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TECHNICAL NOTE:
ANALYSIS OF THE IMPACTS OF THE GENERAL ENVIRONMENTAL LICENSING LAW ON AMAZON DEFORESTATION AND CLIMATE CHANGE

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I – Introduction

The objective of this Technical Note is to assess the potential impact on deforestation and climate change arising from Bill of Law (PL) No. 3,729/2004 (in the Senate, PL No. 2,159/2021), approved on May 12, 2021 by the House of Representatives, whose purpose is to establish a "General Environmental Licensing Law".

With more than forty years of application in Brazil, environmental licensing is a very relevant topic in the country, which ranks first in the global rating of megadiverse countries and which is home to a highly plural society, with countless traditional peoples and communities. Furthermore, the issue of environmental licensing is crucial to the National Environmental Policy (Law No. 6,938/1981), covered by broad constitutional protection, since it deals with the diffuse rights of the Brazilian community to an ecologically balanced environment, in its present and future generations, and with the fundamental rights of populations affected by projects, including indigenous peoples, *quilombola* communities and other traditional peoples and communities.

As it applies to all activities and undertakings capable of producing social and environmental impacts, environmental licensing is directly connected to all the pillars of ecological balance, including the prevention of environmental tragedies, such as those that occurred in Mariana (MG) and Brumadinho (MG); the preservation of the quality and quantity of water resources and national energy security, which is currently facing a serious crisis; combating all forms of pollution, including soil, water, air and others; the protection of the population's health, a right closely linked to environmental preservation; as well as combating deforestation in the Amazon and other biomes and the consequences on climate change.

Focusing on this last aspect, and due to the importance of the subject for the entire Brazilian society, Instituto Socioambiental – ISA presents its technical assessment on the potential impacts of PL No. 3,729/2004 on deforestation in the Brazilian Amazon and climate change.

II – Notes on environmental licensing under current legislation

Since 1981, when it was classified as an instrument of the National Environmental Policy, environmental licensing has been applicable to all activities or enterprises "that use environmental resources, that are actually or potentially polluting or that are capable of causing environmental degradation, in any manner (...) which shall require prior environmental licensing" (article 10 of Law 6,938/1981). There is no provision establishing any exception to this general rule.

Supplementary Law No. 140/2011 confirms such legal guidance, by conceptualizing environmental licensing as "the administrative procedure for the licensing of activities or enterprises that use environmental resources, that are actually or potentially polluting or that are capable of causing environmental degradation, in any manner (article 2, I).

In fact, environmental licensing is an instrument covered by broad constitutional protection, consisting of a true mechanism for the protection of economic order guided by sustainability. Under the terms of article 170, VI, one of the guiding principles of economic order is precisely the "protection of the environment, with different treatments being ensured according to the environmental impact of products and services and their elaboration and provision processes". In this sense, the economic order will only be respected from a constitutional point of view when this and the other principles provided for in said provision are respected. According to the Federal Supreme Court - STF:

> "The principle of free enterprise, inserted in the main section of article 170 of the Federal Constitution, is nothing more than a general clause whose content is established by the items of that article. These principles clearly define the freedom of enterprise not as an anarchic freedom, but rather as a social freedom, and which may, consequently, be subject to certain limitations."[1]

There are several constitutional provisions that apply to environmental licensing. First of all, it is important to mention article 23 of the Constitution, which, in its items VI and VII, establish that the Federal Government, the States and the Federal District (in addition to the Municipalities, whose attributions are defined in article 30) are jointly responsible for environmental protection and for the fight against pollution in any form, as well as for the preservation of forests, fauna and flora.

[1] Federal Supreme Court, First Panel. Motion for Clarification in the records of Extraordinary Appeal No. 1.104.226. Reporting Justice Roberto Barroso. Official Gazette of the Courts, electronic edition of May 25, 2018.

In this sense, and without intending to exhaust the subject, article 225, paragraph 1, of the Federal Constitution expressly established a series of duties to be fulfilled by Public Authorities, aiming at ensuring the effectiveness of the fundamental right of all individuals to an ecologically balanced environment and to a healthy quality of life, among which the following obligations should be highlighted:

(i) to preserve and restore essential ecological processes and provide for the ecological management of species and ecosystems (item I);

(ii) to preserve the diversity and integrity of the country's genetic heritage and supervise entities that pursue research and manipulation of genetic materials (item II);

(iii) to require, in accordance with the law, for the installation of a construction work or activity potentially causing significant degradation of the environment, a prior environmental impact study, which must be publicized (item IV);

(iv) to control the production, sale and use of techniques, methods and substances that pose a risk to life, quality of life and the environment (item V); and

(v) to protect fauna and flora, prohibiting, in accordance with the law, practices that endanger their ecological function, cause the extinction of species or submit animals to cruelty (item VII).

There are also several other fundamental rights protected by environmental licensing, insofar as activities and undertakings can affect them. Some of the most obvious examples are: the right to health, established in article 196 of the Federal Constitution; the right to the protection of culture, including that of traditional peoples and communities, provided for in articles 215 and 216; the rights of indigenous peoples, established in article 231; the rights of *quilombola* communities, provided for in article 68 of the Transitory Constitutional Provisions Act. In this regard, the STF recognizes the interdependent relationship between environmental protection and several other fundamental rights, such as: "the right to life (article 5, CF), to health (article 6, CF), to food and water drinking security (article 6, CF), to housing (in the sense of habitat), to work (article 7, CF), which may also affect the right to cultural identity, to the way of life and livelihood of indigenous peoples, *quilombola* communities and other traditional communities (article 23, III, article 215, main section and paragraph 1 and article 216 combined with article 231, CF and article 68, ADCT). Such an interdependent relationship between the right to a healthy environment and other rights is not strange to the case law of the Federal Supreme Court."[2] Such standing is also supported by the Inter-American Court of Human Rights.[3]

[2] Federal Supreme Court. Order. ADPF No. 708. Reporting Justice Luís Roberto Barroso. Official Gazette of the Courts of February 9, 2017.

[3] "(...) several fundamental rights require, as a necessary precondition for their enjoyment, a minimum environmental quality, and are profoundly affected by the degradation of natural resources. (...) Numerous points of interconnection arise from this relationship of interdependence and indivisibility between human

Since environmental licensing is an instrument to ensure the compatibility of economic, environmental and social values, the weakening thereof may result in violation of the Federal Constitution, especially if we consider that, according to the STF, "economic activity cannot be pursued in disharmony with the principles intended to enforce environmental protection. Environmental safety cannot be compromised by business interests or be dependent on purely economic motivations, especially if one bears in mind that economic activity is subject to the constitutional rules that govern the matter, among other general principles, which privileges the 'protection of the environment' (Federal Constitution, article 170, VI)"[4]. Hence, as the Supreme Court understands, "developments and economic activities will only be deemed lawful and constitutional when they comply with all applicable environmental protection rules."[5]

III – Potential impact of PL No. 3,729/2004 on Amazon deforestation and climate change

III.1. – Provisions of PL No. 3,729/2004 that affect deforestation in the Amazon and in other biomes

Contrary to what is defined in current legislation, which requires environmental licensing of any undertaking that causes social and environmental impacts, **PL No. 3,729/2004 makes the instrument an exception**.

First, there is a **lengthy list that exempts thirteen activities with environmental impact from environmental licensing requirements**, as per articles 8 and 9 of the Bill. Such list, for the purposes of this study, includes the non-requirement of licensing for all agroforestry activities (except for medium- or large-size intensive livestock farming), which is an activity that produces relevant impacts on deforestation. Besides states and municipalities are allowed to include other activities in said federal list.

In addition to the exceptions, the vast majority of projects that are currently licensable in the country will be subject to a type of license that, in reality, should not even be considered as such. According to article 21, **all activities not classified as having a significant environmental impact will be subject to an Adhesion and Commitment License, which is part of a self-declaratory, automatic system. In this form of**

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rights, the environment, and sustainable development owing to which (...) 'all human rights are vulnerable to environmental degradation, in that the full enjoyment of all human rights depends on a supportive environment'." (Inter-American Court of Human Rights. Advisory Opinion OC-23/17, December 15, 2017.)

[4] Federal Supreme Court. Full Session. Precautionary Measure in the Records of Direct Unconstitutionality Measure No. 3540-1/DF. Reporting Justice Celso de Melo. Official Gazette of the Federal Government, electronic edition of February 3, 2006.

[5] Federal Supreme Court. Full Session. Direct Unconstitutionality Action No. 6288. Reporting Justice Rosa Weber. Official Gazette of the Federal Government, electronic edition of December 2, 2020.

licensing, there is no prior assessment of the development by an environmental agency, and the "license" is automatically issued through an electronic system upon insertion of self-declared information by the developer itself. It should also be noted that article 11 of the Bill still proposes the application of LAC to the expansion of capacity and the paving of pre-existing facilities, a highly vague term that may cover some of the developments that have the greatest potential for impact on deforestation in the Amazon, such as paving or expanding roads, as analyzed below.

Only developments identified as having significant degrading potential, which is the minority, will be subject to licensing through a Prior Environmental Impact Assessment. And even in these cases, article 13, paragraphs 1, 2 and 5 expressly ban the imposition of conditions (prevention, mitigation and compensation measures) on environmental impact: (i) caused by third parties; and (ii) over which the Public Power holds enforcement power. As the fight against deforestation and other illegal activities in the Amazon subject to the enforcement power – and represents a constitutional duty – of the state, in addition to being an activity carried out by "third parties", it follows that **measures to contain deforestation resulting from the installation of impact-causing projects, such as roads, railways, hydroelectric plants and others, can no longer be subject to environmental conditions.**

Finally, it should be noted that the text approved by the House of Representatives **includes no reference to measures capable of promoting the adequacy of potentially impacting activities and undertakings to the National Policy on Climate Change**, established by the Law No. 12,187/2009, or to any of the international agreements executed by Brazil, especially the **Paris Agreement**.

Therefore, it appears that, from the wording of PL No. 3,729/2004, approved by the House of Representatives and submitted to deliberation by the Federal Senate as part of PL No. 2,159/2021, no development in the country will be required to adopt any further measures to control deforestation, since: (i) projects exempt from licensing will not be evaluated; (ii) the majority projects subject to LAC will be excepted from prior impact assessment by the licensing bodies and a mere self-declaration will be sufficient to obtain an automatic "license"; and (iii) even in the cases of developments with significant impact, which ordinarily would be subject to environmental licensing, with a prior analysis by the environmental agency, the adoption of measures to combat illegal deforestation in the Amazon and other biomes is banned.

III.2. – Examination of cases

As noted, unlike what happens today, PL No. 3,729/2004 prevents the adoption, by entrepreneurs, of any measures to support the fight against deforestation, even in cases identified as potentially causing significant degradation of the environment.

Furthermore, there is no provision, in the text approved by the House of Representatives, dealing with the subject of climate change.

Initially, it should be noted that deforestation in the Amazon, as well as other forms of land use change, is the main source, in Brazil, of climate emergency-causing gas emissions. In 2019, Brazil had an increase of 9.6% in gross emissions of greenhouse gases[6], which corresponds to 2.17 billion tons of equivalent carbon dioxide (tCO2 e), when compared to 1.98 billion in 2018.

A quick analysis of gross greenhouse gas emissions data indicates that deforestation, particularly in the Amazon, has driven emissions growth over the past year. The amount of greenhouse gases released into the atmosphere due to land usage change rose 23% in 2019, reaching 968 million tCO2 e – when compared to 788 million in 2018. Land usage changes, driven by deforestation, continue to account for the majority of Brazilian emissions, i.e., 44% of the total. Added to emissions from agricultural activities, which will be exempted from licensing under to article 9 of PL No. 3,729/2004, the percentage reaches 72%.

To assess possible consequences of PL No. 3,729/2004 on deforestation in the Amazon and on climate change, given the impossibility of making consistent predictions for the entire biome, especially due to the uncertainty about which infrastructure works will actually be carried out from now on by the Public Administration, we have selected two examples of projects considered to be a priority by the federal government, on which there is accrued scientific knowledge and certainty about the intention behind their implementation.

a) Highway BR-319

Several studies have proven the deforestation-increasing effect resulting from the construction of roads. Deforestation is much greater near roads than in other parts of the Amazon. One of such studies[7] shows that **95% of the accrued deforestation in the Amazon is concentrated within a 5.5 km radius around roads**. This impact is also accompanied by forest fires, **85% of which are concentrated within a radius of 5 km around roads in the Amazon**[8].

[6] Albuquerque I. et at. (2020) SEEG 8 - Análise das emissões brasileiras de gases de efeito estufa e suas implicações para as metas de clima do Brasil 1970-2019.

[7] Barber CP, Cochrane MA, Souza CM, Laurence WF (2014) Roads, deforestation, and the mitigating effect of protected areas in the Amazon. *Biological Conservation*, Volume 177, Pages 203-209, ISSN 0006-3207, https://doi.org/10.1016/j.biocon.2014.07.004.

[8] Kumar SS, Roy DP, Cochrane MA, Souza CM, Barber CP, Boschetti L. (2014) A quantitative study of the proximity of satellite detected active fires to roads and rivers in the Brazilian tropical moist forest biome. *International Journal of Wildland Fire* 23(4):532-543.

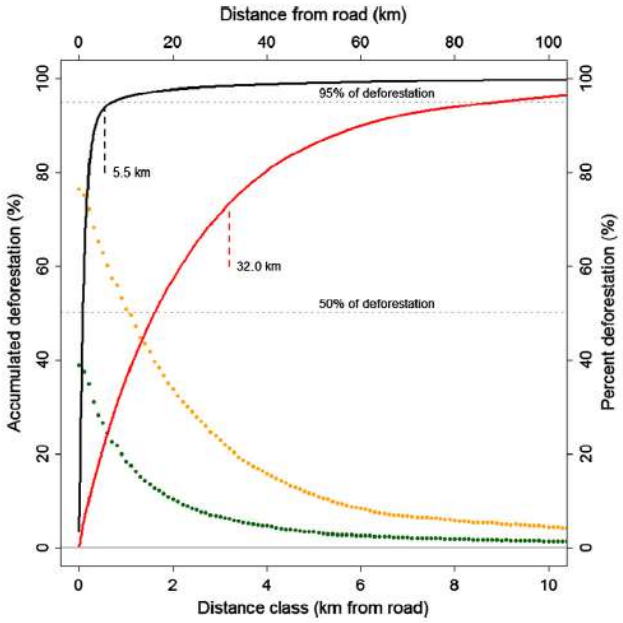

Figure: Christopher P. Barber, Mark A. Cochrane, Carlos M. Souza, William F. Laurance, (2014) Roads, deforestation, and the mitigating effect of protected areas in the Amazon, Biological Conservation, Volume 177, Pages 203-209, ISSN 0006-3207, https://doi.org/10.1016/j.biocon.2014.07.004.

Highway BR-319, which connects Rondônia to central Amazon, has a high potential to accelerate deforestation in the region, as it will provide access to vast areas of the Amazon rainforest that are still preserved. A part of the road's total impact on deforestation occurs along the road route itself, but the greatest potential impact of the road stems from the fact that it enables migration to more distant borders.

In this scenario, the implementation of any road construction, should require adoption of measures to prevent the explosion of deforestation in the region, which, according to the legislation currently in force, must be carried out not only by the Public Authorities, pursuant to their enforcement, monitoring, control and inspection powers, but also by developers themselves, through the adoption of environmental conditions to be determined by the environmental agency within the scope of the environmental licensing process.

However, as reported above, **PL No. 3,729/2004 prevents the imposition of conditions in cases that involve deforestation, even in cases of significant environmental impact**, such as the construction of BR-319. In other words, if today the developer must adopt support measures to prevent the opening of side roads and consequently prevent illegal land grabbing and deforestation, once the provisions set forth in **PL No. 3,729/2004 come into effect, the environmental agency will no longer be able to impose conditions to be fulfilled by the developer in order to mitigate such impacts**.

A study carried out by the Federal University of Minas Gerais – UFMG[9], analyzed the possible impacts of paving the BR-319 through the "SimAmazonia" [10] model, which integrates variables from the physical environment, infrastructure, demographic dynamics, land use planning and environmental governance to simulate deforestation.

Between 2015 and 2020, without the paving of the highway, the average annual deforestation rate in the state of Amazonas[11] was 1,150 km². With paving, and in a scenario without governance, as defined in PL No. 3,729/2004, **a significant increase in deforestation is expected, which may reach 9,400 km² per year in 2050 within the boundaries of the state**, a rate similar to that verified in the year of 2019 for the entire Legal Amazon region, i.e., 10,129 km²[12], which represented an increase of 34.4% in relation to the previous year.

Still in this scenario - without governance - the accrued deforestation in the state of Amazonas would reach about 170 thousand km², four times greater than the projected figures based on the historical average for the years 2012 to 2016.

To assess the climatic consequences of this increase in deforestation, emissions of greenhouse gases (CO2) were calculated[13]. With paving and without measures to control deforestation, **accrued CO2 emissions would also more than quadruple** when compared to a scenario without paving, reaching **8 billion tons, which is equivalent to the emission rate of 22 years of deforestation in the Legal Amazon based on the 2019 rate**[14]. Such scenario would make it **impossible for Brazil to fulfill the goals assumed under the Paris Agreement.**

The impacts on environmental services resulting from the loss of native vegetation were also analyzed, especially regarding the regulation of rainfall. **It is estimated that the reduction in precipitation will result in losses of over USD 350 million a year just in revenues from hydroelectric power generation activities, soy farming and cattle raising**[15].

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[9] Soares-Filho B, Davis J, Rajão R (2020) Pavimentação da BR-319, a rodovia do desmatamento. CSR e LAGESA, Technical Note. Available at: https://csr.ufmg.br/csr/wp-content/uploads/2020/11/Nota_tecnica_112020-01_pavimentacao_BR_319.pdf

[10] Soares-Filho BS, Nepstad D, Curran L, Voll E, Cerqueira G, Garcia RA, Ramos CA, Mcdonald A, Lefebvre P, Schlesdinger P (2006) Modeling conservation in the Amazon basin. Nature, 440:520-523.
Soares-Filho BS, Moutinho P, Nepstad D, Anderson A, Rodrigues H, Garcia R, Dietschi L, Merry F, Bowman M, Hissa L, Silvestrini R, Maretti C (2010) Role of Brazilian Amazon protected areas in climate change mitigation. Proceedings of the National Academy of Sciences, 107:10821–10826

[11] INPE. Project PRODES – Satellite Monitoring of the Brazilian Amazon Forest. (2020).

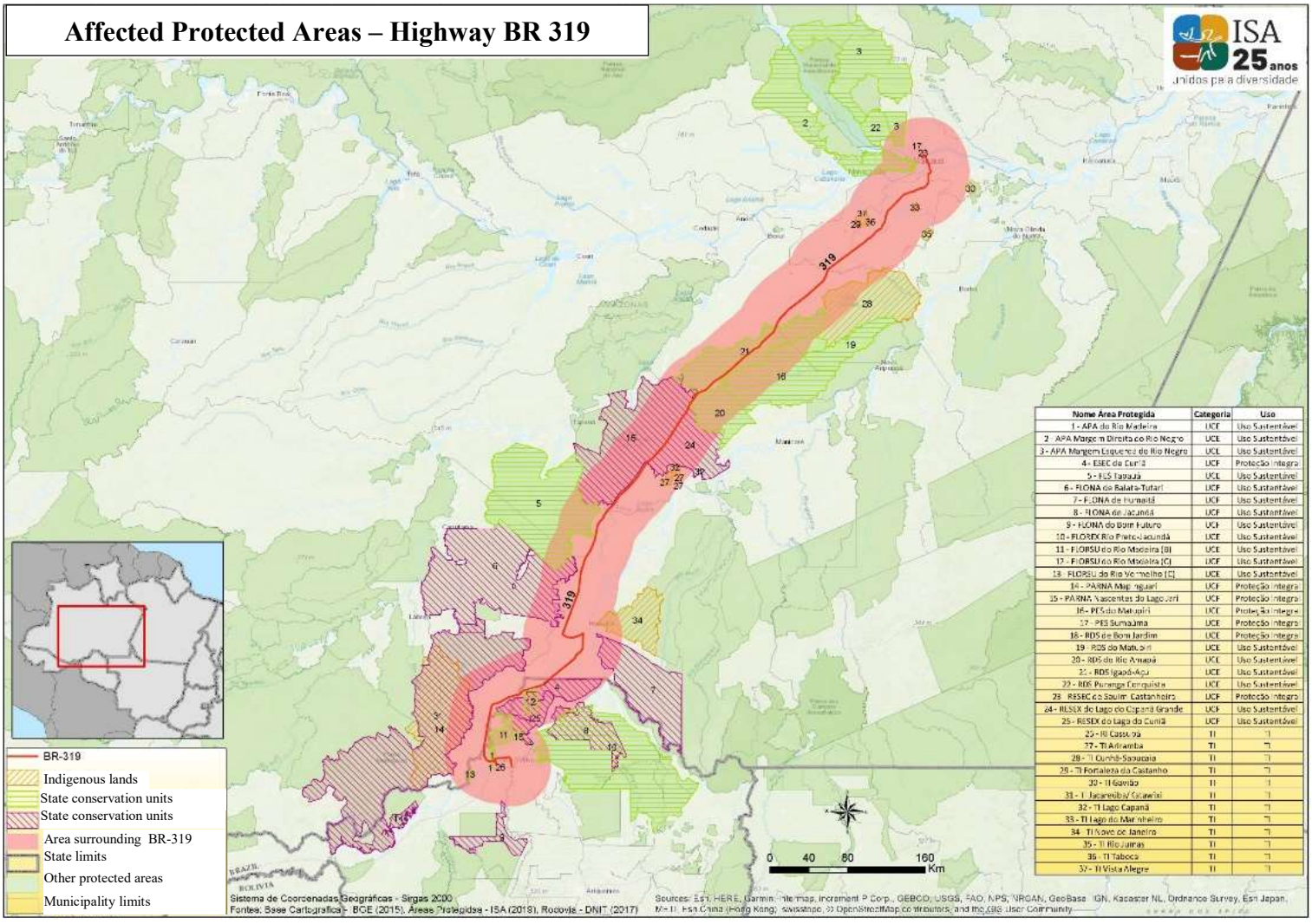
[12] INPE. Project PRODES – Satellite Monitoring of the Brazilian Amazon Forest. (2020).

[13] Strand J, Soares-Filho B, Costa HM, Oliveira U, Ribeiro SC, Pires GF, Oliveira A, Rajão R, May P, Hoff R, Siikamäki J, Motta RS, Toman M (2018) Spatially explicit valuation of the Brazilian Amazon Forest's Ecosystem Services. Nature Sustainability, 1:657-664.

[14] INPE. Project PRODES – Satellite Monitoring of the Brazilian Amazon Forest. (2020).

[15] Strand J, Soares-Filho B, Costa HM, Oliveira U, Ribeiro SC, Pires GF, Oliveira A, Rajão R, May P, Hoff R, Siikamäki J, Motta RS, Toman M (2018) Spatially explicit valuation of the Brazilian Amazon Forest's Ecosystem Services. Nature Sustainability, 1:657-664.

Finally, it is important to note that the region's forests are considered essential for maintaining the Brazilian ecological balance and for combating global climate change. Considering the description of the areas found in the Attachment to Inter-ministerial Ordinance No. 60/2015, which regulates the participation of authorities involved in environmental licensing (FUNAI, ICMBio, etc.), **thirty-seven protected areas are affected. These include twenty-five Conservation Units and twelve Indigenous Lands, which will be threatened by the Bill if the wording of the proposal approved by the House of Representatives as part of PL No. 3,729/2004 is upheld**. Eighteen of the Conservation Units are slated for sustainable use, which, together with the Indigenous Lands, make up an extensive network of traditional communities and indigenous peoples.



Nome Área Protegida	Categoria	Uso
1 - APA do Rio Madeira	UCF	Uso Sustentável
2 - APA Margem Direita do Rio Negro	UCE	Uso Sustentável
3 - APA Margem Esquerda do Rio Negro	UCE	Uso Sustentável
4 - ESEC de Cuniã	UCF	Proteção Integral
5 - PES Tapajós	UCE	Uso Sustentável
6 - FLONA do Balata-Tufari	UCF	Uso Sustentável
7 - FLONA de Humaitá	UCF	Uso Sustentável
8 - FLONA de Jacundá	UCF	Uso Sustentável
9 - FLONA do Bom Futuro	UCF	Uso Sustentável
10 - FLOREX do Rio Preto-Jacundá	UCE	Uso Sustentável
11 - FLORSU do Rio Madeira (B)	UCE	Uso Sustentável
12 - FLORSU do Rio Madeira (C)	UCF	Uso Sustentável
13 - FLORSU do Rio Vermelho (C)	UCE	Uso Sustentável
14 - PARNA Mapinguari	UCF	Proteção Integral
15 - PARNA Nascentes do Lago Jari	UCF	Proteção Integral
16 - PES do Matupiri	UCE	Proteção Integral
17 - PES Sumaúma	UCE	Proteção Integral
18 - RDS do Bom Jardim	UCE	Proteção Integral
19 - RDS do Matupiri	UCE	Uso Sustentável
20 - RDS do Rio Amapá	UCE	Uso Sustentável
21 - RDS Igapó-Açu	UCE	Uso Sustentável
22 - RDS Piranga Cerquista	UCE	Uso Sustentável
23 - RESEC do Sauim-Castanheiras	UCF	Proteção Integral
24 - RESEX do Lago do Capanã Grande	UCF	Uso Sustentável
25 - RESEX do Lago do Cuniã	UCF	Uso Sustentável
26 - TI Cassupá	TI	¬
27 - TI Arariboia	TI	¬
28 - TI Cunhã-Sapucaia	TI	¬
29 - TI Fortaleza do Castanho	TI	¬
30 - TI Gavião	TI	¬
31 - TI Jacareúba/Katawixi	TI	¬
32 - TI Lago Capanã	TI	¬
33 - TI Lago do Marinheiro	TI	¬
34 - TI Nove de Janeiro	TI	¬
35 - TI Rio Juma	TI	¬
36 - TI Taboca	TI	¬
37 - TI Vista Alegre	TI	¬

Figure: Protected areas potentially affected by BR-319

b) Ferrogrão Railway

In order to measure the impacts or reach of the effects of infrastructure works such as a railway, surveys must be carried out to analyze how the dynamics of the logistics of products to be transported in the region would be affected by the implementation of the development.

Based on mathematical models that simulate cargo logistics in Brazil, a study by the Federal University of Minas Gerais – UFMG[16] assessed the possible impacts of Ferrogrão on deforestation in the vicinity of the development. The model uses databases such as: transported products origin-destination matrices, infrastructure maps and freight prices for different modes of transport. The model simulates transport routes using the lowest accrued cost between origins (municipalities where production occurs, in the case of soybeans) and destinations (Federal revenue Office export units, such as ports and airports).

To this end, the soybean transport flow was reproduced for 2018 and for two scenarios for the implementation of Ferrogrão: (i) Ferrogrão scenario, a railway with only two terminals, an initial one in Sinop/MT and final one in Miritituba-Itaituba/PA and (ii) Ferrogrão-Matupá scenario, in which tan intermediate terminal is added in Matupá/MT.

The modeling of scenarios for the implementation of Ferrogrão points to variations in the accrued cost of transport from forty-eight municipalities in the states of Mato Grosso, Goiás and Mato Grosso do Sul to the ports of Santarém, Belém, Barcarena and Manaus. The result of the variations by municipality demonstrates that the implementation of the railroad would lead to a percentage reduction in transport costs ranging from 1% to 52%.

[16] Costa W, Davis J, Ribeiro A, Soares-Filho B. (2020) Amazônia do futuro: o que esperar dos impactos socioambientais da Ferrogrão? Centro de Sensoriamento Remoto, UFMG. Technical note. Available at: https://csr.ufmg.br/csr/wp-content/uploads/2020/11/Ferrograo_policy-brief_.pdf

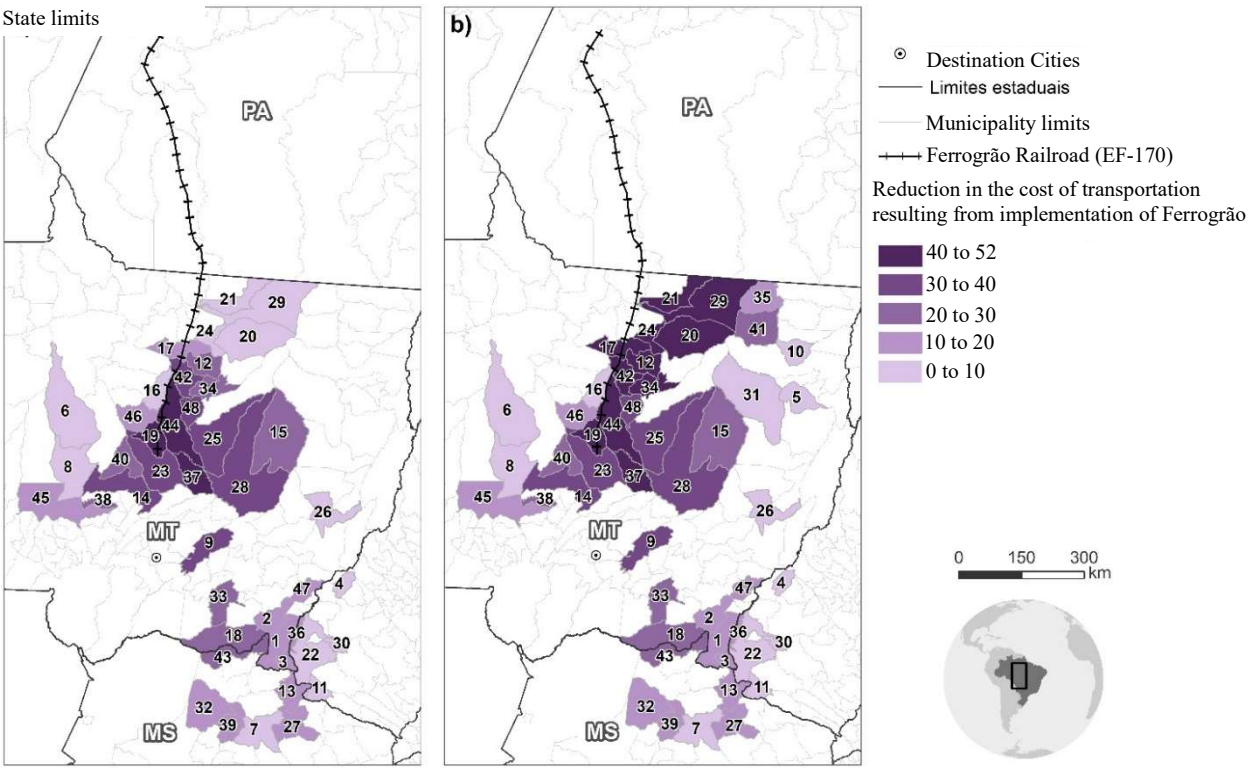


Figure: municipalities benefiting from reduced transport costs with Ferrogrão in the Ferrogrão scenario (a) and Ferrogrão-Matupá scenario (b): 1 Alto Araguaia, 2 Alto Garças, 3 Alto Taquari, 4 Bom Jardim de Goiás, 5 Bom Jesus do Araguaia, 6 Brasnorte, 7 Camapuã, 8 Campo Novo do Parecis, 9 Campo Verde, 10 Canabrava do Norte, 11 Chapadão do Céu, 12 Cláudia, 13 Costa Rica, 14 Diamantino, 15 Gaúcha do Norte, 16 Ipiranga do Norte, 17 Itaúba, 18 Itiquira, 19 Lucas do Rio Verde, 20 Marcelândia, 21 Matupá, 22 Mineiros, 23 Nova Mutum, 24 Nova Santa Helena, 25 Nova Ubiratã, 26 Nova Xavantina, 27 Paraíso das Águas, 28 Paranatinga, 29 Peixoto de Azevedo, 30 Perolândia, 31 Querência, 32 Rio Verde de Mato Grosso, 33 Rondonópolis, 34 Santa Carmem, 35 Santa Cruz do Xingu, 36 Santa Rita do Araguaia, 37 Santa Rita do Trivelato, 38 Santo Afonso, 39 São Gabriel do Oeste, 40 São José do Rio Claro, 41 São José do Xingu, 42 Sinop, 43 Sonora, 44 Sorriso, 45 Tangará da Serra, 46 Tapurah, 47 Torixoréu, 48 Vera.

The reduction in the cost of transport encourages agricultural expansion, thus motivating the conversion of new areas to agricultural use, whether pastures or native vegetation[17]. Considering the municipalities benefiting from the reduction in transport costs, 12% of their area is currently covered by forest (inside and outside protected areas) and another 35% of their area is covered by savannah vegetation.

It is also important to highlight that more than half of the native vegetation, i.e., 57%, is located in areas with high or very high suitability for soybean cultivation. In the Ferrogrão-Matupá scenario, this area accounts for 61%. **The following are municipalities with more than 80% of native vegetation in areas classified as having high or very high agricultural suitability, which indicates a high risk of conversion of forest and savannah to agricultural use**: Brasnorte, Campo Novo dos Parecis, Claudia, Ipiranga do Norte, Itaúba, Santa Carmem, Santo Afonso, São José do Rio Claro,

[17] Pfaf, A. et al. (2018) Roads & SDGs, tradeoffs and synergies: learning from Brazil's Amazon in distinguishing frontiers. *Economics*: The OpenAccess, Open-Assessment E-Journal, 12 (2018-11): 1–25. Vilela T et al. (2020) A better Amazon road network for people and the environment. *Proceedings of the National Academy of Sciences* Mar 2020, 117 (13) 7095-7102.

Sinop, Tangará da Serra, Vera, Sorriso, Diamantino, Nova Mutum, Nova Ubiratã, Tapurah, Lucas do Rio Verde, Santa Rita do Trivelato, Nova Santa Helena, Sonora and Paraíso das Águas.

The information from the CAR[18] profile helps to understand the environmental vulnerability of the region under analysis. Of the municipalities at risk of deforestation due to soybean farming expansion, it is important to highlight those with the largest area of illegal deforestation, such as: Sorriso, Campo Novo dos Parecis, Diamantino, Nova Mutum, Nova Ubiratã, Brasnorte, Ipiranga do Norte and Tapurah.

The analyzes of the layers of protected areas (PA) and priority areas for the conservation of biodiversity (APCB) [19] provide more evidence of the risk of socio-environmental impacts. There are **38 thousand km² of AP that intersect the affected municipalities in the Ferrogrão scenario and 44 thousand km² in the case of the Ferrogrão-Matupá scenario**. The analysis of the APCB shows that the municipalities benefiting from the reduction in transport costs concentrate **48 thousand km² of native vegetation with some degree of conservation priority in the Ferrogrão scenario and 56 thousand km² in the Ferrogrão-Matupá scenario**.

Based on the land usage projected for 2030 in the UFMG OPTIMIZAGRO[20] model, a deforestation of 53,113.5 km² of native forest within the Ferrogrão logistic basin is expected between the years 2019 to 2030. The loss of forests in the Ferrogrão logistic basin would reach 28% in 2030**. About 21.7% of the expected agricultural expansion is expected to occur through the conversion of native forests.**

IV – Conclusions

Environmental licensing is the most relevant and consolidated instrument of the National Environmental Policy, instituted by Law No. 6,938/1981. According to such law, environmental licensing shall apply, without exception, to all activities or developments "that use environmental resources, that are actually or potentially polluting or that are capable of causing environmental degradation, in any manner (...) which shall require prior environmental licensing" (article 10). This provision is endowed with broad constitutional protection, and the Federal Supreme Court's standing is firm in the sense

[18] https://csr.ufmg.br/radiografia_do_car/

[19] Priority areas and actions for conservation, sustainable use and sharing of benefits from biodiversity, defined by the Ministry of the Environment, represent an important public policy instrument aimed at decision-making regarding the planning and implementation of suitable measures for conservation and recovery and the sustainable use of ecosystems. This instrument guides initiatives such as the creation of conservation units, environmental licensing, inspection and promotion of sustainable use and environmental regularization. The identification of such priority areas and actions are regulated by Decree No. 5092/2004, Decree No. 5758/2006, and Ordinance No. 9/2007 of the Ministry of the Environment.

[20] Gouvello C, Soares-Filho B, Nassar A, Schaeffer A, Jorge F, Nogueira W (2010) Brazil Low-carbon Country Case Study . Washington, DC: World Bank.

that "developments and economic activities will only be deemed lawful and constitutional when they comply with all applicable environmental protection rules."[21]

In general terms, PL No. 3,729/2004 subverts the constitutional logic by making environmental licensing an exception, since: (i) an extensive list of licensing waivers is provided for, covering impactful sectors, such as agroforestry activities; (ii) the vast majority of projects, i.e., all those that qualify as not having significant impact, will be subject to Adhesion and Commitment Licensing, a modality in which the license is issued automatically by an electronic system, based on self-declared information and without any prior analysis by the environmental agency; (iii) only projects potentially causing significant degradation of the environment, which account for the small percentage of all projects, will be subject to regular licensing, upon prior analysis by the licensing agency.

In all cases, according to PL No. 3,729/2004, the environmental agency is prohibited from demanding the adoption of environmental conditions (prevention, mitigation and compensation measures) from the developer in order to combat deforestation resulting from the establishment and operation of the development. Furthermore, the proposal ignores the issue of climate change. The activities of land usage change, directly related to deforestation, and agriculture and livestock are the main sources of emission of gases that cause climate change in Brazil, accounting for 72% of the total.

In this analysis, the potential impacts of two specific projects were evaluated, which appear as priorities in the plans of the federal government and which, given the absence of preventive measures generated by PL No. 3,729/2004, may become important vectors of illegal deforestation in the Legal Amazon, undermining Brazil's ability to meet the goals of the Paris Agreement.

Regarding the first, highway BR-319, it should be noted that around 95% of the accrued deforestation in the Amazon and 85% of forest fires are concentrated within a radius of up to 5.5 km surrounding roads. According to the Federal University of Minas Gerais – UFMG, the paving of the BR-319 highway, in a scenario without environmental governance, as proposed by PL No. 3,729/2004, could generate: (i) a significant increase in deforestation, which may reach 9.4 thousand km² per year by 2050 in the state of Amazonas, a rate similar to that verified in 2019 for the entire Legal Amazon region; (ii) the accrued deforestation in Amazonas would reach about 170 thousand km², four times greater than the projected value if the historical average figures verified between the years 2012 and 2016 were maintained; (iii) accrued CO2 emissions would reach 8 billion tons, more than four times the forecast for the scenario without the paving of the highway, equivalent to the emission of twenty-two years of deforestation in the Legal Amazon,

[21] Federal Supreme Court. Full Court. Direct Unconstitutionality Action No. 6288. Reporting Justice Rosa Weber. Official Gazette of the Federal Government, electronic edition of December 2, 2020.

based on the 2019 rate, which would make it impossible to meet the goals undertaken by Brazil under the Paris Agreement.

As for the second development analyzed above, the Ferrogrão railway, it should be noted that 57% of native vegetation found in the logistics basin is in areas with high or very high suitability for soy farming. Considering the change in land usage projected for 2030, in a scenario without environmental governance – as foreseen by PL No. 3,729/2004 –, deforestation of 53,113.5 km² of native forest within the Ferrogrão's logistics basin is expected to take place by 2030.

In light of these considerations, it is possible to concluded that, by making environmental licensing an exception and preventing the adoption of environmental conditions to prevent the illegal suppression of vegetation and climate change, PL No. 3,729/2004 will result in an increase in deforestation in the Legal Amazon at levels that will prevent Brazil from meeting its goals under the Paris Agreement.