deforestation in comparison with 2018 rate, and almost 190% in relation to 2012. For 2022, the artificial intelligence instrument PrevisIA predicts 15.391 km<sup>2</sup> of deforestation in the Amazon, what would represent a 16% increase in relation to 2021.*

*“Hence, objectively verified results indicate that the country walks, indeed, in the opposite direction of the commitments assumed and of the climate change mitigation, and that the situation has deteriorated substantially in the lasts years. This is the worrisome and persistent picture in which the fight against climate change is in Brazil. It puts people’s life, health, and food security in risk, as well as the economy, in the future”.*

10. As just quoted, the Supreme Court concern on the rise of deforestation includes the increase of deforestation rates inside areas formally protected, which, indeed, has never been so dramatic. In protected areas<sup>119</sup>, deforestation reached 1,422 km<sup>2</sup> in 2021, the highest level since 2008 and closed to two times higher than 2018 level. Since 2019, these rates have remained above 1,000 km<sup>2</sup>, also the highest rates since 2008 (see graph below). Deforestation in Indigenous Land has drastically increased in the last few years (more information below).

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<sup>117</sup> The Climate Fund Case is a constitutional lawsuit filed in 2020 by the opposition political parties to the Bolsonaro Government, based on the allegation that numerous acts and omissions of the Federal Government have repeatedly compromised both the proper functioning of the National Fund on Climate Change (Climate Fund) and the fundamental right of all Brazilians to a healthy environment (art. 225, caput and paragraphs of the Federal Constitution of 1988). By 10 votes to 1, the majority of the STF Justices decided to uphold the constitutional action, following the vote of the reporting Justice. In general terms, the STF decided that the Executive Branch has the duty to make the National Fund on Climate Change’s resources work and allocate them on an annual basis, with no contingency being allowed. The STF builds its reasoning on the constitutional duty to protect the environment and the international commitments undertaken by Brazil.

<sup>118</sup> In his report, the Justice Rapporteur quoted the estimated deforestation rate for 2021 (13.235 km<sup>2</sup>). The consolidated rate for 2021 is 13.038 km<sup>2</sup>.

<sup>119</sup> All data on deforestation rates was sourced from PRODES (please refer to note 6). More information available at: [http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/legal\\_amazon/rates](http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/legal_amazon/rates) (last seen: 18.09.2022).

Protected areas and Indigenous Lands are specific types of protected lands according to Brazilian Law. In most cases, the national legal framework prohibits deforestation in these areas. The increase of deforestation inside protected areas and Indigenous Lands constitutes evidence of failure in law enforcement by Public Authorities.

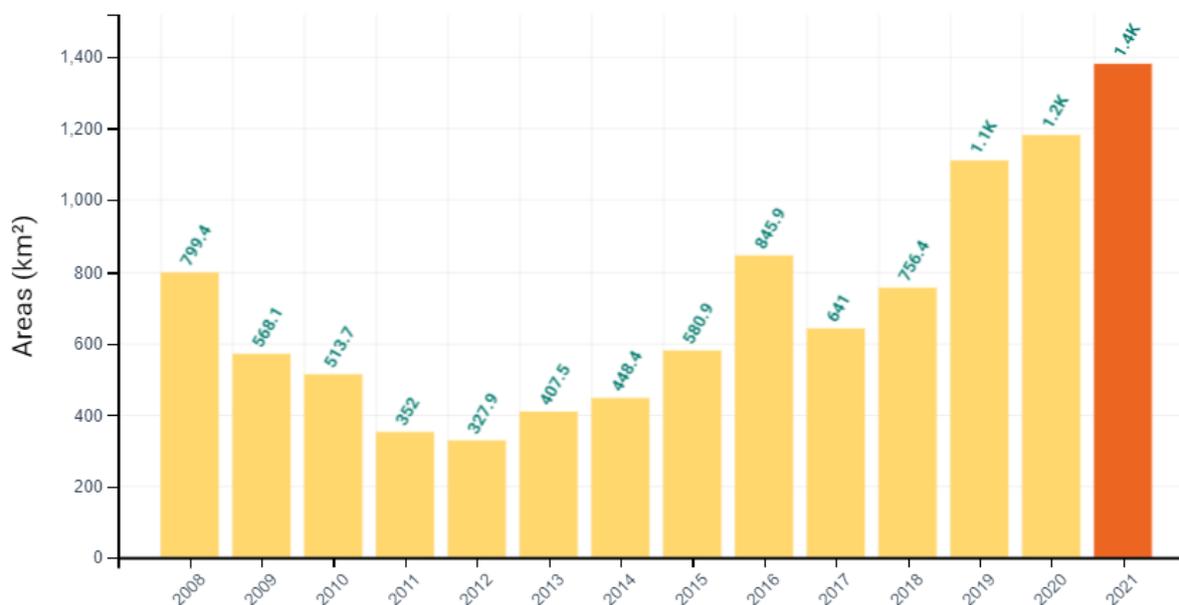


Figure 2: Deforestation annual increments from 2008 to 2021 in Amazon Protected Areas (in km<sup>2</sup>) according to PRODES. Sources: TerraBrasilis (INPE).

11. The Brazilian Court of Accounts has officially stated its concerns on the rise of deforestation and the poor enforcement of protected areas legislation, as well as its impact on climate change. In 2021, while recognizing the importance of protected areas and Indigenous Lands to mitigate climate change and to protect biodiversity, the reporting Minister of the audit procedure TC 023.646/2018-7<sup>120</sup> argued that deforestation is increasing inside protected areas and threatening their conservational goals. The Minister said<sup>121</sup>:

*“Protected areas and Indigenous Lands constitute effective strategies to counter deforestation, to protect forests, biodiversity, and natural resources, as well as to mitigate greenhouse gas emission, significantly contributing to mitigate climate change.*

<sup>120</sup> Court of Accounts auditing procedure to assessed implementation and management of federal conservation units. Based on the audit report elaborated by a team of auditors, Ministers have ruled the case in 09.06.2021 issuing a number of determinations and recommendations to the Federal Government. Decision available at: [https://pesquisa.apps.tcu.gov.br/#/documento/processo/\\*/NUMEROSOMENTENUMEROS%253A2364620187/DTAUTUACAOORDENACAO%2520desc%252C%2520NUMEROCOMZEROS%2520desc/0/%2520](https://pesquisa.apps.tcu.gov.br/#/documento/processo/*/NUMEROSOMENTENUMEROS%253A2364620187/DTAUTUACAOORDENACAO%2520desc%252C%2520NUMEROCOMZEROS%2520desc/0/%2520) (last seen: 16.09.2022)

<sup>121</sup> COURT OF ACCOUNTS, TC 023.646/2018-7 – Vote from the Minister Rapporteur. p. 12-13. Available at: [https://pesquisa.apps.tcu.gov.br/#/documento/processo/\\*/NUMEROSOMENTENUMEROS%253A2364620187/DTAUTUACAOORDENACAO%2520desc%252C%2520NUMEROCOMZEROS%2520desc/0/%2520](https://pesquisa.apps.tcu.gov.br/#/documento/processo/*/NUMEROSOMENTENUMEROS%253A2364620187/DTAUTUACAOORDENACAO%2520desc%252C%2520NUMEROCOMZEROS%2520desc/0/%2520) (last seen: 16.09.2022)

*“According to the calculations made by the audit team, between 2007 and 2017, total loss of habitats outside areas formally protected was five times and a half higher than inside protected areas, and nine times and half higher than inside Indigenous Lands. Even though, from 2019 on, deforestation has worsened inside protected areas, jeopardizing the accomplishment of its goals”.*

(...)

*“Likely, between 2007 and 2017, protected areas and Indigenous Land removed more than a billion ton of carbon from the atmosphere, whereas external areas released more than 2.2 billion tons of carbon in the same period. According to calculations made by the audit team, these kinds of protected areas were responsible for mitigating around 52% of Brazilian emissions in the period. The aggravation of habitat loss, however, might limit the contribution of these areas to regulating the climate”.*

12. The destruction of the Amazon is likely to have worsened even more along 2022. According to DETER<sup>122</sup> alert system that provides near real-time deforestation and degradation information, the accumulated deforested area in 2022 until 31<sup>st</sup> August is 18.5% higher than the same period in 2021, climbing from 6,021 km<sup>2</sup> to 7,135 km<sup>2</sup>, the highest value since the DETER started to operate in 2015.

13. INPE Fire Program<sup>123</sup> published concerning numbers on fires in the Amazon for 2022. Since the beginning of the year and until 19<sup>th</sup> September, 76,587 fires have been spotted in the biome, which is already higher than the whole 2021 year and 52% more than 2021 for the same period. According to *Observatório do Clima*, “INPE have registered 41.282 fires in the Amazon in September 2022, a 70% increase in comparison with the historical average of the last ten years. It is the highest number for the month, since 2010”<sup>124</sup>. Amazon is a tropical rainforest where fire is not part of ecosystems’ natural cycle. Its occurrence is generally associated to anthropogenic causes, mainly deforestation and degradation. INPE shows that during the last three years fire events mainly occurred in natural vegetation or recently deforested areas (>70% of fires)<sup>125</sup>.

14. Such a disturbing native vegetation loss scenario encompasses other biomes in Brazil, like the Cerrado. In this extremely biodiverse<sup>126</sup> biome that contributes to regional and climate

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<sup>122</sup> DETER belongs to the National Institute for Space Research in the Brazilian Ministry of Science and Technology, and all information it produces is considered official information. More information available at: <http://terrabrasilis.dpi.inpe.br/en/home-page/> (last seen: 18.09.2022).

<sup>123</sup> INPE Fire Program also belongs to the National Institute for Space Research in the Brazilian Ministry of Science and Technology, and all information it produces is considered official information. More information available at: <https://queimadas.dgi.inpe.br/queimadas/portal> (last seen: 26.09.2022)

<sup>124</sup> OBSERVATÓRIO DO CLIMA, Ibama executa só 37% do orçamento para prevenção de queimadas. 07.09.2022. Available at: <https://www.oc.eco.br/ibama-executa-so-37-do-orcamento-para-prevencao-de-queimadas/> (last seen: 26.06.2022)

<sup>125</sup> INPE Fire Program - <http://terrabrasilis.dpi.inpe.br/app/dashboard/fires/biomes/aggregated/> (last seen: 26.06.2022)

<sup>126</sup> KLINK, C.A; et all. *Conservation of the Brazilian Cerrado*. Conservation Biology

balance due to its carbon stocks<sup>127</sup>, more than 25 million people live. The DETER's recent numbers of primary vegetation conversion pointed an increase of 27.5% between 2021 and 2022, in the first eight months, reaching 4,575 km<sup>2</sup> of accumulated loss until 31<sup>st</sup> August 2022. After an almost continuous decrease in conversion rates during the two last decades, the last two years suffered consecutive increases, reaching 35%. Considering that Cerrado has already lost half of its original vegetation cover and the current annual rate of conversion, the biome has a conversion rate about twice the one of Amazon, relative to native vegetation remnants.

15. All this evidence shows an alarming acceleration in the pace of natural habitats destruction in Brazil, which directly impacts the fight against climate change and threatens peoples' rights to life, health and food security, as acknowledge by the Supreme Court and the Court of Accounts.

16. In addition, in 2020 Brazil submitted an updated first National Determined Contribution (NDC) under the Paris Agreement that is less ambitious than the previous version. The new NDC would allow Brazil to reach the year 2030 emitting between 200 million and 400 million tons of carbon dioxide equivalent (CO<sub>2</sub>e) more than it had proposed in its 2015 NDC. A group of young climate activists challenged Brazil's updated first NDC in Court. In April 2022, Brazil submitted the second update of its first NDC. Although the second update nominally increases the percentage of emissions cuts from 43% to 50% by 2030 compared to 2005 levels, the new target is still less ambitious than the one originally submitted in 2015<sup>128</sup>. The legal challenge mounted by the young activists is to be ruled by Justice<sup>129</sup>.

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Volume 19, Issue 3 p. 707-713. First published: 07 June 2005. <https://doi.org/10.1111/j.1523-1739.2005.00702.x>. Available at:

<https://conbio.onlinelibrary.wiley.com/doi/abs/10.1111/j.1523-1739.2005.00702.x#:~:text=Deforestation%20rates%20have%20been%20higher%20in%20the%20Cerrado,endemic%20species%20do%20not%20occur%20in%20protected%20areas>.

<sup>127</sup>LOPES, G.R; et all. *Cerrado: the Brazilian savanna's contribution to GHG emissions and to climate solutions. Conference: UNFCCC COP 24*. At: Katowice, Poland. December 2018. Available at: [https://www.researchgate.net/publication/332223049\\_Cerrado\\_The\\_Brazilian\\_savanna's\\_contribution\\_to\\_GHG\\_emissions\\_and\\_to\\_climate\\_solutions](https://www.researchgate.net/publication/332223049_Cerrado_The_Brazilian_savanna's_contribution_to_GHG_emissions_and_to_climate_solutions)

<sup>128</sup> Observatório do Clima. *Brazil continues to violate Paris Agreement with new climate target*. 07.04.2022. Available at: <https://www.oc.eco.br/en/brasil-segure-violando-acordo-de-paris-com-nova-meta-do-clima> (last seen: 26.09.2022).

<sup>129</sup> More information available at the Clamate Case Chart: <http://climatecasechart.com/non-us-case/six-youths-v-minister-of-environment-and-others/> (last seen: 26.09.2022).

## ANNEX B

### *Policy failure: dismantling, rollbacks, shortage of staff, de-funding*

1. To reduce deforestation, the NPCC relies on the Action Plan to Prevent and Control Amazon Deforestation (PPCDAm – Portuguese acronym)<sup>130</sup>. PPCDAm was a thorough and complex environmental policy based on quadrennial operational plans. “Implemented in 2004, PPCDAm was one of the most important instruments to reduce deforestation; its objectives were to reduce deforestation in a consistent and continuous way, as well as to create conditions to the sustainable development of the Legal Amazon”, according to the Court of Accounts<sup>131</sup>. Indeed, PPCDAm was responsible for a relevant reduction in Amazon deforestation between 2006 and 2012 (see graph below).

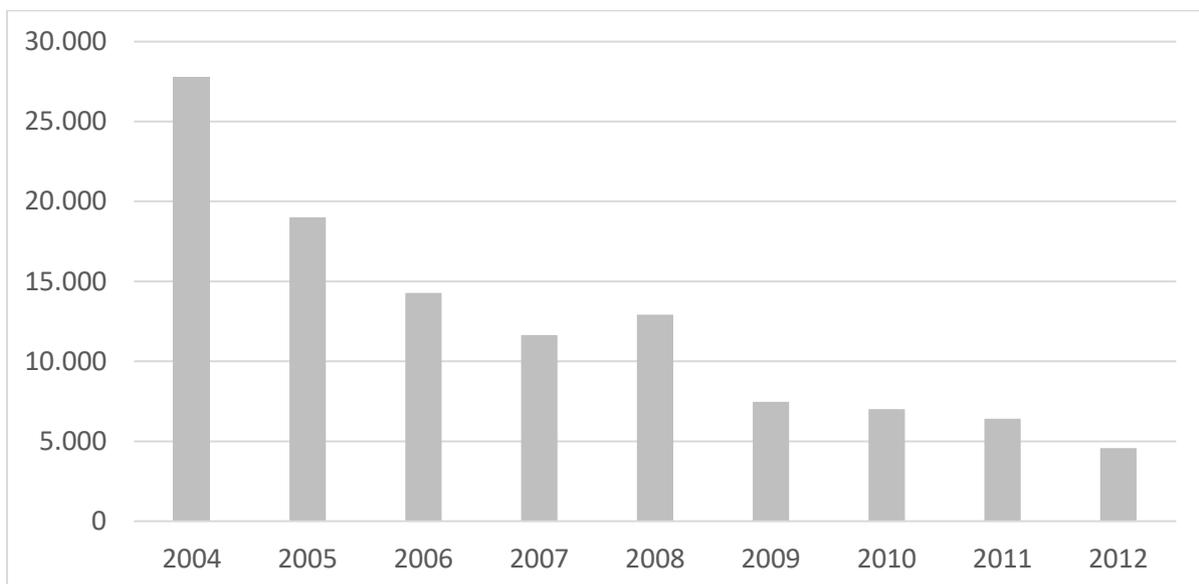


Figure 3: Annual deforestation rates between 2004 and 2012 in the Legal Amazon. Sources: INPE.

2. However, this policy was formally terminated in 2020, after being abandoned for more than one year. According to the Court of Accounts, “even before its termination, PPCDAm was not guiding the policy to counter deforestation”<sup>132</sup>. That is so because, among other things, in January 2019, Decree 9.672, which has restructured the Ministry of the Environment, did not include the control of deforestation among the Ministry’s responsibilities<sup>133</sup>. And, shortly

<sup>130</sup> Article 6, item III, of Law 12,187/2009, in accordance with with article 17, item I, of Decree 9,578/2008.

<sup>131</sup> COURT OF ACCOUNTS, TC038.045/2019-2 – p. 6. Available at: <https://pesquisa.apps.tcu.gov.br/#/documento/acordao-completo/1758%252F2021/%2520/DTRELEVANCIA%2520desc%252C%2520NUMACORDAOINT%2520desc/0/%2520> (last seen: 26.06.09).

<sup>132</sup> COURT OF ACCOUNTS, TC038.045/2019-2 – p. 10.

<sup>133</sup> COURT OF ACCOUNTS, TC038.045/2019-2 – p. 9. “As of 2019, several and relevant changes were implemented. They have altered the governmental structure responsible for dealing with the issue. “On 2/1/2019, Decree 9.672 was enacted. It did not include the topic deforestation among the responsibilities of the Ministry [of the Environment] – at least, not literally. The word ‘deforestation’ does not appear in any part of the Decree.

after, in April 2019, Decree 9.759 extinguished the PPCDAm Executive Commission, which had been responsible for monitoring and assessing PPCDAm implementation<sup>134</sup>.

3. One year later, on 23/4/2020, PPCDAm was officially terminated<sup>135</sup>. The “New National Plan to Control Illegal Deforestation and Native Vegetation Recovery 2020-2023” took its place<sup>136</sup>. Nonetheless, the new plan was so weak and badly elaborated that it could not even be considered a plan. According to a Court of Account assessment, the new plan “does not contain the minimum elements necessary for its configuration. (...) This plan is too generic and does not provide several fundamental information that are required for society and even for agencies responsible for implementing the plan itself to know how the Government would tackle such a serious and complex problem”<sup>137</sup>.

4. These acts and omissions so fundamentally affect the R2HE, among other rights, that seven political parties and ten civil society organizations have together filed a lawsuit asking the country’s highest court to order the federal government to reinstate the PPCDAm, with the adoption of concrete measures to reduce deforestation in the Amazon, at compatible rates with the international commitments assumed by Brazil. The lawsuit is ongoing at the Federal Supreme Court (STF), under identification ADPF 760<sup>138</sup>. The STF began to rule on the case in March 2022, when the reporting Justice released its report and vote, but this was suspended after another Justice requested for further information.

5. Before the suspension, the reporting Justice acknowledged not only that the PPCDAm had been dismantled, but also the increase in deforestation, crimes against the environment, and crimes against human rights, especially against Indigenous Peoples and traditional communities<sup>139</sup>. Moreover, she recognized the “situation of unconstitutional aspects regarding illegal deforestation in the Amazon Rainforest and the failure of the Brazilian state concerning the role of protecting an ecologically balanced environment”. The reporting Justice also voted for the Supreme Court to determine that the Federal Government should set out a plan to combat deforestation following the guidelines of PPCDAm, and to strengthen its organs linked to the socioenvironmental agenda, like Funai (National Indian Foundation), Ibama (Brazilian Institute for the Environment and Renewable Natural Resources) and ICMBio (the Chico

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<sup>134</sup> COURT OF ACCOUNTS, TC038.045/2019-2 – p. 9. “In April 2019, with the enactment of Decree 9.759, several councils, committees, and commissions of the Federal Administration were extinct, including PPCDAm Executive Commission.

<sup>135</sup> COURT OF ACCOUNTS, TC038.045/2019-2 – p.10

<sup>136</sup> *idem*

<sup>137</sup> CITAR ACÓRDÃO TCU TC038.045/2019-2 – p.10-11.

<sup>138</sup> The entirety of the process can be found here: <http://portal.stf.jus.br/processos/detalhe.asp?incidente=6049993>. A summary of the case, in English, can be found here: [http://climatecasechart.com/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2020/20201111\\_ADPF-760\\_application-1.pdf](http://climatecasechart.com/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2020/20201111_ADPF-760_application-1.pdf) (last seen: 03.23.2022).

<sup>139</sup> Report and vote from the reporting Justice was published and is available at: <https://www.stf.jus.br/arquivo/cms/noticiaNoticiaStf/anexo/VOTOADPF760.pdf> (last seen: 26.09.2022). SUPREMO TRIBUNAL FEDERAL, Desmatamento: ministra Cármen Lúcia vota por exigir plano da União para fiscalização ambiental. *O julgamento sobre a matéria foi suspenso por pedido de vista do ministro André Mendonça*. 06.04.2022. Available at: <https://portal.stf.jus.br/noticias/verNoticiaDetalhe.asp?idConteudo=484966&ori=1> (last seen: 26.09.2022)

Mendes Institute of Conservation of Biodiversity), given the shortcomings that exist at the government level<sup>140</sup>.

### **Failure of implementation & enforcement:**

6. Indeed, the protection of Nature and the implementation of human rights in the Amazon require law enforcement. More than 90% of deforestation in the biome present evidence of illegality<sup>141</sup>. To counter deforestation, the government must impede all illegal activities. This is the reason one of the key components of PPCDAm were environmental inspections, which encompass several activities, including the identification of illicit actions perpetrated by environmental wrongdoers and the enforcement of administrative penalties against them. Regarded as "essential to suppress environmental infractions and (...) their immediate effects"<sup>142</sup>, according to the official operational plan 2016-2020, environmental inspections have been highly insufficient in the past three years. Indeed, inspection by federal agencies (IBAMA and ICMBio<sup>143</sup>) resulting in the issuance of "infraction notices" and "embargo terms" covered only 4,4% of deforestation cases or 21,2% of the area deforested in the 52 priority cities of the Amazon, between 2019 and 2021<sup>144</sup>.

7. The Brazilian Senate's Environmental Committee identified an expressive drop in inspection and control of environmental crimes, both in the number of "infraction notices" issued and in the number of inspection operations executed, in 2019<sup>145</sup>.

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<sup>140</sup> CONECTAS HUMAN RIGHTS, *Following C armen L ucia's decision to resume a plan against deforestation, the Supreme Federal Court has suspended ruling on "green package" actions.* 07/04/2022. Available at: <https://www.conectas.org/en/noticias/following-carmen-lucias-decision-to-resume-a-plan-against-deforestation-the-supreme-federal-court-has-suspended-ruling-on-green-package-actions/> (last seen: 26.09.2022).

<sup>141</sup> RAJ AO et all stated that 94% of deforestation is illegal in the Amazon and in the region called MATOPIBA (which encompass the states of Maranh o, Tocantins, Piau , and Bahia). RAJ AO, Raoni; et all. *Desmatamento Ilegal na Amaz nia e no Matopiba: falta transpar ncia e acesso   informa o.* Policy Brief. UFMG, ICV, Imafloira, WWF-Brasil. Available at: <https://www.wwf.org.br/?78570/Estudo-inedito-aponta-falta-de-transparencia-e-ilegalidade-em-94-do-desmatamento-na-Amazonia-e-Matopiba> (last seen: 23.03.2022).

MapBiomias stated that, in 2021, more than 98% of deforestation in Brazil was illegal. *In.:* *Relat rio Annual de Desmatamento 2021 – S o Paulo, Brasil.* MapBiomias, 2022 – 126 p ginas. Available at: [https://s3.amazonaws.com/alerta.mapbiomas.org/rad2021/RAD2021\\_Completo\\_FINAL\\_Rev1.pdf](https://s3.amazonaws.com/alerta.mapbiomas.org/rad2021/RAD2021_Completo_FINAL_Rev1.pdf) (last seen: 28.09.2022).

<sup>142</sup> Action Plan for the Prevention and Control of Deforestation in the Amazon – PPCDAM: operational plan 2016-2020. p.2. Available at: [http://www.fundoamazonia.gov.br/export/sites/default/pt/galleries/documentos/prevencao-e-controle-do-desmatamento/PPCDAm\\_Plano-Operativo.pdf](http://www.fundoamazonia.gov.br/export/sites/default/pt/galleries/documentos/prevencao-e-controle-do-desmatamento/PPCDAm_Plano-Operativo.pdf) (last seen: 02.03.2022)

<sup>143</sup> IBAMA is the Federal Environmental Agency responsible for environmental inspections, among other things. ICMBio is the Federal Agency for Conservation Unites, responsible for inspections inside conservation units, among other things.

<sup>144</sup> *Relat rio Annual de Desmatamento 2021 – S o Paulo, Brasil.* MapBiomias, 2022 – 126 p ginas. p. 21. Available at: [https://s3.amazonaws.com/alerta.mapbiomas.org/rad2021/RAD2021\\_Completo\\_FINAL\\_Rev1.pdf](https://s3.amazonaws.com/alerta.mapbiomas.org/rad2021/RAD2021_Completo_FINAL_Rev1.pdf) (last seen: 28.09.2022).

<sup>145</sup> "The reduction in the number of fines is in line with the reduction in the number of IBAMA inspection operations scheduled for 2019. The retraction in IBAMA's command and control actions is in line with the aforementioned discontinuity in the coordination of policies to combat deforestation, which was the responsibility of the MMA and which is now experiencing a void: there is no government agency currently in charge of coordinating policies to combat deforestation. The withdrawal of all competences related to combating deforestation from the MMA is part of the weakening of the Ministry's technical and political role since 2019."

8. “Infraction notices” are the first step in IBAMA’s “penalty proceeding”. They are official documents that identify illicit actions against the environment. They are also the starting point of an administrative procedure held by the federal agency to determine whether an individual or company is responsible for committing the identified infraction and what sanction will be imposed. During the “penalty proceeding” period, the alleged wrongdoer has the chance to defend itself.

9. According to official data gathered by the civil society organizations APIB, ISA, OC, Conectas, and others, the number of infraction notices issued by IBAMA dropped sharply. Notices related to illegal deforestation in the Amazon decreased year after year. In 2018, 4,253 “infraction notices” were issued by IBAMA. In 2019; 3,667. In 2020; 2,629. In 2021; 2,534. Numbers from 2021 represent a 40,4% drop in comparison with numbers from 2018<sup>146</sup>. Something even worse happened with “embargo terms”. In 2018; 2,598 “embargo terms” were issued by IBAMA. In 2019; 2,461. In 2020; 1,230. In 2021; 441. Number from 2021 represent an 82,7% drop in comparison with numbers from 2018<sup>147</sup>.

10. In a recent report, Observatório do Clima (Climate Observatory) concluded that from August 2020 to July 2021, the number of infraction notices to deforestation in the Amazon issued by IBAMA was the lowest in two decades and represented a drop of 40% in relation to the period of August 2017 and July 2018<sup>148</sup>. The graph below illustrates this situation and shows the correlation between the decrease in inspection and the increase of deforestation, in the past few years:

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Available for download at: <https://legis.senado.leg.br/sdleg-getter/documento/download/be24ff00-0608-4f8b-9d57-804c33097882> (last seen: 22.03.2022)

<sup>146</sup> OBSERVATÓRIO DO CLIMA, et al. Executive Summary: *Organizations take Brazilian government to the Supreme Court over deforestation and human rights abuses*. 2020. Available at: [http://climatecasechart.com/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2020/20201111\\_ADPF-760\\_application-1.pdf](http://climatecasechart.com/climate-change-litigation/wp-content/uploads/sites/16/non-us-case-documents/2020/20201111_ADPF-760_application-1.pdf) (last seen: 23.03.2022).

<sup>147</sup> According to information gathered by Instituto Socioambiental, presented to the Supreme Court, in the lawsuit ADPF 760.

<sup>148</sup> “If the data from January to December is considered, the negative record is repeated – the average in the three years of the Bolsonaro administration was 2,963 infraction notices for crimes against the flora in the nine states that make up the Legal Amazon, a number that is 40% lower than the average for the decade before to the current administration (4,864). Embargoes and seizures carried out by environmental inspectors in the Amazon also plummeted under Bolsonaro. In 2021, embargoes on rural properties dropped 70% compared to 2018, the last year of the Temer administration: 722 were registered in the Amazon, against 2,368 in 2018. The embargo is one of the most effective measures to combat deforestation, as it causes immediate economic restrictions to offenders. When his area is embargoed, the farmer is prevented from selling products derived from the place where the environmental damage occurred. In the case of seizures, there was a drop of 80% in the same period - there were 452 in the Amazon in 2021, against 2,391 in 2018.” OBSERVATÓRIO DO CLIMA. *The Bill Has Come Due: the third year of environmental havoc under Jair Bolsonaro*. 2022. p. 13. Available at: <https://www.oc.eco.br/wp-content/uploads/2022/02/Relato%CC%81rio-OC.pdf> (last seen: 03.23.2022)

REDUCED FINES IN THE FIELD BY MORE THAN 80%.

Jair Bolsonaro, January 17, 2022

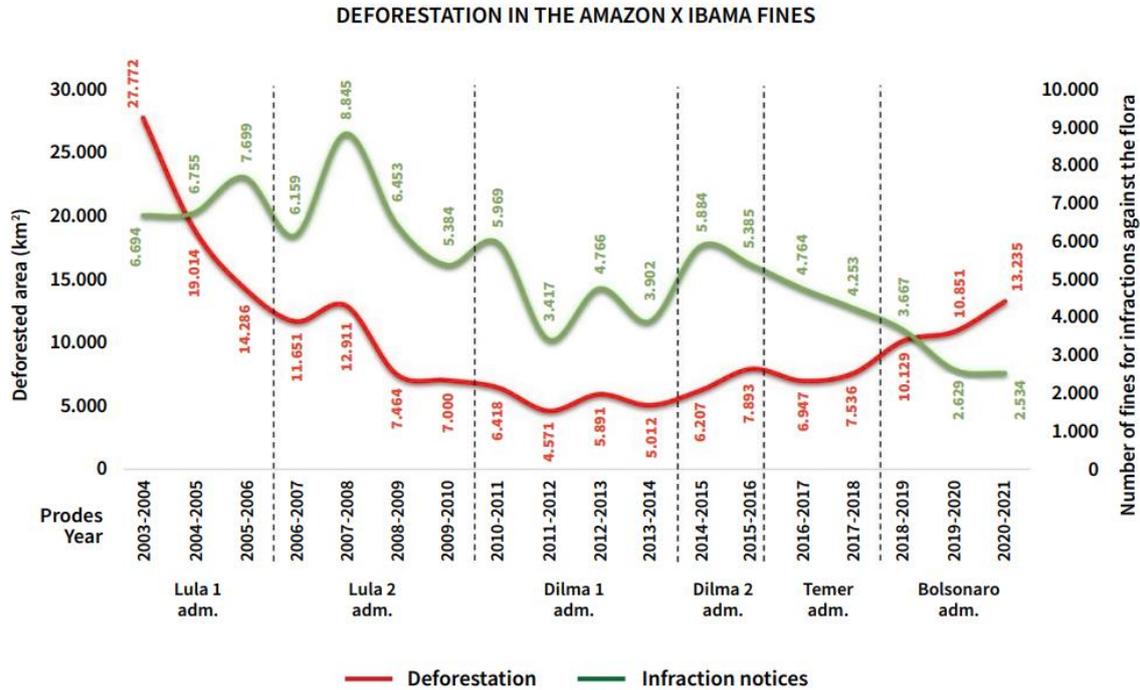


Figure 4: Annual Amazon deforestation rates and number of notices for infraction against the flora since 2003. Sources INPE and IBAMA. Updated on 17<sup>th</sup> January 2022.

11. When analysing IBAMA’s “penalty proceedings”, WWF-Brazil and the Climate Policy Initiative identified an alarming interruption of IBAMA’s activities<sup>149</sup>. Between October 2019<sup>150</sup> and May 2021, almost all (98%) of the 1,154 notices of infractions issued by IBAMA were put on hold – that is, after issuing the notice of infraction, IBAMA was not able to proceed with “penalty proceeding”. Sixteen proceedings relating to the most critical deforestation cases also remained on hold in the period. Considering these seventeen cases together, wrongdoers are accused of destroying more than 400,000 hectares square of the Amazon Rainforest. They are being charged with fines that, together, add more than R\$ 380,000,000.00 (which is four times more than all the money spent by IBAMA in inspection activities in 2021 – IBAMA spent R\$ 88,000,000.00 by December 2021<sup>151</sup>). This diagnosis is supported by researchers from the Universidade Federal de Minas Gerais (Federal University of Minas Gerais), who identified that after 2019, 98% of the penalty proceedings from IBAMA related to environmental violations were put on hold<sup>152</sup>.

<sup>149</sup> Lopes, Cristina L., João Mourão, Joana Chiavari, Clarissa Gandour. Conciliação Ambiental e Desmatamento na Amazônia Implicações e Desafios a partir de Evidências. Rio de Janeiro: Climate Policy Initiative e WWF-Brazil, 2021. Available at: [https://wwfbr.awsassets.panda.org/downloads/pb\\_wwf\\_pt.pdf](https://wwfbr.awsassets.panda.org/downloads/pb_wwf_pt.pdf) (last seen: 23.03.2022).

<sup>150</sup> In October 2019, Decree No. 9,760/2019 entered in force. This Decree amended IBAMA’s “penalty proceeding” rules.

<sup>151</sup> OBSERVATÓRIO DO CLIMA. The Bill Has Come Due: *the third year of environmental havoc under Jair Bolsonaro*. 2022. p. 13. Available at: <https://www.oc.eco.br/wp-content/uploads/2022/02/Relato%CC%81rio-OC.pdf> (last seen: 03.23.2022)

<sup>152</sup> “More than 2 years after the creation of the [environmental conciliation] nucleus, only 252 conciliation hearings were concluded, which represents less than 2% of the infraction notices carried out in the same period (26). This

12. These interruptions in the “penalty proceedings” entail a serious failure in environmental inspection and law enforcement since wrongdoers are not duly trailed and sanctioned. They stimulated a widespread feeling of impunity, further encouraging illegal deforestation. Although carrying out the inspection is not enough, it is clearly an essential step to halt deforestation in the Amazon and other biomes. Data shows that Brazil is failing to enforce environmental law, thus failing to protect Nature as a component of the R2HE.

### *II.3 – Shortage of staff*

13. Lack of law enforcement is also due to a shortage of staff. The Federal Environmental Agency (Ibama) have seen the numbers of public servants decrease sharply in the last years, currently missing more than 2,000 agents. According to the Court of Accounts:

*“Ibama has suffered a reduction in its permanent staff in recent years (...). Comparatively, the number of active public servants in the agency fell from 3,512 in 2016 to 2,570 in 2020.*

*“According to Ibama, currently, there are 2,311 vacant positions (...), with the potential for worsening due to future retirements. (...)*

*“In recent years there has been a reduction in Ibama's presence and its capillarity due to the reduction in the number of personnel in the superintendencias and local units. In the case of the 31 Ibama decentralized units located in the Legal Amazon (...) there has been a reduction of almost 65% in the number of employees in the period from 2016 to 2020 (...).*

*“Similarly, to the reduction in the number of Ibama's employees, the number of inspectors has been significantly reduced (...) the number of inspectors has fallen 55% in the last 10 years, from 1,311 in 2010 to 591 at the end of 2019”<sup>153</sup>.*

14. Regarding Protected Areas, it is worth noting that in 2019 the Ministry of Environment removed highly qualified and experienced head positions from federal conservation structures and replaced them by non-technical staff<sup>154</sup> or left them vacant. This dismantlement of management structures of Protected Areas worked against conservation of natural resources at Federal level.

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indicates that almost all infraction notices carried out between 2019 and 2020 are still suspended. Therefore, despite a great public effort (people, technology, budget) to implement this mechanism, the nucleus must generate few effective results, in addition to increasing the risk of statute of limitations, improper negotiations, and reducing the deterrence of infractions.”. RAJÃO, Raoni, et al. Dicotomia da impunidade do desmatamento ilegal (Dichotomy of impunity for illegal deforestation). CSR e LAGESA/UFMG. 2021. p. 6. Available at [https://csr.ufmg.br/csr/wp-content/uploads/2021/06/Rajao\\_Schmitt-et-al\\_Julgamentos-IBAMA\\_final.pdf](https://csr.ufmg.br/csr/wp-content/uploads/2021/06/Rajao_Schmitt-et-al_Julgamentos-IBAMA_final.pdf) (last seen:02.23.2022).

<sup>153</sup> COURT OF ACCOUNTS, TC038.045/2019-2 – p. 43-44

<sup>154</sup> P.R. Gonçalves, F. Di Dario, A.C. Petry, R.L. Martins, R.N. Fonseca, M.D. Henry, F.A. Esteves, C.R. Ruiz-Miranda, L.R. Monteiro, M.T. Nascimento Brazil undermines parks by relocating staff. Science, 368 (2020), p. 1199, 10.1126/science.abc8297

## II.4 – Brazil’s acts and omissions: budget and the interruption of Amazon Fund operations

15. The Amazon Fund is an international cooperation mechanism created with resources from international donations<sup>155</sup>. The Fund was created to finance projects to halt deforestation. Financial resources had to be allocated to projects aligned with the PPCDAm guidelines, which meant, projects that contributed to monitoring and combating deforestation, and promoting the conservation and sustainable use of the forest<sup>156</sup>.

16. For years the Amazon Fund was one of the main sources of funding for activities developed by public authorities and civil society organizations to protect the rainforest. As of today, the Fund has received R\$ 3.3 billion<sup>157</sup>. Until 2018, financial resources allocated to projects added up to R\$ 1.8 billion; and R\$ 1.1 billion was disbursed to a total of 103 projects<sup>158</sup>. In 2018, a major part of resources from the Amazon Fund (46%) was allocated to federal inspection and monitoring entities, such as IBAMA<sup>159</sup>.

17. However, in 2019 two important governance structures responsible for the Fund functioning terminated: the Technical Committee (TCFFA) and the Guidance Committee (GCFA)<sup>160</sup>. Since that year, due to those changes in the governance system, all donors have stopped contributing to the Fund, and no new projects have been approved<sup>161</sup>. Between 2019 and 2021, only R\$ 300 million were disbursed to ongoing projects that had received support in 2018, which represents an average of R\$ 100 million per year. This is equivalent nearly half of disbursements made in 2017 (about R\$ 220 million) and significantly less than disbursements in 2018 (about R\$ 180 million)<sup>162</sup>.

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<sup>155</sup> All relevant information are available at the Amazon Fund web site: <http://www.amazonfund.gov.br/en/amazon-fund/> (last seen: 23.03.2022).

<sup>156</sup> Art. 1º, incisos I a VII, e parágrafo 2º do Decreto 6.527/2008.

<sup>157</sup> Information available at: <http://www.amazonfund.gov.br/en/donations/> (last seen: 23.03.2022).

<sup>158</sup> AMAZON FUND. Portfolio Report. December 31, 2018. Available at: [http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/informe-de-carteira/2018\\_12\\_Informe-da-Carteira-Fundo-Amazonia.pdf](http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/informe-de-carteira/2018_12_Informe-da-Carteira-Fundo-Amazonia.pdf) For the English version (values in dollars), please, refer to: [http://www.fundoamazonia.gov.br/export/sites/default/en/.galleries/documentos/portfolio-report/2018\\_12\\_Amazon-Fund-Portfolio-Report.pdf](http://www.fundoamazonia.gov.br/export/sites/default/en/.galleries/documentos/portfolio-report/2018_12_Amazon-Fund-Portfolio-Report.pdf) (last seen: 23.03.2022).

<sup>159</sup> CALIXTO, B. O dinheiro da Noruega está pagando a fiscalização da Amazônia. Revista Época, 2017. Available at: <<http://epoca.globo.com/ciencia-e-meio-ambiente/blog-do-planeta/noticia/2017/08/o-dinheiro-da-noruega-esta-pagando-fiscalizacao-da-amazonia.html>>. (last seen: 03.23.2022)

<sup>160</sup> The Guidance Committee (COFA), was responsible for establishing guidelines and criteria for the application of Amazon Fund resources, monitoring information on the application of resources and approving the Amazon Fund Activities Report. It had a tripartite composition, with members of the federal government, subnational governments and civil society entities (business and non-business). It was created by art. 4 of Decree 6.527/2008. It was extinguished by art. 1, CCII, of Decree No. 10.223/2020. The Technical Committee (CTFA) was responsible for attesting the amount of carbon emissions from deforestation calculated by the Ministry of the Environment. It evaluated the methodology for calculating the area of deforestation and the amount of carbon per hectare used in the calculation of emissions. It was made up of specialists of unblemished reputation and notorious technical-scientific knowledge, appointed by the Ministry of the Environment, after consultation with the Brazilian Forum on Climate Change. It was extinguished by art. 12, II, of Decree No. 10.144/2019.

<sup>161</sup> Conclusion reached when analyzing the donations received, according to information from the Amazon Fund, available at: <http://www.amazonfund.gov.br/en/donations/> (last seen: 03. 22.2022).

<sup>162</sup> Conclusion reached from the Portfolio Report, of December 31, 2021. Available at: [http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/informe-de-carteira/2021\\_6bi\\_Informe-da-Carteira-Fundo-Amazonia.pdf](http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/informe-de-carteira/2021_6bi_Informe-da-Carteira-Fundo-Amazonia.pdf) Document in English available at:

18. The R\$ 3.3 billion of donations received by the Fund generated further income which then raised the total amount to R\$ 4,8 billion by 2020, and to R\$ 5,0 billion by 2021. Considering that R\$ 1,8 billion was already allocated to projects, there are still R\$ 3,5 billion available for new projects. This amount, however, is completely frozen. The Amazon Fund Activity Report 2020, and the Amazon Fund Activity Report 2021 confirm this:

**Amazon Fund Activity Report 2020:**

*“The total amount of resources to be invested in projects (97% of the total donations received + income generated over the years) is R\$ 4,853 million, with R\$ 1,825 million being allocated to projects under execution or concluded, of which R\$ 1,304 million have already been disbursed”<sup>163</sup>.*

**Amazon Fund Activity Report 2021:**

*“The total amount of resources received by the Amazon Fund, plus income generated over the years and deducting the administration share, totals R\$ 5,004 million. Disbursements to projects amount R\$ 1,421 million. Therefore, the Amazon Fund has R\$ 3,583 million to be allocated to projects already contracted and to new projects”<sup>164</sup>.*

19. According to the Senate Environmental Committee, considering the dramatic increase in Amazon deforestation rates, it is unacceptable that Amazon Fund assets are frozen. As reported in the Committee’s National Policy evaluation concerning Climate Change:

*“The government seems to ignore that about 60% of the projects already supported by the Fund aim to assist governments at a federal, state, and municipal level, exactly in actions to strengthen the forest’s public administration. It also ignores the fact that the Amazon Fund has been representing important complementation to IBAMA’s reduced budget, including environmental inspections, and to support the National Center for the Prevention and Combat of Forest Fires (PrevFogo/PrevFire). Governors from the region have manifested in favor of continuing the fund operations and highlighted its importance. Even though, today, the Fund assets are frozen. There have not been any new projects supported since January 2019. As a result of the (Brazilian) government’s posture, Amazon Fund’s main donors - Germany and Norway - withdrew their donations to Brazil. (...) There are not, under any lens of analysis, acceptable reasons to abandon this*

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[http://www.fundoamazonia.gov.br/export/sites/default/en/.galleries/documentos/portfolio-report/2021\\_6bi\\_Amazon-Fund-Portfolio-Report.pdf](http://www.fundoamazonia.gov.br/export/sites/default/en/.galleries/documentos/portfolio-report/2021_6bi_Amazon-Fund-Portfolio-Report.pdf) (last seen: 03. 22.2022)

<sup>163</sup> AMAZON FUND. Activity Report 2020. Available at: [http://www.amazonfund.gov.br/export/sites/default/en/.galleries/documentos/rafa/RAFA\\_2020\\_en.pdf](http://www.amazonfund.gov.br/export/sites/default/en/.galleries/documentos/rafa/RAFA_2020_en.pdf) p.28 (last seen: 03.23.2022)

<sup>164</sup> AMAZON FUND. Activity Report 2021. p. 25 Available at: [http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/rafa/RAFA\\_2021\\_port.pdf](http://www.fundoamazonia.gov.br/export/sites/default/pt/.galleries/documentos/rafa/RAFA_2021_port.pdf) (last seen: 24.09.2022)

*revenue source, that's why we understand it is essential to immediately reactivate the Amazon Fund operations, as well as its Guidance Committee (COFA)"<sup>165</sup>.*

20. On June 5<sup>th</sup>, 2020, four political parties filed a constitutional action (ADO 59) before the Federal Supreme Court (STF) challenging the paralysation of the Amazon Fund. STF admitted the lawsuit, requested the federal and state government actors to provide information, and held a public hearing<sup>166</sup>. Several times, STF have scheduled the judgement session of the case, but in all opportunities the case was deselected.

21. Besides the Amazon Fund, the Ministry of the Environment, and its affiliated entities (such as IBAMA) have also suffered severe restrictions in budget and budget spending, since 2019 – especially on activities regarding the fight against Amazon deforestation. The General Controller's Office identified: "relevant reduction on the budget, in the last four years (2016 to 2019), to [the programs on Climate Change, Biodiversity Conservation, and Environmental Quality], going from about R\$175 million to only R\$ 20 million, which means that there was a reduction of almost 90% on funding"<sup>167</sup>.

22. *Observatório do Clima* identified that, until December 31st, 2021, the Ministry of the Environment spent the lowest level of its budget since 2000 (in updated values based on monetary correction)<sup>168</sup>, a similar figure for 2020<sup>169</sup> (see the graph below). In 2021, IBAMA spent only 41% of its budget allocated to deforestation inspection activities<sup>170</sup>. This percentage is much lower than in the years before 2019<sup>171</sup>. Between 2016 and 2018, for example, IBAMA spent from 86% to 92% of the budget allocated to deforestation inspection activities<sup>172</sup>. The graph below illustrates these facts:

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<sup>165</sup> SENATE, Environment Commission. Evaluation Report of the National Policy on Climate Change. 2019. (SENADO FEDERAL, Comissão de Meio Ambiente. Relatório de Avaliação da Política Nacional sobre Mudança do Clima. 2019). Available for download: <https://legis.senado.leg.br/sdleg-getter/documento/download/be24ff00-0608-4f8b-9d57-804c33097882> (last seen: 03.22.2022)

<sup>166</sup> <http://climatecasechart.com/non-us-case/psb-et-al-v-brazil/>

<sup>167</sup> CONTROLADORIA-GERAL DA UNIÃO. Relatório de Avaliação: Secretaria Executiva – Ministério do Meio Ambiente. 2019. p. 12. Available at: <https://www.gov.br/mma/pt-br/aceso-a-informacao/transparencia-e-prestacao-de-contas/exercicio-2019/relatorio-de-avaliacao-cgu-2019.pdf> (last seen 03.23.2022).

<sup>168</sup> OBSERVATÓRIO DO CLIMA. The Bill Has Come Due: *the third year of environmental havoc under Jair Bolsonaro*. 2022. p. 13. Available at: <https://www.oc.eco.br/wp-content/uploads/2022/02/Relato%CC%81rio-OC.pdf> (last seen: 03.23.2022)

<sup>169</sup> Ibid.

<sup>170</sup> Ibid.

<sup>171</sup> Ibid.

<sup>172</sup> Ibid.

**ENVIRONMENT MINISTRY SPENT BUDGET**  
(amounts verified by December 31 of each year)

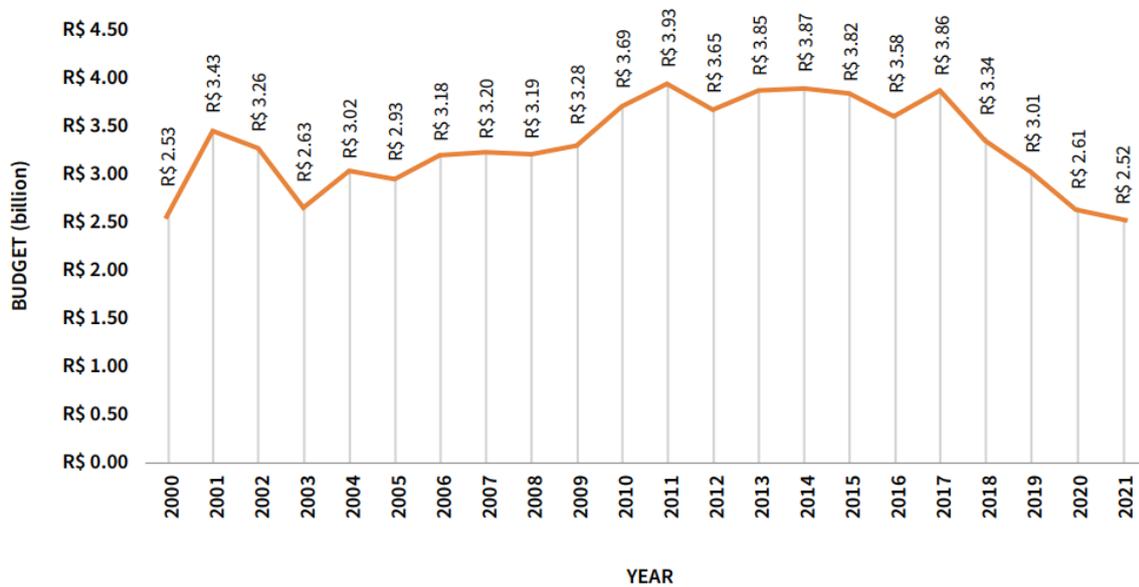


Figure 5: Environmental Ministry spent budget (amounts verified by December 31 of each year). Sources: Observatório do Clima.

23. Spending in 2022 are also low. According to *Observatório do Clima*, although INPE have registered records of deforestation and fires in the Amazon in 2022, by 05/09/2022, IBAMA have spent only 37% of its budget to prevent and control forest fires<sup>173</sup>, and less than that (32%) in inspections. And numbers are likely to worsen in 2023. The Government's budgetary project for next year reduces in 28% IBAMA's financial resources for prevention and control of fires<sup>174</sup>. Considering the sharp increase in deforestation and fire rates in the Amazon, these numbers provide a loud and clear sign: not enough money has been spent by the government to prevent the destruction of the Rainforest, what constitutes a serious omission to implement the R2HE.

<sup>173</sup> OBESERVATÓRIO DO CLIMA, *Ibama executa só 37% do orçamento para prevenção de queimadas*.07/09/2022. Available at: <https://www.oc.eco.br/ibama-executa-so-37-do-orcamento-para-prevencao-de-queimadas/> (last seen: 26.09.2022)

<sup>174</sup> Ibid.

## ANNEX C

### *Violations of Indigenous Peoples and other traditional communities' rights: violence, invasion, deforestation, and environmental degradation*

1. Conflicts in rural areas have risen in the last years. Between 2019 and 2021, conflicts over land increased 32% in comparison with the historical average of the last ten years. Most of these cases affect Indigenous Peoples and other traditional communities (68%, between 2015 and 2021), especially in the North of Brazil (approximately 40%, in 2021), where the Amazon and Cerrado are located.

2. According to *Pastoral Land Commission*<sup>175</sup> (CPT, Portuguese acronym):

*“(...) since 2016 numbers of conflicts in the rural area are increasing and have risen sharply after the election of Bolsonaro and the military to the Presidency of Brazil. (...) [N]umbers of conflicts under this government are the highest in all historic series registered by CPT since 1985”<sup>176</sup>.*

*“In the first three years of Bolsonaro Administration (2019-2021), CPT registered 1359 annual average occurrences of conflicts over land, which is 32% higher than the annual average for the whole historic series considered in this analysis.*

*(...)*

*“(...) [I]t is worth noting the absolute dominance of Traditional Peoples, specifically Indigenous People, Quilombolas and other traditional peoples/communities (...). In the current period (...) (2015-2021), Traditional Peoples implicated in conflicts account for 68% of the total.*

*(...)*

*“Let us observe the occurrences of land conflicts by regions (Graph 10), where there is a predominance of the Northern region, with 39.9% of the occurrences of violence over land, followed by the Northeast (29.6%) Southeast (13.8%), Center-West (12.9%), and finally the region (3.7%)”<sup>177</sup>.*

3. Indigenous Peoples' rights are systematically violated as a result of violence, invasion, deforestation and environmental degradation inside Indigenous Lands in the Amazon.

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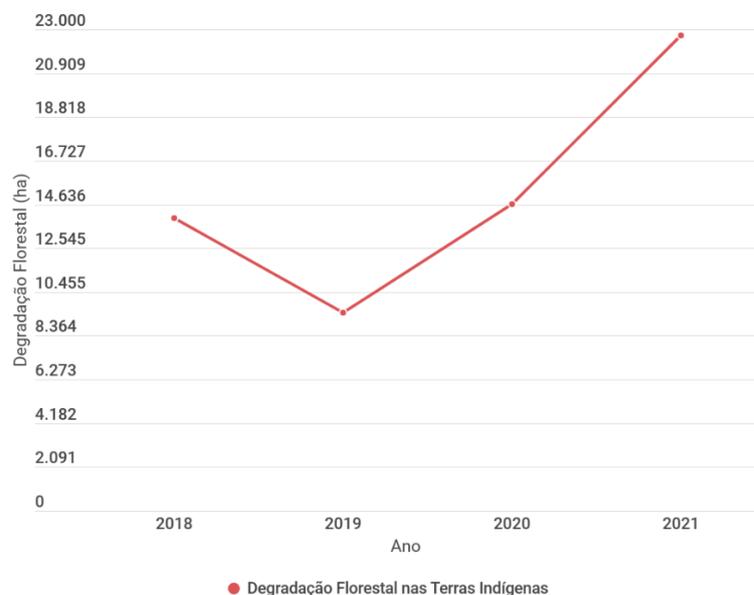
<sup>175</sup> COMISSÃO PASTORAL DA TERRA. *Conflitos no campo: Brasil 2021*. Centro de Documentação Dom Tomás Balduino – Goiânia: CPT Nacional, 2022. Available at: <https://www.cptnacional.org.br/downloads?task=download.send&id=14271&catid=41&m=0> (last seen: 28.10.2022)

<sup>176</sup> Ibid. p. 7

<sup>177</sup> Ibid. p. 89, 97 and 99.

4. A 2019 UN report<sup>178</sup> points that on average natural ecosystems degradation trends are less severe or avoided in Indigenous Peoples and Local Communities territories. Gonçalves-Souza et al. (2021)<sup>179</sup> showed that destruction in the Amazon Protected Area network are five times lower than in unprotected areas, with most effective protection in Indigenous Lands. Strengthening Indigenous Peoples and Local Communities and keeping these areas under their management are important not only to implement Indigenous Peoples rights, but also to protect Nature.

5. Deforestation in the Amazon escalated in the last four years, and the increase of rainforest destruction inside Indigenous Lands is especially disturbing. According to official data gathered by Instituto Socioambiental<sup>180</sup>, deforestation inside Indigenous Lands increased 138% in the last three years (2019 to 2021) compared to the three previous years (2016 to 2018)<sup>181</sup>. In 2021 alone, deforestation impacted 155 Indigenous Lands, affecting 32,864 hectares (three times the size of Paris). This is equivalent to more than 18 million trees cut down. According also to Instituto Socioambiental<sup>182</sup>, since 2019 illegal logging, mining and fires have increased 140% inside Indigenous Land. This happened due to the increase of illegal activities perpetrated by illegal gold miners, loggers, and land grabbers, who saw in the lack of punishment and inspection an opportunity for committing those crimes without facing any type of legal consequence.



<sup>178</sup> UN, 2019. UN Report: Nature’s Dangerous Decline ‘Unprecedented’; Species Extinction Rates ‘Accelerating’ <https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>

<sup>179</sup> The role of protected areas in maintaining natural vegetation in Brazil | Science Advances

<sup>180</sup> Sourced from PRODES and DETER.

<sup>181</sup> The report was produced for a lawsuit (Arguição de Descumprimento de Preceito Fundamental – ADPF nº 709), in progress before the Federal Supreme Court, which deals with the Indigenous peoples’ right to life, health and territories, that were seriously affected by the Covid-19 pandemic. The report is available at: [https://acervo.socioambiental.org/sites/default/files/documents/prov0448\\_0.pdf](https://acervo.socioambiental.org/sites/default/files/documents/prov0448_0.pdf) (last seen: 03.22.2022).

<sup>182</sup> Ibid.

6. In 2021, over 55.000 hectares of Indigenous Land were deforested or suffered forest degradation<sup>183</sup>. The table below shows the deforestation area inside the twenty most affected Indigenous Lands:

Indigenous Land (IL)	State	Deforestation (ha)
L Apyterewa	Pará	6.771,21
IL Trincadeira/Bacajá	Pará	3.552,79
IL Kayapó	Pará	2.573,96
IL Cachoeira Seca	Pará	2.345,38
IL Mundurucu	Pará	2.212,30
IL Piripkura	Mato Grosso	2.151,98
IL Sete de Setembro	Rondônia and Mato Grosso	1.478,70
IL Marãiwatsédé	Mato Grosso	1.039,89
IL Kayabi	Pará and Mato Grosso	842,75
IL Karipuna	Rondônia	669,72
IL Ituna/Itatá	Pará	440,87
IL Roosevelt	Rondônia and Mato Grosso	345,15
IL Arara do Rio Branco	Mato Grosso	331,88
IL Tenharim Marmelos	Amazonas	282,39
IL Manoki	Mato Grosso	252,65
IL Sai Cinza	Pará	251,45
IL Bacurizinho	Amazonas	242,65
IL Sarauá	Pará	206,55
IL Sissaíma	Amazonas	202,73
IL Jauary	Amazonas	201,90

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<sup>183</sup> Ibid.

7. Those numbers show how Indigenous Lands is are being systematically invaded. This represents a violation of the rights of Indigenous Peoples, undermines the protection of the Amazon, and fundamentally threatens the global efforts to address the climate emergency.

8. The most recent report<sup>184</sup> of the Indigenous Missionary Council points out that invasions in Indigenous Lands increased in 2021 for the sixth consecutive year. 305 cases of “possessory invasions, illegal exploitation of resources and damage to property” have been reported this year in 226 different Indigenous Lands. This is three-times higher than 2018 level.

9. Moreover, since 2019, in keeping with his electoral campaign promises, President Bolsonaro has frozen the procedures to demarcate Indigenous Lands. This means that, since he took office no new areas have been recognized as Indigenous Lands<sup>185</sup>, even though there are more than 200 areas under formal review, conducted by federal entities, waiting to be declared Indigenous Lands<sup>186</sup>. Since Indigenous Lands are the most preserved types of protected areas in the country<sup>187</sup>, the interruption in the demarcation process has left large parts of the territory unprotected and Indigenous populations in a vulnerable position.

### ***Violations of Indigenous Peoples’ rights: the example of Indigenous Land Apyterewa***

10. Take the top one, Indigenous Land Apyterewa, as an example. Located in São Félix do Xingu (PA) – top two greenhouse gas emitter among all Brazilian cities, and a champion of deforestation, with the second higher deforestation rate in the Amazon –, this Land is subject to systematic invasions. Land grabbing, illegal gold mining, and illegal cattle breeding accounted for 22,738 hectares of deforestation inside the IL between 2019 and May 2022. Parakanã People, inhabitants of the IL, are under serious threat, confined inside their own land. In a document submitted to the Supreme Court in August 2022, to inform about this dramatic situation, *Articulation of the Indigenous Peoples of Brazil* stated:

*“In the case of the Apyterewa IL, there was an increase in the number of invasions and deforestation. On May 18, 2022, invaders placed cattle near a village and began to threaten and ostensibly intimidate the Parakanã People, inhabitants of Apyterewa. (...)*

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<sup>184</sup> INDIGENIST MISSIONARY COUNCIL (CIMI), *The Violence Against Indigenous Peoples in Brazil-Report*. August 2022. Available at: <https://cimi.org.br/wp-content/uploads/2022/08/executive-summary-violence-indigenous-peoples-brazil-2021-cimi.pdf> (last seen:26.09.2022).

<sup>185</sup> According to information gathered by the Instituto Socioambiental, available at: <https://widgets.socioambiental.org/pt-br/placares> (last seen: 03.22.2022).

<sup>186</sup> <sup>186</sup> According to information consolidated by the Instituto Socioambiental and the Fundação Nacional do Índio (Indigenous National Foundation), an official body of the Brazilian government. Information available, respectively,

at: [https://pib.socioambiental.org/pt/Situa%C3%A7%C3%A3o\\_jur%C3%ADdica\\_das\\_TIs\\_no\\_Brasil\\_hoje](https://pib.socioambiental.org/pt/Situa%C3%A7%C3%A3o_jur%C3%ADdica_das_TIs_no_Brasil_hoje) e <https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/demarcacao-de-terras-indigenas> (last seen:: 03.22.2022).

<sup>187</sup> According to a survey produced by the MapBiomias project, based on official databases. Available at: <https://ipam.org.br/imagens-de-satelite-comprovam-que-terras-indigenas-sao-as-areas-mais-preservadas-do-brasil-nas-ultimas-decadas/> (last seen: 03.22.2022).

*“Indigenous People suffer several harms. First, the loss of the rainforest, biodiversity, environmental quality. It will take years until the rainforest naturally recovers and return to its status quo ante.*

*“Second, consists in the attacks to the core of their constitutional rights, guaranteed in article 231, paragraph 1<sup>st</sup>. Destruction encompass not only trees, biodiversity, animals, but also the lands Indigenous People use for their ‘productive activities’, which were demarcated because they constitute an essential space ‘to the preservation of the environmental resources necessary for their well-being and for their physical and cultural reproduction’ (...).*

*“In the first three years of Bolsonaro Administration, the IL accumulated more than 21.706 hectares of deforestation, a rate 10 times higher than in previous years. (...)*

*“The Executive Branch have sat on the side-lines. Regarding Apyterewa Land, it omitted itself while was dismantling surveillance and abandoning Indigenous People to their own fortune. This kind of conduct has still resulted in a third harm to indigenous people: paralyzed surveillance, paralyzed the withdrawn of invaders (which had already been ordered by the Federal Justice, in a closed case), with the increase of new and recent invasions, the Executive Branch ceases to promote essential policies for Indigenous People and for Brazilian population. It also ceases to promote the adequate administration of public land. (...)*

*“This neglect has a very serious consequence in the ground: it turns out in hatred for the indigenous people, extreme violence, stigmatization, racism, armed attacks, and assassinations”.*

11. Images below show the evolution of deforestation inside Apyterewa Indigenous Land:

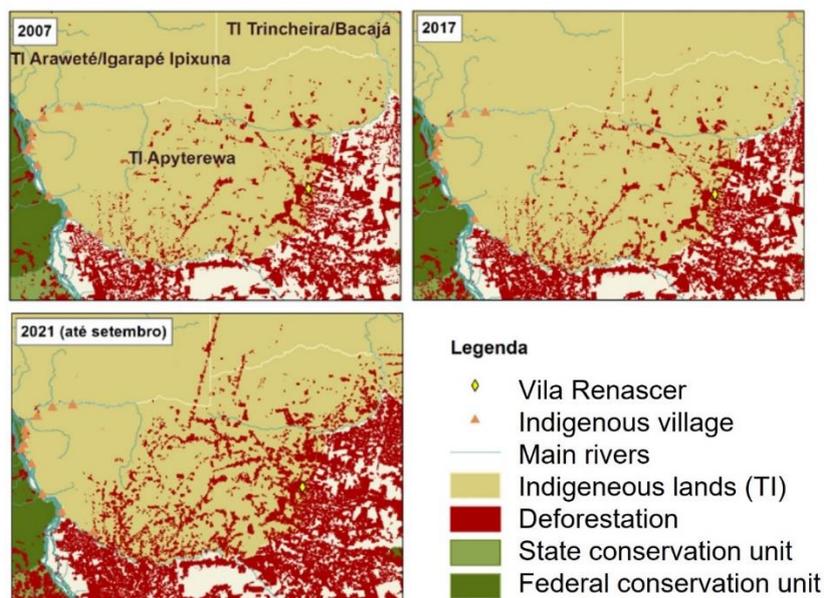


Figure 6: Deforestation expansion in Indigenous Land Apyterewa between 2007 to 2021. Sources: adapted from XXXX.

## ANNEX D

### *Expectations that legislation will change and promote impunity and further deforestation.*

1. Widespread impunity, as experienced and observed by society, was a key factor in the unprecedented increase in deforestation. This perception comes not only from the interruption in administrative penalties and fewer inspection operations, but also from the promises made by several public authorities (the President of Brazil included) that illegal activities would be tolerated and would become legal. According to the Brazilian Federal Court of Accounts:

*“It was detected that **various messages issued** by authorities of the Federal Executive Branch, especially by the **President of the Republic and the Minister of the Environment**, disqualifying the actions of entities that participate in the process of combating deforestation, **have delegitimized the inspection work carried out by Ibama and reduced its dissuasive power**, contributing to an increase in threats and violence against Ibama inspectors, causing these agents to become demotivated and harming the performance of the inspection activity. In addition, **these messages have the potential effect of encouraging the practice of acts that generate an increase in illegal deforestation**<sup>188</sup>”.*

2. Moreover, there is a set of bills currently tabled in the Brazilian Congress, supported by the Federal Government<sup>189</sup>, which, if approved, would cause enormous harm to the rainforest. Indeed, if approved, it would make impossible to control deforestation. Laws that protect both public and private forests would be weakened. Rights guaranteed to Indigenous Peoples would be abolished.

3. One of those bills, PL 510, popularly known as the "Land grabbers Bill", is likely to benefit land grabbers. It would allow invaders of public forests to become the legal owners of the land they invaded and to engage in agricultural activities. Public forests occupy 57,5 million hectares of the Amazon - an area the size of Spain. According to data from Instituto de Pesquisa Ambiental da Amazônia (Amazon Environmental Research Institute) between 2019 and 2021, more than half (51%) of total deforestation in the Amazon occurred in public forests. The reason for this is an expectation that the illegal invasion, today considered a crime, will be eventually forgiven and legalized by this new set of bills, such as PL 510/2021. According to the current Public Forest Law, these lands should be destined either to Indigenous peoples and traditional communities who live in the place (through demarcation processes handled by federal agencies, such as the Indigenous Peoples Federal Agency – FUNAI); to the establishment of protected areas; or, where the land is not occupied, to activities compatible

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<sup>188</sup> FEDERAL COURT OF ACCOUNTS - TC 038.045/2019-2. p.20 Available at: <https://portal.tcu.gov.br/imprensa/noticias/aumento-do-desmatamento-e-reducao-na-aplicacao-de-sancoes-administrativas.htm> (last seen: 29.03.2022)

<sup>189</sup> Ordinance No. 667/2022, which establishes the Federal Government's Priority Legislative Agenda for the year 2022. Available at: <https://www.in.gov.br/en/web/dou/-/portaria-n-667-de-9-de-fevereiro-de-2022-379226707> (last seen: 03.23.2022)

with forest maintenance, such as sustainable logging. PL 510/21 inverts these priorities by favouring activities that can be very destructive to the forest, such as unsustainable farming and logging.

4. Another bill that can profoundly affect deforestation is the PLS 2.159/2021, which establishes new rules for environmental licensing. The bill is likely to weaken the environmental impact evaluation of large infrastructure projects as well as the measures of control that may be requested by public authorities. According to Instituto Socioambiental and Universidade Federal de Minas Gerais (Federal University of Minas Gerais), if the bill was approved and its dispositions were enforced, the implementation of only one highway (BR-319) would elevate the deforestation rate to 9,400 km<sup>2</sup> per year in 2050, only in the State of Amazonas, which is one of the nine states that form the Amazon. The deforestation resulting from this project would be equivalent to the 2019 deforestation rate of the entire Brazilian Amazon.

5. Another bill worth mentioning is PL 191/2020, which allows land grabbing, industrial gold mining, and exploitation of hydroelectricity, oil, and farming inside Indigenous Lands, without Indigenous peoples' and communities' consent. These activities are currently banned in Indigenous Lands, of which 98% are forests. Therefore, this bill represents an enormous threat to forest and its peoples. Alike, PL 490/2007 provides for the end of demarcations, the review of Indigenous Lands already demarcated, and eventually seeks to legalise crimes in these territories.

## ANNEX E

### *The Climate Impact of deforestation and fires in the Amazon.*

1. The Amazon is under an unprecedented process of degradation, which encompasses historical records of deforestation and fires, and systematic violence against Indigenous People, including the invasion and destruction of Indigenous Lands. Besides that (which is an evil itself), the destruction of the Amazon also affects the climate, impacting the life of present and future generations in the Amazon region and elsewhere.

2. According to IPCC, *“it is estimated that more than 10 million people are exposed to forest fires in the deforestation arc, a region comprising several Brazilian states in the southern and western parts of the Amazon forest, with several impacts on human health including potential exacerbation the COVID-19 crisis in Amazonia”*<sup>190</sup>. A study<sup>191</sup> showed that the pollutants generated by forest fires during the dry season causes inflammatory process, which has increased the risk of infection by Covid-19. Such complicating factor has thus aggravated the public health situation of the Amazonian population in 2020 during the Covid-19 pandemic, when Brazilian health agencies was recording hundreds of deaths per day and hospitals were overcrowded in Amazonian states.

3. Forest fires are associated with an increase of 23% in respiratory hospital admissions and an increase of 21% in circulatory hospital admissions<sup>192</sup>. In Amazonas State, 87% of the hospital admissions were related to high concentrations of smoke (respirable and inhalable particles), between 2010 and 2020. The percentage was 68% in Pará State, 70% in Mato Grosso State, and 70% in Rondônia State. The respiratory diseases associated with high concentrations of fire pollutants accounted for 70% of the hospital admissions registered in Pará, Mato Grosso, Rondônia and Amazonas<sup>193</sup>. Impacts of deforestation and fires to respiratory health in the Amazon is also acknowledged by IPCC<sup>194</sup>. Particulate matter emitted from the burning of biomass in the Amazon region exposes humans to an increased risk of DNA damage, gene mutations, inflammation, and cancer.

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<sup>190</sup> IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press. Chapter 12 (Pag. 2203): Central and South America.

<sup>191</sup> Hacon, S. S.; Gonçalves, K. S.; Barcellos, C.; Oliveira-da-Costa, M. (2021). *Amazônia Brasileira: Potenciais Impactos das Queimadas sobre a Saúde Humana no Contexto da Expansão da Covid-19*. WWF-Brasil e Fundação Oswaldo Cruz. [https://wwfbr.awsassets.panda.org/downloads/nota\\_tecnica\\_covid\\_x\\_queimadas\\_na\\_amazonia\\_arquivo\\_final.pdf](https://wwfbr.awsassets.panda.org/downloads/nota_tecnica_covid_x_queimadas_na_amazonia_arquivo_final.pdf)

<sup>192</sup> (Requia et al., 2021)

<sup>193</sup> Op, Cit. Hacon, S. S.; et all (2021).

<sup>194</sup> IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press. Chapter 8 (Pag. 1540): Poverty, Livelihoods and Sustainable Development

4. Besides, deforestation and fires in the Amazon also affects food and water securities, and energy production. According to IPCC:

*“(...) high deforestation rates and increased forest burning in many of the Amazonian countries are further exposing vulnerable Indigenous Peoples and Traditional populations to health problems, crop failures and shortages of freshwater supply, especially in the context of extreme droughts and non-supportive governance”<sup>195</sup>.*

*“The occurrence of extreme droughts has affected the carbon and water cycles in large areas of the Amazon Forest (high confidence) (Lapola et al., 2014; Agudelo et al., 2019), in particular in its southern and eastern portions, where deforestation rates are higher”<sup>196</sup>.*

*“Also relevant is a trend of Amazonian forest fires spreading from the southern Brazilian Amazon to Bolivia and Peru, indicating that transboundary burning increases are systemic and will lead to extensive economic losses of wildcrops, infrastructure and livelihoods, and requiring a landscape level approach for deforestation and fire management and control”<sup>197</sup>.*

*“In South-Eastern Amazon, reduction in precipitation, due to changes in the climate pattern, associated with intense deforestation and land cover change are leading to reduction of productivity in the remaining forest areas, and might lead to a large-scale change in the forest structure, which can become a savannah....Furthermore, climate change interacts with deforestation for agriculture (crops, livestock and plantation forestry), logging, mining or infrastructure development exacerbating temperature and rainfall changes resulting in more degradation”<sup>198</sup>.*

5. In similar lines, the Scientific Panel for the Amazon have stated:

*“The warming of the Amazon is a fact, and the last two decades have been the warmest recorded since the last century. Today, the Amazon is about 1.2°C warmer, a value higher than the global average of 1.1°C, and with annual mean warming trends over the entire Amazon. Increased frequency of extreme climate events (floods and droughts) is impacting Amazonian ecosystems and their functioning. Terra firme forests are susceptible to drought and fires, while floodplain systems are vulnerable to changes in flood regimes. Landuse changes reinforce global climate change, leading to positive feedback mechanisms that reduce forest resilience. They also increase drought stress and fire risk, turn the*

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<sup>195</sup> IPCC, 2022: Chapter 8 (Pag. 1548): Poverty, Livelihoods and Sustainable Development

<sup>196</sup> IPCC, 2022: Chapter 12 (Pag. 2201): Central and South America

<sup>197</sup> IPCC, 2022: Chapter 8 (Pag. 1540): Poverty, Livelihoods and Sustainable Development

<sup>198</sup> IPCC, 2022: Cross-Chapter Paper 7 (Pag. 3651): Tropical Forests

*Amazon into a carbon source, cause higher tree mortality, and ultimately could reach a tipping point where continuous forests can no longer exist and are replaced by degraded forests. These cascading effects would have tremendous impacts on climate and in turn agriculture, hydropower generation, and human health and well-being.*

*(...)*

*“Interannual precipitation reduction due to El Niño or a warmer tropical North Atlantic may reduce atmospheric moisture transport and respective recycling of precipitation due to deforestation and land-use change in climate-critical regions. This induces a self-amplified drying process which would further destabilize Amazonian forests in downwind regions, i.e., the southwestern and southern Amazon regions, and reduce moisture export to west-central Brazil (including the Pantanal), southeastern Brazil, the La Plata Basin, and the Andean mountains. In these downwind regions, reduced moisture transport from the Amazon may favor drought, increase fire risk, decrease water availability for rainfed agriculture and fishing, and affect energy security in regions to the south of the Amazon. Hydropower plants in the coming decades may operate less than half of the time because the minimum river flow will not be reached. Fisheries, which contribute more than USD 400 million annually across the basin and support about 200,000 fisherfolk in Brazil alone, will be impacted by climate change”<sup>199</sup>.*

*“The biodiversity of terrestrial and freshwater ecosystems is under threat due to deforestation, habitat fragmentation, overexploitation, pollution, and climate change, both in the tropical Andes and lowland Amazon. Anthropogenic disturbances have put plants and animals, both terrestrial and aquatic, at high risk of extinction, particularly those with restricted geographical ranges. It is also changing the functioning of forests and other ecosystems, impacting carbon storage and sequestration, decreasing its productivity and resilience to disturbance, and disrupting the natural hydrological cycle, affecting the capacity of the Amazon Basin to supply goods and services essential to humanity”<sup>200</sup>.*

*“Deforestation and degradation of both terrestrial and aquatic ecosystems have significant impacts on human health and well-being by increasing the incidence of zoonotic and respiratory diseases, cancer, and food insecurity, and exacerbating existing inequalities. In addition, fires, water and atmospheric pollution, and infrastructure development can result in human health impacts. These often exhibit synergistic effects on the most vulnerable people, including children, pregnant women, and marginalized IPLCs”<sup>201</sup>.*

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<sup>199</sup>Executive Summary, Science Panel for the Amazon, Amazon Assessment Report 2021 Copyright @ 2021, Science Panel for the Amazon. Message 11.

<sup>200</sup> Executive Summary, Science Panel for the Amazon, Amazon Assessment Report 2021 Copyright @ 2021, Science Panel for the Amazon. Message 12

<sup>201</sup> Ibid.

6. The impacts of these changes have already been observed. Changes in precipitation regimes are already occurring over southern Amazon regions where the length of the dry season has increased by 1 month since the mid-1970s<sup>202</sup>. At the same time a bipolar trend has been found: While many regions in the Amazon basin have become drier overall, regions in the western part of the Amazon basin have received more rainfall during the last decades<sup>203</sup>. A pioneering study that evaluates the effects of increasing temperature caused by historical deforestation in the soy production in the Amazon and Cerrado, estimates that, between 1985 and 2012, deforestation and the consequent temperature increase caused a 12% reduction in the productivity of soybean cultivation in the Amazon and 6% in the Cerrado, with a decrease of more than 20% in some regions of the two biomes, such as the production of soybean and corn in Matopiba, agricultural region of Cerrado located in the states of Maranhão, Tocantins, Piauí and Bahia<sup>204</sup>. The direct and indirect transportation of atmospheric moisture from the Amazon is responsible for 27% of the rainfall in the South and Southeast portions of Brazil<sup>205</sup>.

7. In a case study, Climate Policy Initiative calculated the impact of deforestation in Xingu River for the rainfall reduction in State of Mato Grosso. As the study shows:

*“Amazon deforestation affects rainfall in the state of Mato Grosso – one of the most important agricultural hubs in the world, home to more than three million people, and 8 hydroelectric power plants. As a case study, CPI/PUC-Rio shows that the deforestation of the Xingu River region could lead to a decrease of 7% of the annual historical average precipitation in the state of Mato Grosso. This impact varies greatly across the state and throughout the seasons. The estimated decrease in the wet season due to deforestation could reach 8% of the historical seasonal rainfall average, with the center and north of the state being the most affected. During the dry season, the estimated impact of deforestation could result in a 15% decrease of the historical seasonal average, with the center and the northwest regions being the most affected”<sup>206</sup>.*

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<sup>202</sup> R. Fu *et al.*, Increased dry-season length over southern Amazonia in recent decades and its implication for future climate projection. *Proc. Natl. Acad. Sci. U.S.A.* 110, 18110–18115 (2013). 20. J. A. Marengo *et al.*, Changes in climate and land use over the Amazon region: Current and future variability and trends. *Front. Earth Sci.* 6, 228 (2018).

<sup>203</sup> N. Haghtalab, N. Moore, B. P. Heerspink, D.W. Hyndman, Evaluating spatial patterns in precipitation trends across the Amazon basin driven by land cover and global scale forcings. *Theor. Appl. Climatol.* 140, 1–17 (2020). N. S. Debortoli *et al.*, Rainfall patterns in the Southern Amazon: A chronological perspective (1971–2010). *Clim. Change* 132, 251–264 (2015).

<sup>204</sup> Flach, R.; Abrahão, G.; Bryant, B; Scarabello, M; Soterroni, A.; Ramos, F.; Valin, H.; Obersteiner, M.; Cohn, A. Conserving the Cerrado and Amazon biomes of Brazil protects the soy economy from damaging warming. *World Development*, 146, 105582. 2021. <https://doi.org/10.1016/j.worlddev.2021.105582>

<sup>205</sup> <https://doi.org/10.1073/pnas.2120777119>

<sup>206</sup> Araujo, Rafael. *Mapping the Effect of Deforestation on Rainfall: A Case Study from the State of Mato Grosso. Rio de Janeiro: Climate Policy Initiative, 2021.* Available at: <https://www.climatepolicyinitiative.org/wp-content/uploads/2021/10/Rainfall-EN.pdf> (last seen: 26.09.2022).

8. Zoonotic diseases like dengue, Ebola, yellow fever, MERS, SARS and Zika, are threats to global health. Habitat fragmentation<sup>207</sup> and livestock proximity<sup>208</sup> increase people's contact with pathogens' vectors and create favourable conditions for the emergence of these diseases. In fact, land-use change has been associated with over 30% of the new diseases reported since 1960. A recent technical note compiled evidence about the importance of forest preservation to moderate the risk of infectious diseases<sup>209</sup>.

9. The association between anthropogenic action in the Amazon rainforest, climate change, alterations in vector dynamics, human migration, genetic changes in pathogens and the poor social and environmental conditions in the region can give rise to the “perfect storm” for the emergence and re-emergence of human infectious diseases in Brazil and other Amazonian countries<sup>210</sup>.

10. There are several examples of problems and phenomena associated with Amazon deforestation and their impacts on infectious diseases, including: the emergence of *Paracoccidioidomycosis* cases; the enhanced spread of waterborne diseases and the increase in the mean abundance and distribution of the Chagas disease vector *Rhodnius pallescens*, and in the number of leishmaniasis cases<sup>211</sup>.

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<sup>207</sup>Loh Elizabeth H., Zambrana-Torrel Carlos, Olival Kevin J., Bogich Tiffany L., Johnson Christine K., Mazet Jonna A. K., Karesh William, Daszak Peter. *Targeting Transmission Pathways for Emerging Zoonotic Disease Surveillance and Control*. Vector borne and zoonotic diseases 2015 v.15 no.7 pp. 432-437. Available at: <https://pubag.nal.usda.gov/catalog/5153817>

<sup>208</sup> FERREIRA, Mariana; et al. *Drivers and causes of zoonotic diseases: an overview*. PARKS VOL 27 (Special Issue) MARCH 2021. Available at: [https://parksjournal.com/wp-content/uploads/2021/03/Ferreira\\_et\\_al\\_10.2305-IUCN.CH\\_.2021.PARKS-27-SIMNF.en\\_-1.pdf](https://parksjournal.com/wp-content/uploads/2021/03/Ferreira_et_al_10.2305-IUCN.CH_.2021.PARKS-27-SIMNF.en_-1.pdf)

<sup>209</sup>WWF-Brasil. Technical note. *What forests and deforestation have to do with our health*. June 2022. Available at: [https://wwfbr.awsassets.panda.org/downloads/wwf\\_technical\\_note\\_forests\\_health\\_2022\\_06\\_23.pdf](https://wwfbr.awsassets.panda.org/downloads/wwf_technical_note_forests_health_2022_06_23.pdf)

<sup>210</sup> ELLWANGER, Joel Henrique; et al. *Beyond diversity loss and climate change: Impacts of Amazon deforestation on infectious diseases and public health*. **Biological Sciences**. An. Acad. Bras. Ciênc. 92 (01). 2020. Available at: <https://www.scielo.br/j/aabc/a/fRVhxyPq4NLCsKTZPJMzV8J/?lang=en>

<sup>211</sup> BARROZO LV, BENARD G, SILVA MES, BAGAGLI E, MARQUES SA & MENDES RP. 2010. First description of a cluster of acute/subacute paracoccidioidomycosis cases and its association with a climatic anomaly. *PLoS Negl Trop Dis* 4: e643. MARQUES-DA-SILVA SH, RODRIGUES AM, DE HOOG GS, SILVEIRA-GOMES F & CAMARGO ZP. 2012. Occurrence of *Paracoccidioides lutzii* in the Amazon region: description of two cases. *Am J Trop Med Hyg* 87: 710-714. DO VALLE ACF, MARQUES DE MACEDO P, ALMEIDA-PAES R, ROMÃO AR, LAZÉRA MDS & WANKE B. 2017. Paracoccidioidomycosis after highway construction, Rio de Janeiro, Brazil. *Emerg Infect Dis* 23: 1917-1919. MARTINS M, LACERDA MVG, MONTEIRO WM, MOURA MA, SANTOS ECS, SARACENI V & SARAIVA MGG. 2015. Progression of the load of waterborne and intestinal parasitic diseases in the State of Amazonas. *Rev Soc Bras Med Trop* 48 Suppl 1: 42-54. VIEIRA CB, DE ABREU CORRÊA A, DE JESUS MS, LUZ SLB, WYN-JONES P, KAY D, VARGHA M & MIAGOSTOVICH MP. 2016. Viruses surveillance under different season scenarios of the Negro river Basin, Amazonia, Brazil. *Food Environ Virol* 8: 57-69. VIEIRA CB, DE ABREU CORRÊA A, DE JESUS MS, LUZ SLB, WYN-JONES P, KAY D, ROCHA MS & MIAGOSTOVICH MP. 2017. The impact of the extreme Amazonian flood season on the incidence of viral gastroenteritis cases. *Food Environ Virol* 9: 195-207. DESJEUX P. 2004. Leishmaniasis: current situation and new perspectives. *Comp Immunol Microbiol Infect Dis* 27: 305-318. ALVAR J, YACTAYO S & BERN C. 2006. Leishmaniasis and poverty. *Trends Parasitol* 22: 552-557. PALATNIK-DE-SOUSA CB & DAY MJ. 2011. One Health: the global challenge of epidemic and endemic leishmaniasis. *Parasit Vectors* 4: 197. GOTTDENKER NL, CALZADA JE, SALDAÑA A & CARROLL CR. 2011. Association of anthropogenic land use change and increased abundance of the Chagas disease vector

11. In fact, “Amazonian forests constitute one of the major carbon (C) sinks on Earth (...), playing a pivotal role in the climate system and regional balance of C and water (...). Deforestation, temperature increase and any factor affecting the forests ecosystem dynamics will have an impact on the atmospheric CO<sub>2</sub> concentration and hence on the global climate”<sup>212</sup>.

12. There are two biophysical factors which make Amazon Rainforest integrity critical to the protection of the global climate system. The first relates to the risk of a release of the large amount of carbon stored in trees, plants, and soil. There is now a large amount of carbon being released from the forest due to land use change, climate change and wildfire. It causes regional warming and decreases in precipitation, exacerbating the climate stress experienced across the Amazon region.<sup>213</sup>

13. Second, the Amazon Rainforest is linked to atmosphere in a way which makes deforestation a risk to the hydroclimatic stability of south America. The global water cycle sustains the transport of water through the lithosphere, hydrosphere, biosphere, and atmosphere and underpins the foundation of human society. Precipitation recycling by the Amazon ensures the availability of water in locations down wind of the basin. The forest maintains highly efficient evapotranspiration which recycles between 20% and 40% of rainfall forming an ‘aerial river’ feeding rain to areas to the south of the basin. Stability of this feedback is fundamental to maintaining South America’s hydrological cycle. Forest loss and degradation cause reductions in evapotranspiration and reductions in the critical downwind moisture transportation.<sup>214</sup>

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Rhodnius pallescens in a rural landscape of Panama. *Am J Trop Med Hyg* 84: 70-77. All refs in <https://www.scielo.br/j/aabc/a/fRVhxyPq4NLCsKTZPJMzV8J/?lang=en>

<sup>212</sup> IPCC, 2022: *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change* [H.-O. Pörtner, D.C. Roberts, M. Tignor, E.S. Poloczanska, K. Mintenbeck, A. Alegría, M. Craig, S. Langsdorf, S. Löschke, V. Möller, A. Okem, B. Rama (eds.)]. Cambridge University Press. In Press. Chapter 12 (Pag. 2199): Central and South America

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14. Observations, based on satellite data, show rainfall reductions of up to 20% downwind of the deforested area with impacts in the western Amazon and wider subtropical South America, and up to 40% in non-deforested parts of the western Amazon, and regions further downstream, increasing deforestation is expected to alter regional and global climate. Some authors state that the responsible mechanism is the breakdown of the forest to atmosphere feedback, which is impacted when deforestation reduces transpiration to a point where the available atmospheric moisture is not capable of releasing the latent heat needed to maintain the feedback.<sup>215</sup>

15. The reduction in the forest-to-atmosphere feedback has been found to spread water stress throughout the forests of the region, increasing tree mortality. There is evidence that this drying is also creating forests which are more flammable, allowing fires to spread more rapidly.<sup>216</sup>

16. A recent study<sup>217</sup> shows that more than three-quarters of the Amazon rainforests have been losing resilience since the 2000s. This trend is more pronounced in the regions most impacted by human activities and where rainfall is lower. These results point the risk of forest dieback and ecosystem transition scenario which would exacerbate climate change at a global

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scale. The situation of the neighboring biome Cerrado is also critical. There is evidence<sup>218</sup> that the Brazilian Cerrado is becoming hotter and drier. Results in the first study indicate that deforestation increased average land surface temperature by 3.5°C and reduced mean annual evapotranspiration between 39% and 44%. Such shifts would potentially lead ecosystems to collapse and consequently generate biodiversity loss, carbon release and climate change.

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