

PLATAFORMA

# CIPÓ

POLICY BRIEF 01

## CHINA IN THE BRAZILIAN AMAZON: EXAMINING THE RELATIONSHIP BETWEEN THE GROWTH IN COMMODITY EXPORTS AND DEFORESTATION

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# 1. Introduction

Environmental crimes and associated violations, such as invasions of public lands, prospecting, and illegal timber extraction, are on the rise in the Legal Amazon. According to data collected by the Instituto de Pesquisas Espaciais's (National Institute for Space Research - INPE) DETER satellite system<sup>1</sup>, the Amazon's rates of deforestation have hit record numbers in the first six months of 2022, amounting to 1,120 km in the month of July – the worst rate since 2016<sup>2</sup>. It therefore comes as no surprise that the Amazon has also seen a surge in violence. In a backdrop of a 6% fall in violent deaths recorded in 2021, compared to the previous year, Brazil's North region registered a 9% increase<sup>3</sup>. This pattern signals a relationship between violence, agrarian conflicts, and environmental crimes: in Amazonian municipalities that are home to significant rates of deforestation, homicide numbers are higher than both the Brazilian and the Legal Amazon averages<sup>4</sup>. The most impacted group is made up of environmental and human rights advocates, including several indigenous and Quilombo community leaders. In this setting, there is a pressing need to engage all relevant actors to prevent environmental crimes and to foster a developmental model in accordance with sustainability and climate justice in the Amazon.

One of the main driving forces behind the rise in illegal deforestation, as well as in other environmental crimes in the Amazon Legal, relates to the staggering growth of ranching in the region, which, in general terms, begins with invasions of public lands to illegally extract timber, followed by clearing fields and opening pastures. Mining also contributes to the region's environmental degradation, stemming from industrial extraction activities and from a surge in illegal prospecting, even though these constitute different production chains. In each of these segments, predatory activities are overtly encouraged by a federal government that endeavors to dismantle federal institutions in charge of protecting

the environment and seeks to legalize crimes against the environment. However, there are also substantial gaps regarding international cooperation, thus being an important back-up for the civil society in its efforts to resist normalizing environmental crimes. As a result, every country that purchases Amazon-sourced products, leading to an amounting pressure placed on the region, must be engaged.

Some of the main importers of commodities that are pressuring the forest include the European Union, Great Britain, and the United States, where there are ongoing political and legal debates on the enforcement of increasingly protective practices and laws<sup>5</sup>. This is partly due to international pressure stemming from consumer groups, activists, and politicians, who advocate in favor of commodity supply chains being free of environmental crimes and Human Rights violations related to said activities, such as assaults on indigenous leaders and other environmental activists; human trafficking; and working conditions akin to slavery. Nevertheless, there is still a need for more consistent/systematic debates on the role held by Brazil's main commercial partner: China.

1 INPE (2022). Variação mensal de área do projeto DETER. Available at: <http://terrabrasilis.dpi.inpe.br/app/dashboard/alerts/legal/amazon/agggregated/>>. Accessed on: 17 August 2022.

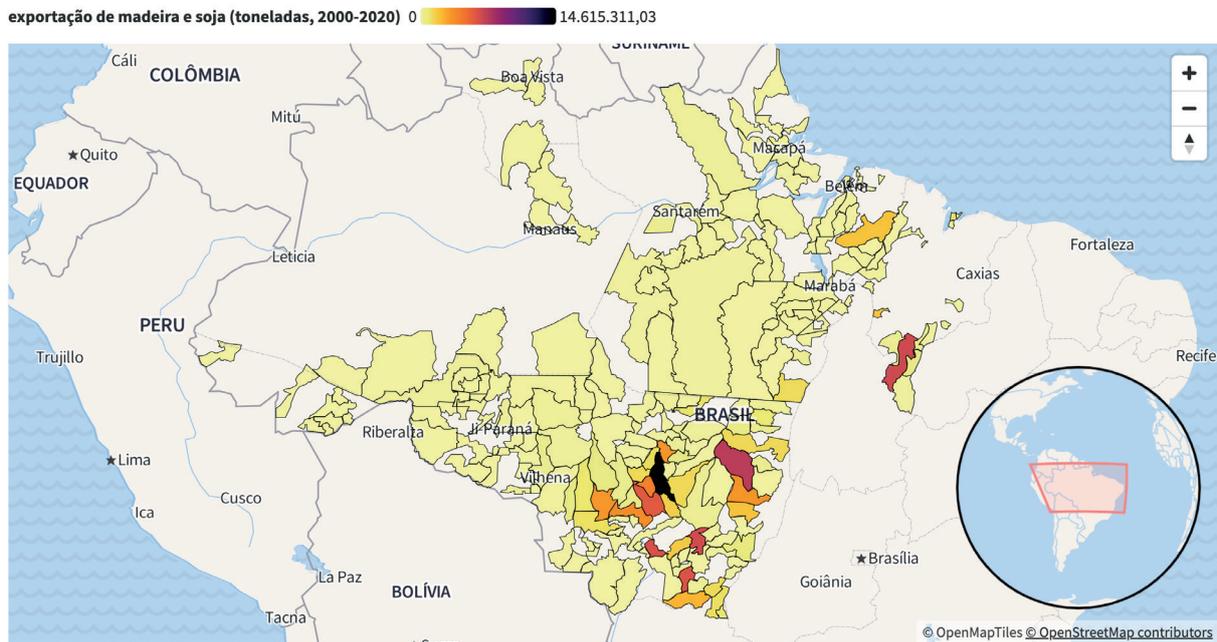
2 Ipam (2022). Amazônia registra recorde de desmatamento no primeiro semestre de 2022. Available at: <https://ipam.org.br/amazonia-registra-recorde-de-desmatamento-no-primeiro-semester-de-2022/>>. Accessed on: 17 August 2022.

3 Fórum de Segurança Pública (2021). Cartografias das violências na região amazônica. Available at: [https://forumseguranca.org.br/publicacoes\\_posts/cartografias-das-violencias-na-regiao-amazonica/](https://forumseguranca.org.br/publicacoes_posts/cartografias-das-violencias-na-regiao-amazonica/)>. Accessed on: 17 August 2022.

4 Ibit.

5 Fearnside, P (2021). Emissões de carbono da China no Brasil. Available at: <https://amazoniareal.com.br/emissoes-de-carbono-da-china-no-brasil/>>. Accessed on: 08 September 2022.

### Map 1: Soy and timber exports, in tons, to China per Legal Amazon municipality, considering the percent increase in deforested area (2000-2020)



The interactive version of the map allows the reader to view the volume (in tons) of soy and timber exported to China, as well as the ratio of deforested area per Legal Amazon municipality (2000-2020). Source: Plataforma CIPÓ/Lagom<sup>6</sup>.

A staggering 79% of all soy that Brazil exports is China-bound, compared to 9.5% destined for Europe. Regarding beef exports, 52% is shipped to China, whereas only 5.3% sees Europe as its end destination<sup>7</sup>. As the main country consuming agricultural products exported by Brazil, the Asian giant plays an important role in the context of both social and environmental devastation in productive areas – and is, therefore, a key actor when it comes to a successful cooperation aimed at cutting back on Amazon-related environmental crimes. Nevertheless, there is still a scarcity of studies that seek to grasp socio-environmental impacts resulting from Brazilian products exported to China. Moreover, most of them have a strong nationwide focus. Thus, the data used typically originate from nationwide businesses or, in some rare occasions, from state-wide businesses. This study, in turn, looks at production, export and deforestation patterns using disaggregated data pursuant to each municipality.

This article is divided into six different sections. After the introduction, we will contextualize the role

that China plays as a commercial partner to Brazil and as an importer of Legal Amazon products. Next, we examine the impact that the pandemic had on these economic ties. The third part addresses data analysis-related methodological traits, whereas the following sections bring forward general data on export numbers to China and on Legal Amazon rates of deforestation. After introducing two case studies – relating to the Buritis (Rondônia-RO) and Sinop (Mato Grosso-MT) municipalities – we conclude this research paper bringing public policy recommendations aimed at decreasing socio-environmental impacts resulting from Brazilian exports to China.

<sup>6</sup> The interactive version of the map is available at Plataforma CIPÓ's homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

<sup>7</sup> Ferrante, L.; Fearnside, P. (2022). Countries should boycott Brazil over export-driven deforestation. *Nature*. Correspondence. *Nature* 601, 318. doi: <https://doi.org/10.1038/d41586-022-00094-7>.

## 2. China, Brazil, and the Legal Amazon

Dating back to 2009, China has been Brazil's main commercial partner, in addition to a key source of investments made in the country. In the first five months of 2021, the commercial volume and figures of commodities imported and exported between both countries registered, respectively, a 32.6% and 62.2% increase, compared to the previous year<sup>8</sup>. This economic relationship is additionally based on agricultural trade comprising the Legal Amazon itself – a region made up of nine North and Center-West states encompassing parts of the Amazon basin<sup>9</sup>.

China's economic relevance to Brazil cannot be understated. Brazil is currently the seventh country that sells the most products to China, focusing its sales in the Asian country like no other major global economy. Nothing short of 91% of all Brazilian exports to China can be traced to only ten products<sup>10</sup> – iron ore, soy, oil, beef, cellulose, sugars, pork, poultry, ferro-alloys, and manufacturing industry goods.

At the same time, China – which, like Brazil, is a signatory to the Paris Agreement – is facing growing pressure to cut back on its carbon emissions, particularly those originating from carbon used to generate electricity<sup>11</sup>. Nevertheless, its domestic emissions are only part of the issue. China's imports and investments bear a massive impact on worldwide emissions, including in illegal deforestation in the Amazon.

China is undoubtedly a significant actor in the field of climate governance. China's greenhouse gas emissions top those of any other country

in the world, both in terms of production and consumption, although historically speaking, it accounts for nearly 12.7% of all global emissions (lagging considerably behind the USA's 25% and Western Europe's 22% gas emissions)<sup>12</sup>. China, however, is also very vocal in discussions on the matter and speaks out in favor of climate actions. In 2020, President Xi Jinping stated that his country intended to reach its peak emissions before 2030 and be carbon neutral prior to 2060. Even though the Chinese government has not further discussed how it will reach these goals, China has already signaled that fighting illegal deforestation in producer countries may comprise its decarbonization strategy by, for instance, potentially demanding that, until 2023, at least 50% of all Brazilian soy be traceable, sustainable, and deforestation-free<sup>13</sup>. COFCO, the largest Chinese food processing company and one of the leading agricultural commodity purchasers in the world, has endeavored to trace all the soy it imports from Brazil until 2023<sup>14</sup>, to cut back on the harsh criticism that the company has received on its current tracing practices<sup>15</sup>.

Quantitatively speaking, the Amazon does not play a leading role when it comes to Brazil and China's economic relationship, although its importance has been on the rise. According to data collected by the Conselho Empresarial Brasil China (Brazil-China Business Council – CEBC) for the Diálogo Chino, from 2007 to 2020 the Legal Amazon was granted only US\$ 11 billion of the US\$ 66 billion originating from direct Chinese investments made in Brazil from 2007 to 2020<sup>16</sup>. In addition to funding the construction of highways, railroads and other

8 Department of International Studies, Political and Economic Relations, IPEA (2022). Technical Note 08. Research For Investment Cooperation Between Brazil and China. Available at: [http://repositorio.ipea.gov.br/bitstream/11058/11119/1/NT\\_08\\_Dinte\\_ResearchforInvestment.pdf](http://repositorio.ipea.gov.br/bitstream/11058/11119/1/NT_08_Dinte_ResearchforInvestment.pdf). Accessed on: 30 September 2022.

9 The Legal Amazon comprises the states of Amazonas, Acre, Rondônia and Roraima, Pará, Maranhão, Amapá, Tocantins and Mato Grosso.

10 Watanabe, M.; Fagundes, A (2022). Brasil concentra vendas na China como nenhuma outra grande economia e isso pode ser um problema. Available at: <https://valor.globo.com/brasil/noticia/2022/07/10/brasil-concentra-vendas-na-china-como-nenhuma-outra-grande-economia-e-isso-pode-ser-um-problema.ghtml>. Accessed on: 09 August 2022.

11 Fearnside, P (2021). Op cit.

12 Our World in Data (2022). Who has contributed most to global CO2 emissions? Available at: <https://ourworldindata.org/contributed-most-global-co2>.

13 Patrick, I (2021). China faz planos para diminuir a dependência de soja brasileira. Available at: <https://canalmynews.com.br/economia/china-diminuir-dependencia-de-soja-brasileira/> >. Accessed on: 08 September 2022.

14 Clima Info (2020). Contra desmatamento, multinacional chinesa quer rastrear soja comprada do Brasil. Available at: <https://climainfo.org.br/2020/07/06/contra-desmatamento-multinacional-chinesa-quer-rastrear-soja-comprada-do-brasil/> >. Accessed on: 08 September 2022.

15 Locatelli, P; Milhorange, F (2020). Falta transparência ao plano de rastreamento de gigante da soja chinesa. Available at: <https://dialogochino.net/pt-br/agricultura-pt-br/falta-transparencia-plano-rastreamento-cofco-gigante-soja-chinesa/> >. Accessed on: 08 September 2022.

16 Several projects cross over to other states outside the region, reason being why figures can be overestimated. To learn more, please read: Reed, S; Niu, L (2022). A atuação da China na Amazônia pode se tornar mais verde? Available at:

infrastructure projects in the region, China imports a large stake of all Amazon-sourced commodities, particularly iron ore, soy, and beef<sup>17</sup>, all of which are associated with widespread deforestation in the region<sup>18</sup>.

## 2.1. The pandemic's impacts

In the context of the pandemic, the decline of China's growth impacts Brazilian exports. The lockdowns and China's zero Covid policy, which enforced strict isolation measures and restricted activities in cities with confirmed Covid-19 cases, made Brazil's exports to the country drop 11% in 2022. From January to May, the total volume of commodities exported from Brazil to China decreased 11.2%, compared to the same time frame in the previous year. When it comes to iron ore – the most impacted good – the slump reached 7.76%<sup>19</sup>.

In October 2022, recovery continues to be slower than expected, even though the impact that exported goods have on China remains significant, considering that numbers are still high and relevant for Brazil's trade balance. Even throughout the pandemic, China's need for agricultural goods remained substantial<sup>20</sup>. Moreover, investments made by the Asian giant in Brazil grew more than three-fold in 2021, in comparison with 2020, reaching a sum of US\$ 5.9 billion and with most of it (85%) linked to the oil & gas industry, a segment known for its elevated carbon footprints<sup>21</sup>. To that end, China continues to be the country that most contributes to Brazil's global surplus, amassing a 28% stake of all Brazilian exports.

<https://dialogochino.net/pt-br/comercio-e-investimento-pt-br/53558-a-atuacao-da-china-na-amazonia-pode-se-tornar-mais-verde/>. Accessed on: 08 September 2022.

17 Silva, M. I. C.; Barbosa, L. S. S.; Souza, K. P. V. De; Gomes, B. S.; Antunes, C. M (2020). O "efeito China" e a crescente demanda por commodities produzidas na Amazônia brasileira. *Ambiente: Gestão e Desenvolvimento*, [S. l.], v. 13, n. 2, p. 64–80. DOI: [10.24979/ambiente.v13i2.762](https://doi.org/10.24979/ambiente.v13i2.762). Accessed on: 18 May 2022.

18 Reed, S, Hui, L. (2022). A atuação da China na Amazônia pode se tornar mais verde?. Available at: <https://dialogochino.net/pt-br/comercio-e-investimento-pt-br/53558-a-atuacao-da-china-na-amazonia-pode-se-tornar-mais-verde/>. Accessed on: 30 September 2022.

19 Data collected from the Ministry of Economy's 'Secretaria de Comércio Exterior' (Secretariat of Foreign Trade) office (2022). Available at: <https://economia.uol.com.br/noticias/redacao/2022/06/16/com-lockdowns-na-china-exportacoes-do-brasil-ao-pais-cairam-112.htm> > Accessed on: 18 May 2022.

20 Ministério da Economia. 2022. Trade balance. Available at: [https://balanca.economia.gov.br/balanca/pg\\_principal\\_bc/principais\\_resultados.html](https://balanca.economia.gov.br/balanca/pg_principal_bc/principais_resultados.html) >. Accessed on: 18 May 2022.

21 Froufe, C (2022). Investimentos chineses no Brasil triplicam de 2020 para 2021. Available at: <https://www.terra.com.br/economia/investimentos-chineses-no-brasil-triplicam-de-2020-para-2021,3822e827a3439c83f020645d968cc214ptpkzeaa.html> >. Accessed on: 22 September 2022.

### 3. An examination of Amazonian municipalities

Ranching is seen as the main culprit regarding the Amazon's current deforestation rates, resulting from its forests being converted into pastures and crops<sup>22</sup>. Among its products, beef is singled out as the commodity responsible for causing the most deforestation<sup>23</sup>. Pastures surged 200% in the Amazon from 1985 to 2020 and, today, already take up 56.6 million hectares of its biome<sup>24</sup>. The Amazon is currently the Brazilian biome with the largest area of cultivated pastures (56.6 million ha), followed by the Cerrado (47 million ha), the Mata Atlântica (Atlantic Forest) (28.5 million ha), the Caatinga (20 million ha), and, finally, the Pantanal (2.4 million ha).

Soy production, particularly in the so-called agricultural frontier, comes in second and has surged in the Amazon, increasing eleven-fold in the last two decades; soy is believed to be accountable for 10% of all the region's deforestation<sup>25</sup>. United Nations-collected data signal that Brazilian soybean exports to China doubled in five years' time, from 2016 to 2021<sup>26</sup>.

Notwithstanding the Amazon's 2008-enforced Soy Moratorium, and by means of which the Associação Brasileira das Indústrias de Óleos Vegetais (Brazilian Association of Vegetable Oil Industries – ABIOVE) and the Associação Brasileira dos Exportadores de Cereais (Brazilian National Association of Grain Exporters - ANEC) endeavored neither to trade any produce originating from farms that were deforested after July 2008 nor to fund any of these producers, a 2020 Universidade Federal de Minas Gerais (Federal University of Minas Gerais - UFMG) research paper estimated that, throughout

2018, 20% of all soy that Brazil exported could still be traced back to deforested lands<sup>27</sup>.

Thus, with the purpose of attempting to establish potential ties between commodity exports to China and the deforestation of producer areas, this study cross-checked ComexStat<sup>28</sup> export-related data using data collected by Prodes<sup>29</sup>, whose satellites monitor clear-cut logging in the Legal Amazon.

Prodes' data are collected each year using satellite images that record decreases in native vegetation, employing a resolution of at least 6.25 hectares (0.0625 km<sup>2</sup>) and an estimated accuracy of 95%. Each municipality's overall growth of deforested area was estimated (overall number recorded in 2020, minus the overall number recorded in 2000), in addition to its ratio to the municipality's overall area. ComexStat's data, in turn, rely on the information that exporting companies disclosed to the Federal Internal Revenue, in which case there may be occasional codification discrepancies for both products and municipalities. Compiled since the end of the 90's, these data enable researchers to filter whatever information they wish to examine, according to each municipality from where the commodity was exported and the description of the commodity, in compliance with Harmonized commodity System codes<sup>30</sup>. In this paper, we collected data on exported tons of timber, soy, iron, cotton, copper, and manganese to China in all Legal Amazon municipalities from 2000 to 2020<sup>31</sup>. The municipalities' geographic coordinates were taken from the Instituto Brasileiro de Geografia e Estatística (The Brazilian Institute of Geography and Statistics – IBGE) homepage.

22 Rivero, S. et al (2009). Pecuária e desmatamento: uma análise das principais causas diretas do desmatamento na Amazônia. *Nova Economia* [online]. v. 19, n. 1 pp. 41-66. Available at: <<https://doi.org/10.1590/S0103-63512009000100003>>. Accessed on: 27 September 2022.

23 Trase (2019). Mapeamento do risco de desmatamento das exportações brasileiras de carne bovina. Infobriese 8.2019. Available at: <https://cdn.sanity.io/files/n2jhvipv/production/9479bc1bd1608ba9112d44254ad7beb905ef4a8d.pdf>>. Accessed on: 31 August 2022.

24 MapBiomas (2021) "Brasil Revelado – 1985-2020". Available at: <https://mapbiomas-br-site.s3.amazonaws.com/Fact-Sheet-Colecao7.pdf>>. Accessed on: 09 September 2022. <https://cdn.sanity.io/files/n2jhvipv/production/9479bc1bd1608ba9112d44254ad7beb905ef4a8d.pdf>>. Accessed on: 31 August 2022.

25 Song, XP., Hansen, M.C., Potapov, P. et al. Massive soybean expansion in South America since 2000 and implications for conservation. *Nat Sustain* 4, 784–792 (2021). <https://doi.org/10.1038/s41893-021-00729-z>.

26 UN Contrade Database. Available at: <https://comtrade.un.org/data/>. Accessed on: 17 August 2022.

27 UFMG. Estudo identifica propriedades que exportam soja e carne 'contaminadas' pelo desmatamento ilegal. 2020. Available at: <https://ufmg.br/comunicacao/noticias/estudo-identifica-propriedades-que-exportam-soja-e-carne-contaminadas-pelo-desmatamento>>. Accessed on: 31 August 2022.

28 Comexstat (2022). Available at: <http://comexstat.mdic.gov.br/pt/home>.

29 Prodes (2022). Available at: <http://www.dpi.inpe.br/prodesdigital/prodesmunicipal.php>.

30 Siscomex (2022). Available at: <https://www.gov.br/siscomex/pt-br/servicos/aprendendo-a-exportar/planejando-a-exportacao-1/sistema-harmonizado>.

31 It is worth noting that this policy brief's graphs only consider municipalities that exported goods to China for two or more years.

## 4. General data on exports to China and rates of deforestation in Brazilian Amazon municipalities

After cross-checking data taken from Comexstat and Prodes, we can point out the 20 Legal Amazon municipalities that accounted for the largest rates of deforestation (per deforested area size and

per deforested area ratio) and which, at the same time, were the largest exporters of these six goods selected for China from 2000 to 2020.

**Table 1. Top 20 exporting municipalities with the largest proportional deforested area increase (2000-2020) (%):**

Municipality	Overall area (km <sup>2</sup> )	Overall deforested area in 2000 (km <sup>2</sup> )	deforested %	% of additional deforestation over 20 years (2000-2020)	Exported goods	Sum of tons of soy and timber exported to China (2000-2020)
Zé Doca - MA	2438	2022.6	82.96%	48.93%	Timber	76.889
Buritit - RO	3315	2702.7	81.53%	46.35%	Timber	8.933.531
São Luís - MA	839	378.3	45.09%	42.05%	Beef, iron, timber, soy, manganese	788.258.118
Itanhangá - MT	2927	1665.7	56.91%	40.80%	Soy	109.082.319
Cujubim - RO	3904	2161.7	55.37%	38.93%	Timber	2.050.056
Alto Paraíso - RO	2683	2023.8	75.43%	31.90%	Timber	2.415.846
Nova Mamoré - RO	10241	4160.1	40.62%	27.83%	Timber	228.27
Monte Negro - RO	1955	1514.7	77.48%	25.95%	Timber	486.661
Uruará - PA	10794	3776.1	34.98%	25.57%	Timber	3.917.487
Confresa - MT	5801	3945.8	68.02%	25.31%	Soy	851.431.658
Vera - MT	2952	1966.9	66.63%	24.84%	Soy	76.986.147
Ipiranga do Norte - MT	3449	1863.6	54.03%	24.53%	Soy, cotton	1.198.123.912
Juruena - MT	2826	1278.8	45.25%	24.15%	Timber	20.526.015
Machadinho D'Oeste - RO	8590	3568.1	41.54%	23.39%	Timber	21.303.623
Santana do Araguaia - PA	11609	7326.7	63.11%	23.36%	Beef and other types of meat, iron, soy	1.223.469.544
Sinop - MT	3935	2617.5	66.52%	23.15%	Timber, soy, cotton	3.361.297.654
Itupiranga - PA	7901	4981.7	63.05%	22.80%	Timber	510.728
Novo Mundo - MT	5803	2643.4	45.55%	22.19%	Timber, soy	108.116.811
Vila Rica - MT	7443	4664	62.66%	21.83%	Soy	112.403.452
Santa Carmem - MT	3836	1607	41.89%	21.55%	Timber, soy	581.751.824

Source: Plataforma CIPÓ/Lagom

The interactive version of the table, above, allows the reader to examine the proportional increase in deforestation as the percentage and size of deforested area in municipalities that export goods to China on a yearly basis (2000-2020), in addition to the type and volume of exported good.<sup>32</sup>

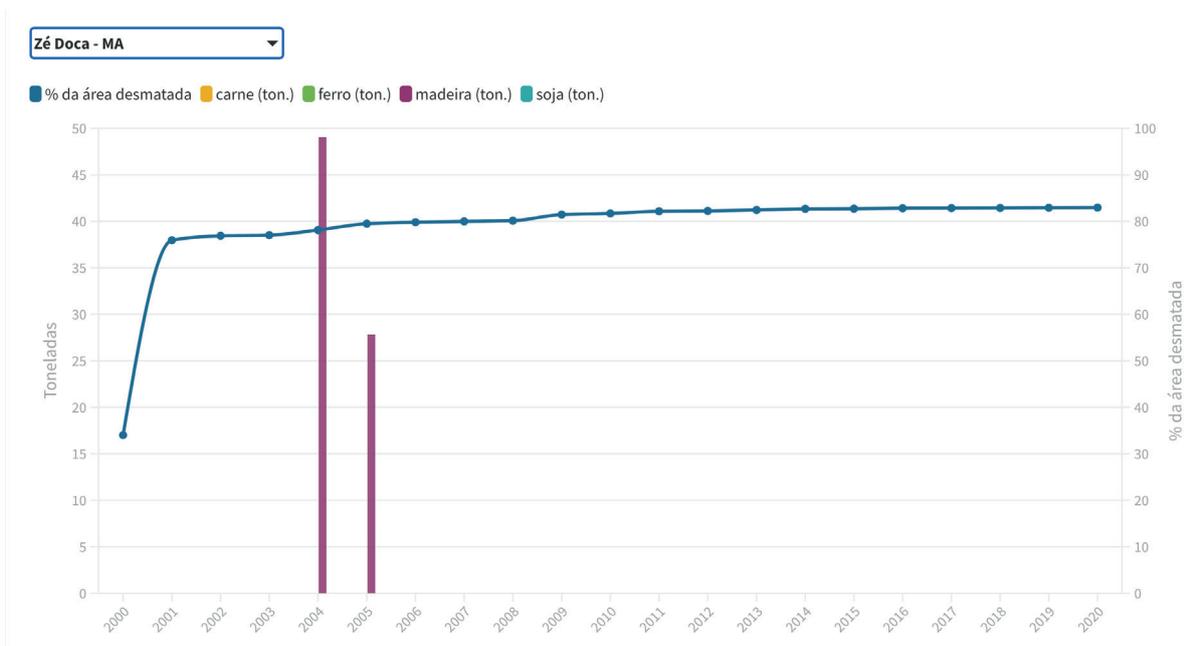
<sup>32</sup> The interactive version of the map is available at Plataforma CIPÓ's homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

The states of Mato Grosso (MT) and Rondônia (RO) stand out in the general list. MT accounts for nine of all twenty municipalities recording the highest rates of deforestation within the assessed time frame, whereas RO has five municipalities. Zé Doca, the municipality with the highest surge in deforested lands, is in the state of Maranhão. This state comprises the region known as “Matopiba”, which further encompasses the states of Tocantins, Piauí and Bahia, and is currently deemed one of the regions posing the highest deforestation risks in the whole of Brazil. Imaflora-collected data estimate that soybean plantations in Matopiba soared 310% from 2001 to 2017<sup>33</sup>. This region is home to part of the Cerrado’s biome, where soybean’s agricultural frontier registers the most expansion

both in Brazil and in the world, with 80% of all soy production being linked to deforestation<sup>34</sup>. Moreover, an examination of table 1 (above) allows us to conclude that, within the Amazon, the municipalities that export timber are the ones that endured the highest rates of deforestation. China was the main destination for gross timber exports in 2021<sup>35</sup>.

After cross-checking data per municipality, we conceived an interactive graph bringing data on the year, type of commodity exported to China, and encroachment of deforested lands for all exporting municipalities.

**Graph 1. Top 20 Legal Amazon municipalities that export goods to China and have the highest percent increase in deforested area (2000-2020).**



The interactive version of this graph allows the reader to view the top 20 Legal Amazon municipalities that export beef, timber and soy to China, and which registered the highest surge in deforested lands from 2020 to 2020, on a yearly basis<sup>36</sup>.

Based on this assessment, we can point out two case studies to help us examine the relationship between deforestation and commodities imported

by China: the municipalities of Buritis (RO) and Sinop (MT), as described below.

<sup>33</sup> Trase (2018). Yearbook 2018. Anuário Trase 2018 Sustentabilidade das cadeias de produção: risco de desmatamento na exportação de soja brasileira. Available at: [http://resources.trase.earth/documents/TraseYearbook2018\\_Pt.pdf](http://resources.trase.earth/documents/TraseYearbook2018_Pt.pdf)>. Accessed on: 30 August 2022.

<sup>34</sup> Ibit.

<sup>35</sup> Fazcomex (2022). Exportações de Madeira em Bruto: Entenda. Available at: <https://www.fazcomex.com.br/comex/exportacoes-de-madeira-em-bruto/>>. Accessed on: 09 September 2022.

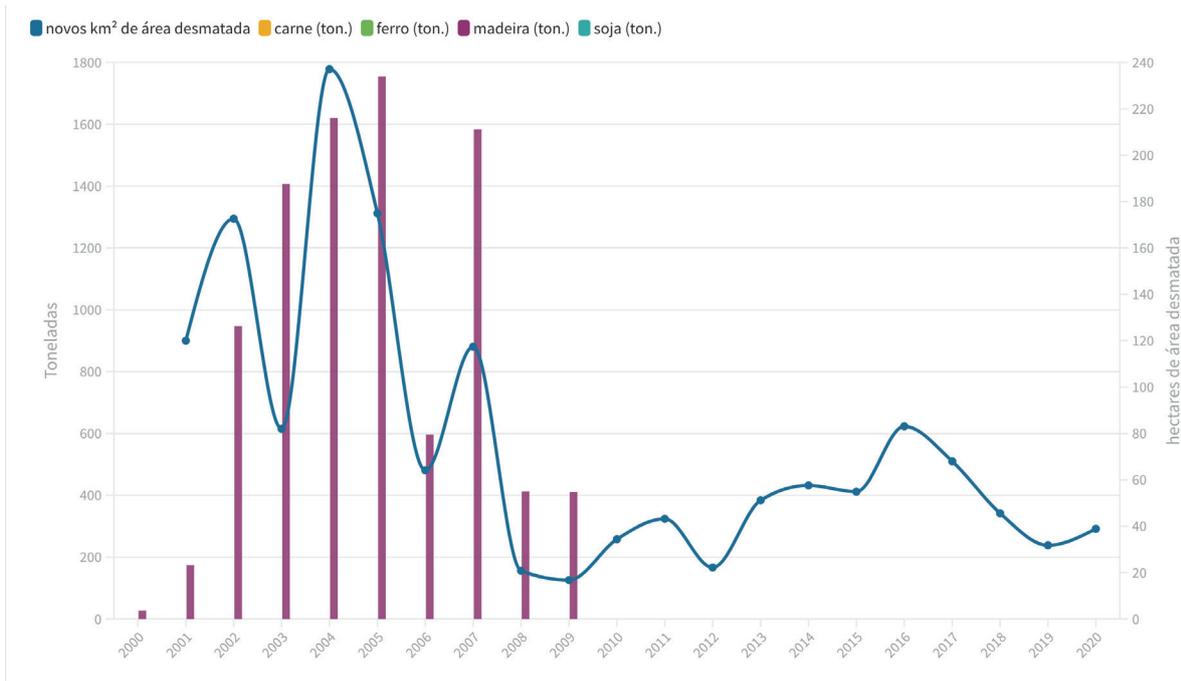
<sup>36</sup> The interactive version of the graph is available at Plataforma CIPÓ’s homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

## 4.1. Buritis (RO)

In Buritis, in the state of Rondônia, the relationship between the rise in deforestation and timber exports can be seen more clearly in the 2000-2009 time frame. The state of Rondônia is increasingly singled out as one of the Legal Amazon's most

deforested states, with half of its forest cover area already ravaged<sup>37</sup>. Studies evidence that the expansion of deforestation in Rondônia is linked to a strong pressure for livestock farming and growing grains<sup>38</sup> and, most recently, for soy production.

**Graph 2. Buritis: exports to China and increase in deforested area (2000-2020)**



Source: Plataforma CIPÓ/Lagom<sup>39</sup>

Satellite images revealed how, starting from the 2000's, highways and cleared lands started to appear in a Northeastern heading, from Buritis towards the Rio Jaciparaná river, further evidencing how the deforested area along the Nova Mamoré highway made its way up Northeast, ending at the BR-346 highway<sup>40</sup>. This deforestation pattern unfolding along the brinks, particularly due to new

highways and infrastructure projects, is widely disclosed in places where major illegal logging activities take place<sup>41</sup>.

Studies highlight the high levels of fragmentation and loss of forest area in the municipality of Buritis<sup>42</sup>. In this backdrop of expanding agricultural frontiers and increased export figures, in 2020

37 Ribeiro, B; Verissimo, A; Pereira, K (2013). O Avanço do Desmatamento sobre as Áreas Protegidas em Rondônia. Imazon. Available at: <https://imazon.org.br/o-avanco-do-desmatamento-sobre-as-areas-protegidas-em-rondonia/>>. Accessed on: 25 August 2022.

38 Alves DS, Escada MIS, Pereira JLG, de Albuquerque Linhares CA. Land use intensification and abandonment in Rondônia, Brazilian Amazônia. International Journal of Remote Sensing 2003; 24(4): 899-903. <http://dx.doi.org/10.1080/0143116021000015807>

39 The interactive version of the graph is available at Plataforma CIPÓ's homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

40 Vieira, P.A. O desmatamento em Rondônia visto do espaço. O Eco. 17/12/2012. Available at: <https://oeco.org.br/noticias/26757-o-desmatamento-em-rondonia-visto-do-espaco/#:~:text=O%20estado%20de%20Rond%C3%B4nia%2C%20que,1988%2C%20e%2053.300%20em%201998.>>. Accessed on: 25 August 2022.

41 Greenpeace Brasil. Evolução do desmatamento em Rondônia. 2012. Available at: <https://www.greenpeace.org/brasil/blog/evolucao-do-desmatamento-em-rondonia/>>. Accessed on: 25 August 2022.

42 Costa, O. B., Matricardi, E. A. T., e Pires, J. S.R.. Análise do Processo de Fragmentação da Floresta nos Municípios de Corumbiara e Buritis - RO. Floresta e Ambiente [online]. 2015, v. 22, n. 3 [Accessed on: 25 August 2022], pp. 334-344. Available at: <https://doi.org/10.1590/2179->

Brazil's Federal Police deployed Operação Floresta S/A II (Operation Forest Inc. II, freely translated) in the municipality, aimed at dismantling several illegal logging companies that operated inside Unidades de Conservação Federais (Federal Conservation Units)<sup>43</sup>.

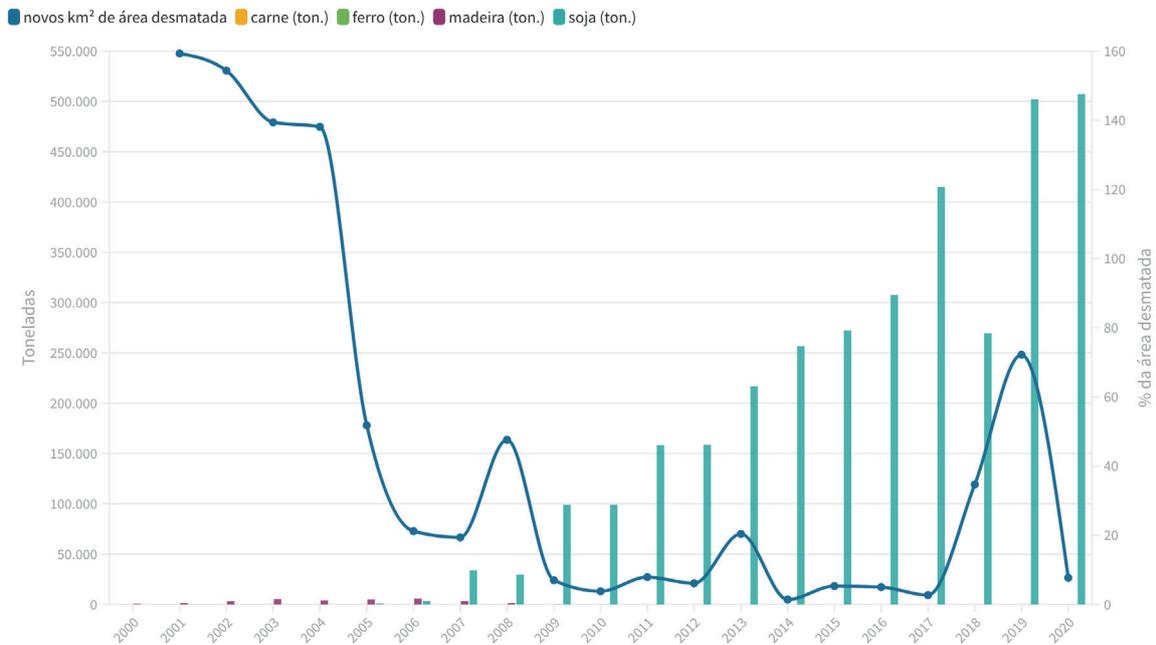
Notwithstanding a surge in environmental crimes in 2021, a Federal Senate Comissão de Agricultura e Reforma Agrária (Commission of Agriculture and Agrarian Reform, freely translated) public hearing was held in Buritis. Some of the subjects in the agenda included debureaucratization required to enable the advancement of land tenure regularization as well as infrastructure construction

works in the region<sup>44</sup>, which could foster even more high impact socio-environmental practices.

## 4.2. Sinop (MT)

This study additionally found that of all 219 municipalities that have already exported any of the listed goods (timber, soy, iron, cotton, copper, and manganese) to China, 91 are in the state of Mato Grosso. In certain municipalities, such as Sinop (MT), a pattern of economic transition can be clearly seen, with cycles comprising deforestation and timber extraction stages, followed by export-bound soybean plantations (Graph 3). Please see the graph below:

**Graph 3. Sinop: exports to China and the increase in deforested area (2000-2020)**



Source: Plataforma CIPÓ/Lagom<sup>45</sup>

The state of Mato Grosso is responsible for 30.2% of Brazil's soybean production<sup>46</sup>. Among

all its importers, China ranks as the main country associated with deforested-related Brazilian

8087.044113>. ISSN 2179-8087. <https://doi.org/10.1590/2179-8087.044113>.

43 ECOAmazônia (2021). PF investiga práticas ilegais de madeireiras que atuam em Buritis/RO. Available at: <https://www.ecoamazonia.org.br/2021/06/pf-investiga-praticas-ilegais-madeireiras-atuam-buritis-ro/>>. Accessed on: 25 August 2022.

44 Senado Federal (2021). Debatedores pedem regularização fundiária e obras para desenvolvimento de Rondônia. Available at: <https://www12.senado.leg.br/noticias/materias/2021/12/06/debatedores-pedem-regularizacao-fundiaria-e-obras-para-desenvolvimento-de-rondonia>>. Accessed on: 25 August 2022.

45 The interactive version of the graph is available at Plataforma CIPÓ's homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

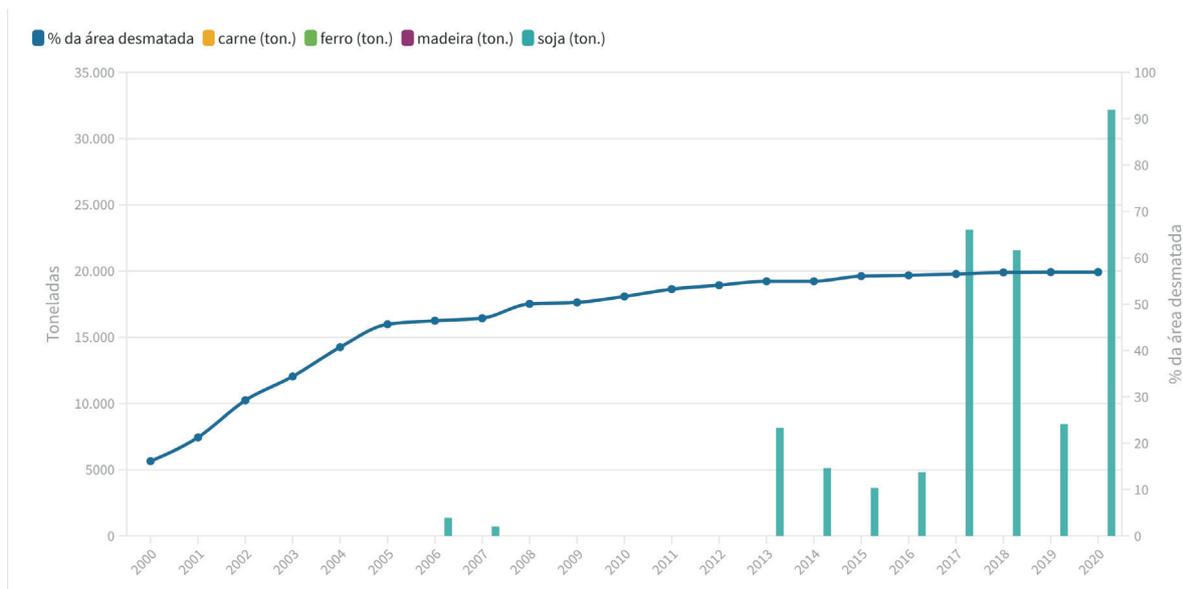
46 IBGE (2022). Em fevereiro, IBGE prevê safra recorde de 261,6 milhões de toneladas para 2022. Available at: <https://agenciadenoticias.ibge.gov.br/agencia-sala-de-imprensa/2013-agencia-de-noticias/releases/33132-em-fevereiro-ibge-preve-safra-recorde-de-261-6-milhoes-de-toneladas-para-2022>>. Accessed on: 31 August 2022.

soybean production since it is, by far, its leading purchaser<sup>47</sup>. Chinese funding therefore influences and increasingly ramps up infrastructure projects like railroads, which are built with the purpose of connecting Mato Grosso to Amazon River ports, thereby creating alternate routes for exporting commodities.

A few caveats must be made regarding this paper. Even though there are Mato Grosso state municipalities with recorded drops in the percent increase of overall deforested lands throughout the transition of export cycles from timber to soy, this grain continues to be a significant

driving force behind the state's substantial rates of deforestation, considering the expansion of cultivated lands as well as lands cleared for purposes of building transportation infrastructure. Soybean expansion in the state's pasture lands leads to further deforestation due to livestock crossing over to the state of Pará, which shares a northern border with Mato Grosso<sup>48</sup>. In addition to its deforestation impacts, the migration of farmers and expansion of pastures are both factors that can ramp up land occupation conflicts, which are generally detrimental to small-scale farmers and indigenous communities.

**Graph 4. Itanhangá: exports to China and the increase in deforested area (2000-2020).**



Source: Plataforma CIPÓ/Lagom<sup>49</sup>

It is worth noting that even though graphs such as the one depicting the municipality of Itanhangá (above), also in the state of Mato Grosso, signal a stabilizing pattern in the growth of deforested lands in the past years, deforestation in that state continues to be strongly linked to soybean production. A trait that helps to explain this is

the fact that the recent surge in Mato Grosso's soybean cultivation is unfolding in pastures that existed beforehand and which, despite not always being responsible for ongoing rises in the overall deforested area, did, in fact, lead to deforestation at some point in the past<sup>50</sup>.

47 Fearnside, P M; Figueiredo, A. M. R. China's Influence on Deforestation in Brazilian Amazonia: A Growing Force in the State of Mato Grosso. Working Group On Development And Environment In The America, 2015. Available at: <https://www.bu.edu/pardeeschool/files/2014/12/Brazil1.pdf>. Accessed on: 30 August 2022.

48 Arima, E.Y.; Richards, P.; Walker, R.; Caldas, M.M. 2011. Statistical confirmation of indirect land use change in the Brazilian Amazon. Environmental Research Letters, 6: 024010. doi:10.1088/1748-9326/6/2/024010

49 The interactive version of the graph is available at Plataforma CIPÓ's homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

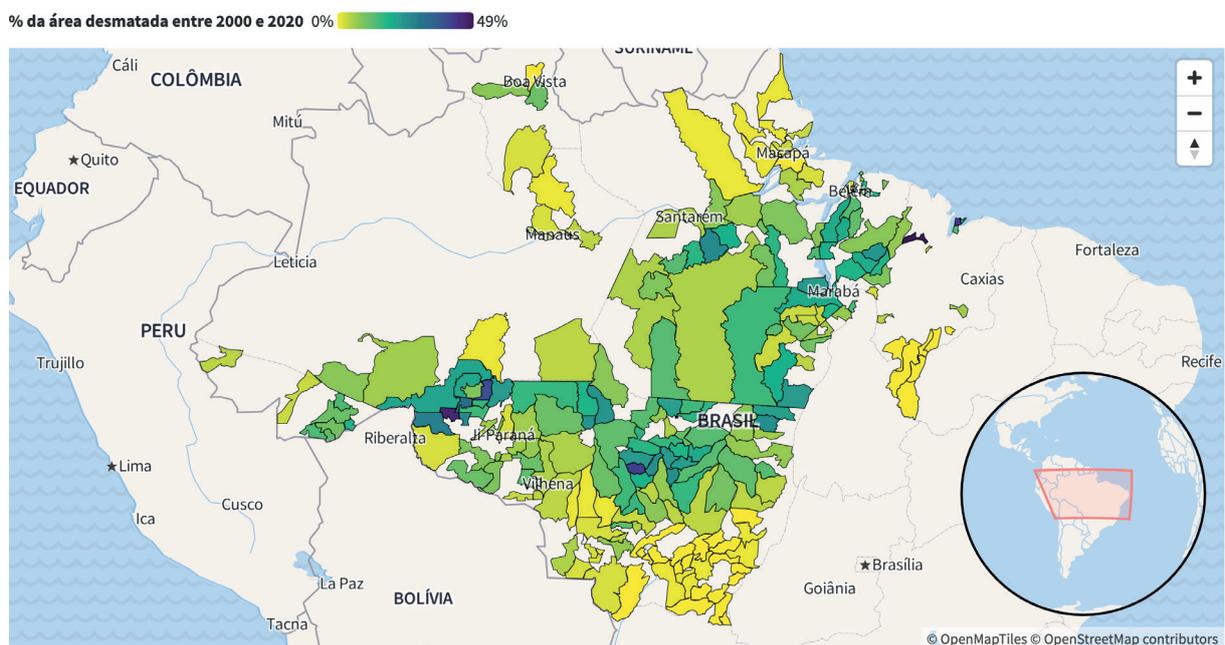
50 Fearnside, P M; Figueiredo, A. M. R. Op cit.

## 5. Conclusions

The swift increase in Brazil's exports of its primary goods to China bears implications on the Amazon's deforestation which, even though these may seem obvious, are challenging to measure and should consequently be construed with caution.

This study sought to examine the ties between goods exported to China and the surge in deforestation, based on a Legal Amazon municipality standpoint.

**Map 2. Percentage of deforested area in Legal Amazon municipalities that exported goods to China (2000-2020)**



The interactive version of the map additionally allows the reader to view exported volumes to China per product and according to the proportion of deforested area, per exporting municipality (2000-2020)<sup>51</sup>.

A data model using fixed effect graphs was devised for Legal Amazon municipalities in the time frame spanning from 2000 to 2020. The graphs evidenced important issues like the connections between the surge in deforestation as well as timber and soybean-related economic export cycles, in addition to the encroachment of deforested lands in states such as Mato Grosso, Rondônia and Maranhão. It is worth noting that, in several instances, deforestation stemming from converting forests into pastures and crops still fosters the domestic

market<sup>52</sup>, and the impact on deforestation can be indirect, such as, for instance, due to enhanced transportation facilities. Thus, this study does not assign a direct effect between deforestation and the export of soy, beef, and other basic goods to China, but seeks, instead, to qualitatively address socio-environmental impacts resulting from the expansion of the Amazon's agricultural frontier, which is ramped up by a substantial Chinese need for Brazilian commodities.

<sup>51</sup> The interactive version of the graph is available at Plataforma CIPÓ's homepage, and can be accessed through link: <https://plataformacipo.org/en/china-commodities-and-deforestation-in-the-amazon/>

<sup>52</sup> Karstensen, J; Peters, G.; Andrew, R (2013). Attribution of CO2 emissions from Brazilian deforestation to consumers between 1990 and 2010. *Environmental Research Letters*, 2013; 8 (2): 024005 DOI: [10.1088/1748-9326/8/2/024005](https://doi.org/10.1088/1748-9326/8/2/024005).

Furthermore, we note that public domain data pose significant restrictions. Due to matters related to logistics and infrastructure as well as monitoring flaws, the municipality responsible for exporting commodities is not necessarily the same one where deforestation linked to productive activities took place.

Among the indirect effects brought on by enhanced Chinese investments for Legal Amazon-sourced exported goods, we can point to the consolidation of Brazil's agribusiness. This industry holds a significant influence over Brazil's internal policy which, in turn, is mirrored in legislative and administrative changes that oppose environmental protection measures, particularly the undermining of environmental licensing and the attempt to clear indigenous territories and protected areas for extractivist activities<sup>53</sup>. Impacts concerning China's funding of large-scale infrastructure projects, such as building railroads to distribute ranching-related goods, are also noticeable.

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53 Fearnside, P.M (2019). Desmonte da legislação ambiental brasileira. p. 317-381. In: J. Weiss (ed.) Movimentos Socioambientais: Lutas - Avanços - Conquistas - Retrocessos - Esperanças. Xapuri socioambiental, Formosa, Goiás. Available at: [http://philip.inpa.gov.br/publ\\_livres/2019/Fearnside-Desmonte\\_da\\_legislacao\\_ambiental\\_brasileira.pdf](http://philip.inpa.gov.br/publ_livres/2019/Fearnside-Desmonte_da_legislacao_ambiental_brasileira.pdf)>. Accessed on: 30 September 2022.

## 6. Public policy recommendations

Aimed at decreasing socio-environmental impacts, whether direct or indirect, resulting from an export-bound commodity production, we recommend the following measures:

- Create more efficient traceability and environmental sustainability mechanisms for supply and agricultural commodity production chains;
- Guarantee that all local communities impacted by forest and ranching-related goods' extraction and production chains, particularly indigenous peoples, traditional communities and Quilombo communities, are ensured rights of access to environmental information, participation, as well as rights of consultation and prior, free and clarified consent;
- Strengthen environmental, land tenure and inspection bodies' institutional competences to help advance land tenure regularization and inter-agency cooperation aimed at inhibiting environmental crimes, agrarian conflicts and human rights violations associated with commodity production and exports.
- Develop agro-environmental planning with pricing and management of environmental and climate risks, which should additionally encourage forest management and family farming;
- Seek to zero agricultural-related deforestation and fulfill guidelines to cut greenhouse gas emissions;
- Negotiate a bilateral political statement with China, bringing forth obligations to strengthen the bilateral cooperation required for preventing and fighting deforestation, in addition to fostering environmental crime-free value chains.

## About CIPÓ

Plataforma CIPÓ ([www.plataformacipo.org](http://www.plataformacipo.org)) is an independent, women-led policy institute focusing on climate, governance, and peacebuilding in Latin America and the Caribbean and, more generally, the Global South. CIPÓ works to support local and national governments, international organizations, civil society entities and private sector actors in developing effective responses as they face the emerging challenges of the Anthropocene.

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