A Pathway to Zero Deforestation in the Brazilian Amazon


© Greenpeace / Daniel Beltrá


© Fábio Nascimento / Greenpeace

index

	Executive Summary	4
1	Introduction	6
2	What do we know about deforestation in the Amazon?	7
2.1	Deforestation is unnecessary for the growth of Brazil	8
2.2	Deforestation generates short and long-term losses	11
3	What worked against deforestation	13
4	Why does deforestation persist and why can it increase?	15
5	How do we eliminate deforestation from the Amazon?	18
5.1	Effective public policies	22
5.1.1	Increase the efficiency of surveillance and curb illegal land grabbing	22
5.1.2	Create and ensure the implementation of protected areas	23
5.1.3	Increase the ambition and coordination of state and federal policies	24
5.2	Support sustainable forest use and improved agricultural practices	24
5.2.1	Potentiate a forest economy	26
5.2.2	Favor better agricultural practices	26
5.3	Reducing the Market to products associated with deforestation	29
5.4	The role of society, voters, consumers, and investors	31
	Notes	32
	References	33

A Pathway to Zero Deforestation in the Brazilian Amazon

executive summary

Ending deforestation in the Amazon would bring environmental and social benefits to Brazil and the world. In this document, we demonstrate that it is feasible to quickly end deforestation based on experiences already developed in the country.

HIGHLIGHTS

Brazil has no reason to deforest anymore

In the Amazon alone, the area of forest lost is twice the size of Germany. Of this deforested total, 65% is used for low-efficiency pastures - less than one cow per hectare. The additional contribution of each year of deforestation to the economy is insignificant: between 2007 and 2016 (7,502 km²/year) it had the potential of contributing only 0.013% of the Brazilian GDP annually.

Agriculture can continue contributing to the economy by producing in areas that have already been deforested

In the Amazon alone, there are 10 million hectares of abandoned or poorly used pastures, which could be used to expand the production of beef and grains. Since 2006, for example, the area planted with soy has increased almost fourfold in the Amazon, due to expansion over pastures.

Deforestation is bad for health and climate

Every year, hundreds of early deaths occur in the Amazon due to the pollution generated by the fires. Deforestation is also damaging the global climate - land use changes accounted for 51% of Brazil's greenhouse gas emissions in 2016 and have kept the country as the seventh largest polluter in the world. Temperatures in the Xingu basin have risen 0.5oC as a result of forest loss in recent years, and this may be due to droughts that have hampered production in the region. Deforesting the Amazon is destroying the agriculture's irrigator, causing damage to agribusiness.

Brazil already knows the path towards zero deforestation.

Measures implemented in recent years (2005-2012) have cut deforestation rates in the region by about 70% and indicate that the elements needed to achieve ZD are present.

But deforestation persists and may increase

The average rate between 2013 and 2017 was 38% higher than in 2012, the year with the lowest rate recorded. The increase recorded since 2012 - and is likely to continue - is due to impunity for environmental crimes, setbacks in environmental policies, failures in livestock production agreements, encouragement of illegal grabbing of public land and the resumption of large infrastructure projects. In addition, Brazil's goal of zeroing illegal deforestation in the Amazon only in 2030 is insufficient. Uncontrolled, the rate of deforestation could reach annual levels between 9,391 km² and 13,789 km² until 2027, if the same historical relation between cattle herd and total deforested area is maintained - considering that cattle farming is one of the main drivers of deforestation.

In order to end deforestation in the Amazon, we will need to adopt for lines of action

1 | the implementation of effective and perennial environmental public policies;

2 | support for sustainable forest uses and improved agricultural practices

3 | the drastic restriction of the market for products associated with new deforestation

4 | the engagement of voters, consumers and investors in efforts to eliminate deforestation

One of the most urgent actions is to curb illegal grabbing of public land

In 2016, at least 24% of deforestation was concentrated in public areas that had not been allocated for use. Today there are 70 million hectares not allocated in the Amazon, which need to be converted into indigenous lands and conservation units to curb speculative deforestation.

Incentives for a forest economy through government programs also need to be expanded

Extraction of forest products yielded an average R$ 3 billion between 2015 and 2016, of which R$ 1.8 billion comes from logging and 537 million açaí extraction.

Ending deforestation requires improvements in cattle ranching production

Assuming an average rate of 11,600 km² deforested in future projections of cattle herd growth, it would be necessary to produce R$ 700 million of gross revenue per year in the Amazon to avoid deforestation of new areas. This could be achieved by increasing livestock productivity from 80 kg to 300 kg per hectare per year, restoring 391 thousand hectares of pasture annually. The investment needed would be equivalent to 15% of the R$ 5 billion that the government offers in rural credit for livestock annually. In addition, permanently ending deforestation also involves reducing animal protein consumption and food waste.

The global commodities Market has already been pushing for deforestation-free supply chains.

The policies adopted by the companies have a significant impact in the fight against deforestation. To get an idea, about 100 companies account for 93% of cattle slaughter in the Amazon. By restricting the purchase of products from deforested areas, many companies have already contributed to the reduction of deforestation, however, it is still essential to overcome the challenges faced in the implementation of current agreements and to guarantee the adhesion of all companies to commitments with ZD. Ending deforestation also depends on the engagement of consumers and civil society, exposing companies that disregard government agreements and policies, stimulating the purchase of products and supporting sustainable policies, and electing politicians committed to ending deforestation.

1

Introdução

© Bruno Kelly / Greenpeace

There are several ways to answer why Brazil needs to achieve zero deforestation (ZD) urgently. The simplest answer is: because this is the right thing to do. There is no longer any justification for the destruction of the native vegetation of the country. Continuing devastation results in an imbalance in global and national climate, affects biodiversity and water resources, and undermines the health and well-being of the population. In addition, deforestation does not help the competitiveness of agriculture and livestock; on the contrary, it puts it at risk. To extinguish illegal and legal deforestation once and for all is, in the end, an ethical imperative - a debt that the current generation has with itself and with the next generations.

The Brazilian Amazon has been, paradoxically, the icon of control and lack of control of tropical deforestation. It is there that there are experiences that demonstrate that environmental destruction can be overcome, but it is also there that this destruction continues at a frightening speed and explodes under any distraction, victimizing the people of the Amazon, the country and the world.

This document indicates the possible ways to end deforestation in the region, with environmental, economic and social benefits for the country. Prepared by the Zero Deforestation Working Group - composed of experts from the organizations Greenpeace Brazil, ICV, Imaflora, Imazon, IPAM, Instituto Socioambiental, WWF Brazil and TNC Brazil -, it has the most current scientific literature on forests, climate and agriculture. In the following sections, the main reasons why ZD is, more than possible, an inescapable need.

2

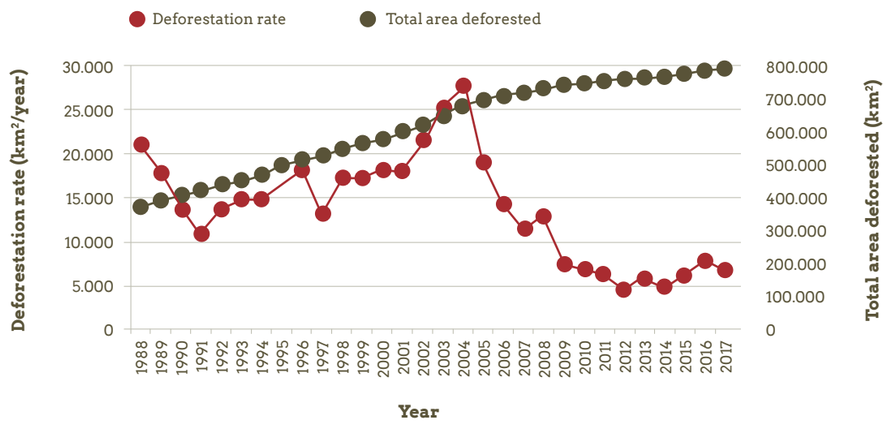
What do we know about deforestation in the Amazon?

The only country in the world with the name of a tree has treated its forests poorly: no other nation has cleared as much as Brazil. There were 55 million hectares cleared between 1990 and 2010, more than double Indonesia, ranked second[I]. Altogether, in the Amazon alone, 780,000 km² of native vegetation has been lost, an area more than twice the size of the territory of Germany. The rate of destruction over the last two decades has been 170 times faster than that registered in the Atlantic Rainforest during Colonial Brazil[II]. The loss was accelerated between 1990 and 2000 (Figure 1), with an average of 18.6 thousand km² deforested per year, and between 2000 and 2010, with 19.1 thousand km² lost annually and 6 thousand km² between 2012 and 2017. About 20% of the original forest was already cut down without generating significant benefits for Brazilians and for the development of the region.

On the contrary, there are several losses. Pollution from fires, for example, each year causes deaths, increased cases of respiratory diseases and changes in the regional climate that can bring great risk to productivity in the field. The government itself, through its research agencies, already indicates that it is unnecessary to continue deforestation of the Amazon, since it estimates that it is possible to shelter all agricultural production in the areas that are already open. Several Amazon governors agree.

The recent past confirms this thesis. Measures implemented between 2005 and 2012 have cut deforestation rates in the region by about 70% and indicate that the elements needed to achieve ZD are present. Among them are the agreements to end deforestation in agricultural production, increase the efficiency of livestock farming in the areas already cleared, the creation of protected areas (Conservation Units and indigenous lands) and compliance with the Forest Code. These policies, several of which are addressed in this document, if applied not only to the Amazon but also to other biomes, would be able to produce, well before 2030, the end of deforestation in the country.

Figure 1. Total area deforested and deforestation rate in the Brazilian Amazon



Source: Satellite Monitoring Project for the Amazon Forest (PRODES) (INPE/PRODES 2017)

2.1

Deforestation is unnecessary for the growth of Brazil

It is clear that deforestation did not generate wealth for most Amazon inhabitants. The municipalities of the Amazon are among the lowest HDI (Human Development Index) and SPI (Social Progress Index) of the country. They follow the so-called "boom-collapse" logic[III]: at first, easy access to natural resources produces an explosion of wealth in the municipality. This wealth, however, is concentrated in the hands of few and runs out in a few years. The end result is swollen cities, with poor infrastructure, no quality jobs[IV], and a concentrated income.

The additional contribution of each year of deforestation to the economy is negligible. The average area cleared per year between 2007 and 2016 (7,502 km^2) has the potential to add about R$453 million annually in gross value of agricultural production[1] (i.e. production volume multiplied by the price of products). This figure represented only 0.013% of the average Brazilian GDP between 2007 and 2016[2,3].

The old argument that it is necessary to clear new areas of forest to increase agricultural production does not hold up. There is already a huge deforested area that has been poorly used. Much of it is degraded pasture. According to the Brazilian government (Inpe/Embrapa[V]), in 2014 there were 10 million hectares of degraded pastures and pastures with forest regeneration in the Amazon. In the country, 70% of the total pasture area is degraded or in the process of degradation[VI]. In fact, when measures against deforestation were more effective, agricultural production continued to grow, as farmers invested in increasing land productivity (Figure 2). For example, ten years after the Soy Moratorium - which began blocking farmers who planted in newly deforested areas - in 2006, planted area increased from 1.2 million hectares to 4.5 million hectares due to planting in pasture areas[VII].

The large amount of poorly exploited areas in the region results to a large extent from deforestation from land grabbing (grilagem), through the invasion of public lands, often using labor that is degrading or analogous to slave labor. In 2016, for example, at least 24% of deforestation occurred in public forests not yet earmarked and in areas with no information (Table 1[4],[VIII]).

This land grabbing is also linked to very low-efficiency cattle ranching: 65% of the deforested area in the region is occupied by pastures, with an average stocking rate of less than one head of cattle per hectare. Therefore, the alleged economic imperative of deforestation is a false matter.

Figure 2. The GDP for the agricultural sector in the Amazon increased in the years that the deforestation rate dropped

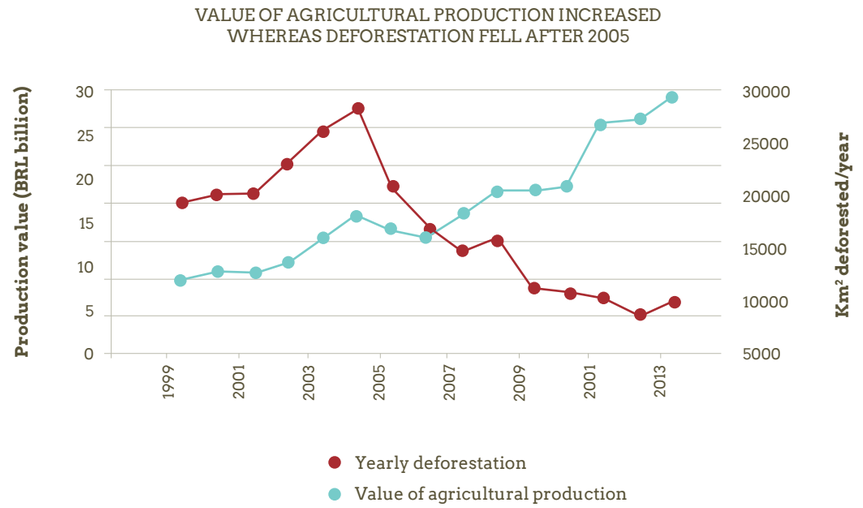


Table 1. Deforestation rate (km^2) in the Brazilian Amazon per land-tenure category between 2010 and 2016[5]

	YEAR OF DEFORESTATION						
LAND TENURE CATEGORIES	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
Indigenous Lands	305	227	168	170	71	62	88
Federal Protected Areas (FPA)	179	131	175	187	120	184	201
State Protected Areas (SPA)	126	150	117	175	174	233	322
Permanent Protection Areas (APP)	265	209	124	228	202	245	207
Rural Settlements (RS)	1,851	1,766	1,239	1,518	1,269	1,437	1,986
Private Properties (PP)	1,502	1,355	986	1,009	883	1,113	2,462
Public Federal Lands (PFL)	690	698	574	743	584	670	855
State Public Lands (SPL)	64	30	15	31	0	7	59
Areas Without Information (WI)	1,497	1,072	982	1,222	1,047	1,306	758
TOTAL	**6,479**	**5,638**	**4,380**	**5,283**	**4,350**	**5,257**	**6,938**

Source: Deforestation data from the National Space Research Institute (INPE 2016) and PRODES (INPE/PRODES 2016); FPA and SPA data from Insituto Socioambiental (ISA 2015); RS data from INCRA (INCRA 2015); PFL and SPL data from the Brazilian Forest Service (SFB 2013); PP data from the Rural Environmental Registry (SEMA-MT, 2013, SEMA-PA, 2013; Government of the State of Acre, 2010); WIs are undefined polygons.

Box 1.

The possibility of producing without clearing is recognized by politicians, specialists, and agribusiness representatives

Politicians, agribusiness representatives and experts declared on October 31, 2017 to the Folha de São Paulo newspaper that it is possible to expand Agribusiness without deforesting. See excerpts from the statements:

> "In Pará, we have about 23 million hectares of anthropic areas (whose characteristics have been altered by man), of which more than 16 million are pastures, some of them with very low productivity. Therefore, it is possible to increase production without advancing over the forest."
>
> ***Simão Jatene, Governor of Pará State (PSDB political party)***

> "Absolutely possible, this is an agreement that we are building in coalition with the environmental sector."
>
> ***Congressman Nilson Leitão (PSDB-MT), leader of the rural caucus***

> "Yes. Brazil can double grain production by 2025 by occupying half of the 74 million hectares of degraded pastures that are not being used by extensive livestock grazing. Technologies that are available are also allies for increase productivity and allow for agricultural expansion without clearing new areas."
>
> ***Marcos da Rosa, president of the Brazilian Association of Soy Producers***

> "Yes, because there is still a lot of deforested area, especially in the Amazon region, which can be used to increase production."
>
> ***Roberto Rodrigues, former minister of Agriculture (2003-2006) and agribusiness coordinator FGV***

© Greenpeace / Rodrigo Baleia

2.2

Deforestation generates short and long-term losses

If the economic benefits of deforestation in the Amazon are questionable, their socio-environmental and economic losses (Figure 3) are not. For example, air pollution from forest fires, coupled with deforestation, has the potential to cause hundreds of early deaths each year. The drop in the number of fires between 2001 and 2012, the period in which Brazil most reduced the rate of deforestation, resulted in a decrease in air pollution and may have prevented the early death of 400 to 1,700 people per year in South America[6].

Not only from a health point of view, but also from an economic point of view, forest fires resulting from deforestation can cause serious damage. In 1998 alone, a year under strong El Niño effects, Amazon states sourced a loss of almost US$ 5 billion (9% of Amazon's GDP)[IX]. The Public Health System of Brazil (SUS) alone had expenses with respiratory health treatment in the order of US$ 11 million. Agriculture in the region, that year, suffered a loss of US$ 45 million. Zeroing deforestation, therefore, also means saving lives, reducing government expenditures, and mitigating private economic losses.

Deforestation also enhances rural violence and loss of public assets, exposes Brazil to the risks of commercial boycotts and is the main source of greenhouse gas emissions in Brazil - deforestation in the Amazon alone contributed with about 26% in 2016[X].

The end of deforestation in the Amazon, in addition to contributing to the fight against climate change worldwide, will be fundamental for agricultural productivity in the future. There is increasing evidence that climate, not only regional or global, but mainly local, depends on the forest intact. In a grain-producing region or in areas with large settlements, the existence of forests (private or public) is necessary to dictate the future path of agricultural production.

A good example of forests as "irrigators" of agricultural production comes from the upper Xingu region of Mato Grosso. Over the past few years, clearing of the forest around the Xingu Indigenous Park resulted in a local temperature rise of around 0.5°C (Figure 3). This may be behind the severe droughts that hit the region. Were it not for the existence of the Xingu Park, this increase in temperature and drought would be even greater. Therefore, maintaining a mosaic of forests keeps the irrigation system running.

Figure 3.

Losses from deforestation

DISEASES AND DEATHS

Pollution from fires associated with deforestation **causes premature diseases and deaths**. The reduction of deforestation/forest fires in the Amazon averaged from 400 to 1,700 early deaths from respiratory diseases per year between 2001 and 2012 in Latin America. The decline in deforestation has reduced the rate of premature births and underweight infants.

SOCIAL CONFLICTS

Up until August 2017, a thousand areas with land conflicts have already been recorded, affecting close to 94 thousand families and resulting in **47 murders** in the Legal Amazon. The total number of murders in the Amazon in 2017 has already surpassed that recorded in all of 2016.

LOSS OF PUBLIC PATRIMONY

Land grabbers deforest to demonstrate possession of public lands. Illegal land grabbing affects approximately 7 million hectares, valued at R$ 21.2 billion.

RISK OF COMMERCIAL BOYCOTTING

Environmental campaigns led companies to establish the **Soy Moratorium**, which boycotts purchases of deforested areas after 2006. And boycotts may increase. France, for example, has already announced that it will phase out imports of commodities that contribute to deforestation in the world, including the Amazon.

INCREASED CLIMATIC RISK

Deforestation in the Amazon accounted for **26% of greenhouse gas emissions in 2016**. With every 10% reduction in forest cover, the Xingu basin, for example, has a 50mm reduction in evapotranspiration and a 0.5oC increase in temperature. The worsening climate change can lead to a reduction of 1.3% of national GDP in 2035 and up to 2.5% in 2050. The loss of agricultural GDP would be even more serious: between 1.7% and 2.9% in 2035 and from 2.5% to 4.5% in 2050.

© Greenpeace / Daniel Beltrá

3

What worked against deforestation

The country has successfully tested and implemented measures to control deforestation in the Amazon (Figure 4). Since the creation of the Plan for Prevention and Control of Deforestation in the Amazon (PPCDAm) in 2004, the rate of deforestation has fallen by about 80% up to 2012 - something that was previously considered by some decision makers as an impossible task. For example, based on the monitoring of deforestation by "real-time" satellites - through the Deter and SAD systems – the government focused, during this period, on policies in critical areas[XI].

The government created protected areas in regions targeted for illegal land grabbing. Between 2002 and 2009, for example, almost 709 thousand square kilometers of protected areas were created, contributing to the decline in deforestation in subsequent years[XII].

The National Monetary Council established credit denial to properties embargoed due to illegal deforestation[XIII]. Credit restriction, as of 2008, helped to curb deforestation, especially in municipalities of livestock production[XIV]. However, much still needs to be done to readjust the credit criteria to stimulate good practices.

In addition, environmental campaigns, market restrictions and lawsuits have stimulated companies' commitments against deforestation associated with the production of soy and beef.

© Rogério Assis / Greenpeace

Figure 4.

Measures that contributed to the decrease in deforestation between 2004-2012

2003-2006

The expansion of protected areas in the Amazon by 59.6 million hectares resulted, in this period, in the reduction of deforestation. It is estimated that 37% of the reduction observed between 2004 and 2006 occurred due to protected areas.

2006 | Soy Moratorium

The voluntary agreement of the industry against the commercialization of soy associated with deforestation in the Amazon resulted in a reduction of deforestation area for soy cultivation. In 2004, up to 30% of soy planted in the Amazon came from recent deforestation. Today, that figure is only 1.5%.

2008 | Surveillance directed towards municipalities that most deforest

The intensification of surveillance in the 43 municipalities listed among those that most deforest avoided the deforestation of 355,100 hectares per year between 2009 and 2011.

2008 | More efficient penalties

The application of immediate penalties, such as seizure of assets and embargo of activities, has a greater deterrent effect than the imposition of fines. In addition, the list of embargoed areas was used as reference by the Public Prosecutor's Office (Livestock Adjustment Agreement, TAC), Central Bank and markets in the fight against deforestation.

2008 | Credit restriction

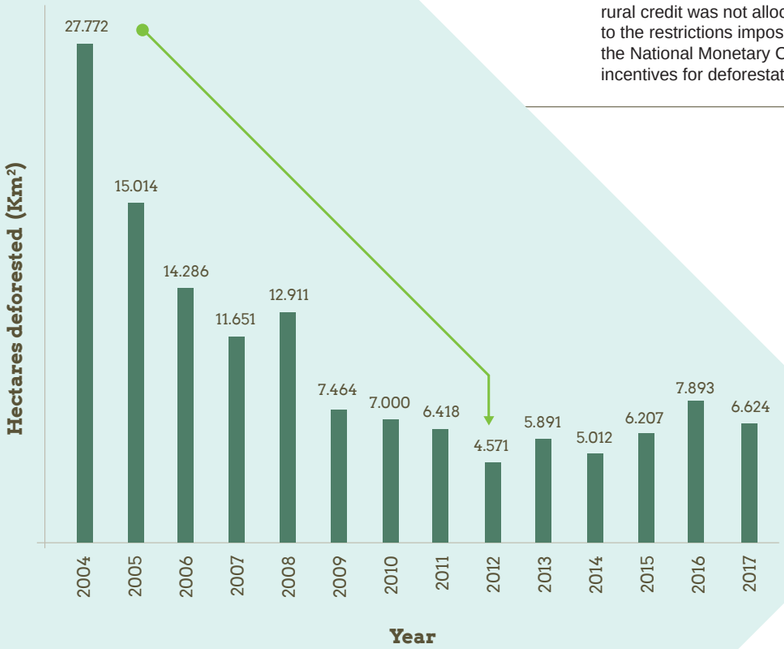
Researchers estimate that R$ 2.9 billion (US$ 1.4 billion) in rural credit was not allocated between 2008 and 2011 due to the restrictions imposed by Resolution 3545, approved by the National Monetary Council, in order to reduce financial incentives for deforestation.

2009

Some of the slaughterhouses pressured by environmental campaigns and legal processes stopped buying from farms that cleared illegally (cattle agreement and TAC) and deforestation fell by 6% on farms that registered immediately in the Rural Environmental Registry (CAR).

2006-2013

Deforestation was 10% lower in property registered in CAR in Pará and Mato Grosso in relation to the period prior to the existence of CAR.



4

Why does deforestation persist and why can it increase?

Unfortunately, the decline in forest destruction rates observed between 2005 and 2012 has been halted. The average rate of deforestation between 2013 and 2017 was 38% higher than in 2012, the year with the lowest rate since the beginning of the measurements (Figure 5). This increase in deforestation after 2012 occurred due to high impunity for environmental crimes, setbacks in socio-environmental policies, flaws in cattle agreements, encouragement of land grabbing of public land and the resumption of large infrastructure projects (Figure 5).

The scenario ahead does not point to significant reductions in this rate for the coming years. Currently, there are several measures to weaken forest protection approved or proposed in the Executive Branch and in the National Congress, including approved amnesty for land grabbers, and the reduction of protected areas, the weakening of environmental licensing, as well as the halting of the demarcation of indigenous and *quilombola* lands. In addition, if additional measures are not taken, deforestation can remain high in the next decade, driven by demands for agricultural products and lack of political commitment (Table 1) and government and market inefficiency to enforce the necessary control (Figure 6). The rate of deforestation could reach levels between 9,391 km² and 13,789 km² until 2027 if the same historical relation between cattle herd and total deforested area is maintained[XV].

Box 2. Zero Deforestation and efforts in Brazil to fight against climate change

In 2015, Brazil presented to the United Nations its plan to combat climate change, the so-called Nationally Determined Contribution intended for the Paris Climate Agreement (INDC). There it proposed a goal of reducing its greenhouse gas emissions by 37% in 2025 compared to 2005 levels. Among these goals is one dedicated exclusively to the Amazon: to achieve zero illegal deforestation in the region by 2030. Taken literally, Brazil's international commitment is merely a matter of complying with the law (within 15 years) and refers to only one biome. The Cerrado, the target of large deforestation, was not included in the current NDC. In addition, the fragile commitment validates the belief in impunity and reduces the credibility of the Brazilian commitment. In other words, the past message is that the illegality of deforestation has a deadline, but the stance should be zero tolerance for illegal deforestation.

Furthermore, analyzes of the Brazilian proposal[XVI] (which became a national commitment, or NDC, after the ratification of the Paris Agreement in 2016) have suggested that for the country to fulfill its promise, it is fundamental that the government establish the goal of definitively zeroing deforestation in less than a decade. And in all biomes. The deforestation rate of 2017, of 6,624 km², does not even put us in the path of complying with the National Policy on Climate Change, the Brazilian climate law, which set the goal of reducing the rate to 3,900 km² by 2020.

Figure 5.

Measures that enabled the increase in deforestation between 2012 and 2016

Impunity for environmental crimes is still high

The risks of punishment and losses associated with the crime of deforestation are still low, making enforcement ineffective: between August 2008 and July 2013 only 18% of the total deforested area was embargoed - in the same period approximately 95% of the deforestation in the Amazon was illegal. The judgment of the infractions is slow and most of the fines applied are not paid.

Environmental policy setbacks

With the new Forest Code, Congress and government conceded amnesty to 47 million hectares illegally deforested in 2012; reduced 2.9 million hectares of Conservation Units between 2005-2012; reduced the number of environmental analysts allocated to the Amazon by 40% in ICMBio (2010-2016) and 33% in Ibama (2009-2015).

Flaws in cattle agreements

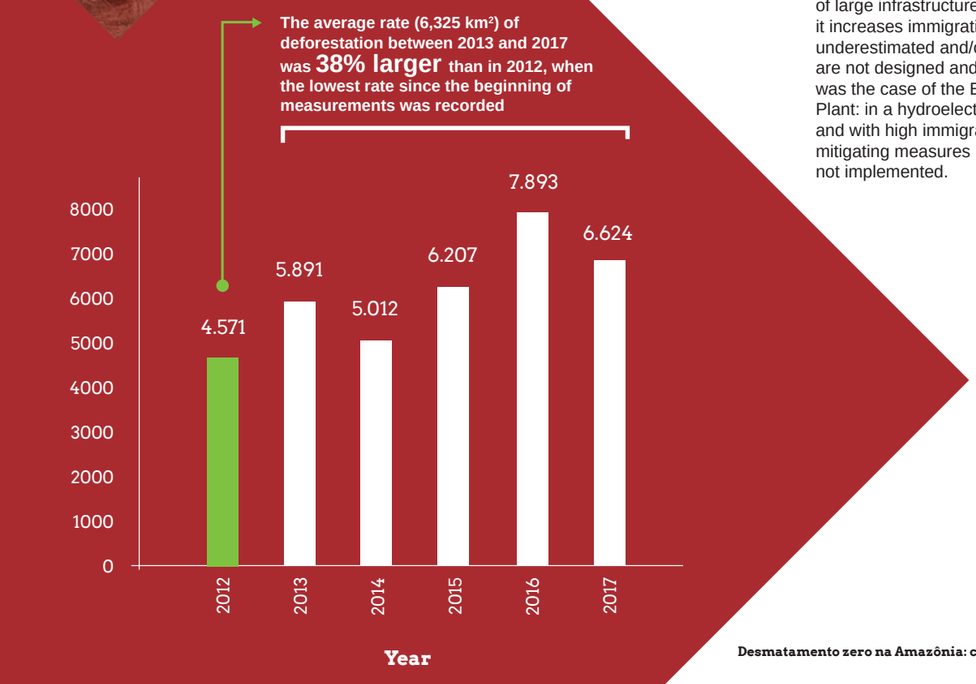
Half of the slaughterhouses, responsible for about 30% of the slaughter capacity in the Legal Amazon, did not sign the agreements. In addition, companies that have signed the agreements have no control over indirect producers (breeding and rearing). Delays in audits facilitate fraud to cover illegal deforestation on farms.

Grabbing of public lands continues to be lucrative

The government does not reclaim invaded public lands and approved laws to facilitate regularization of lands invaded. Under Law No. 13,465/2017, subsidy for illegal land grabbing in the Amazon could reach R$ 21 billion.

Large infrastructure projects speed up threats

Deforestation increases in the surroundings of large infrastructure projects because it increases immigration. Risks are underestimated and/or mitigating measures are not designed and/or implemented. This was the case of the Belo Monte Hydroelectric Plant: in a hydroelectric construction scenario and with high immigration in the region, mitigating measures in the surroundings were not implemented.



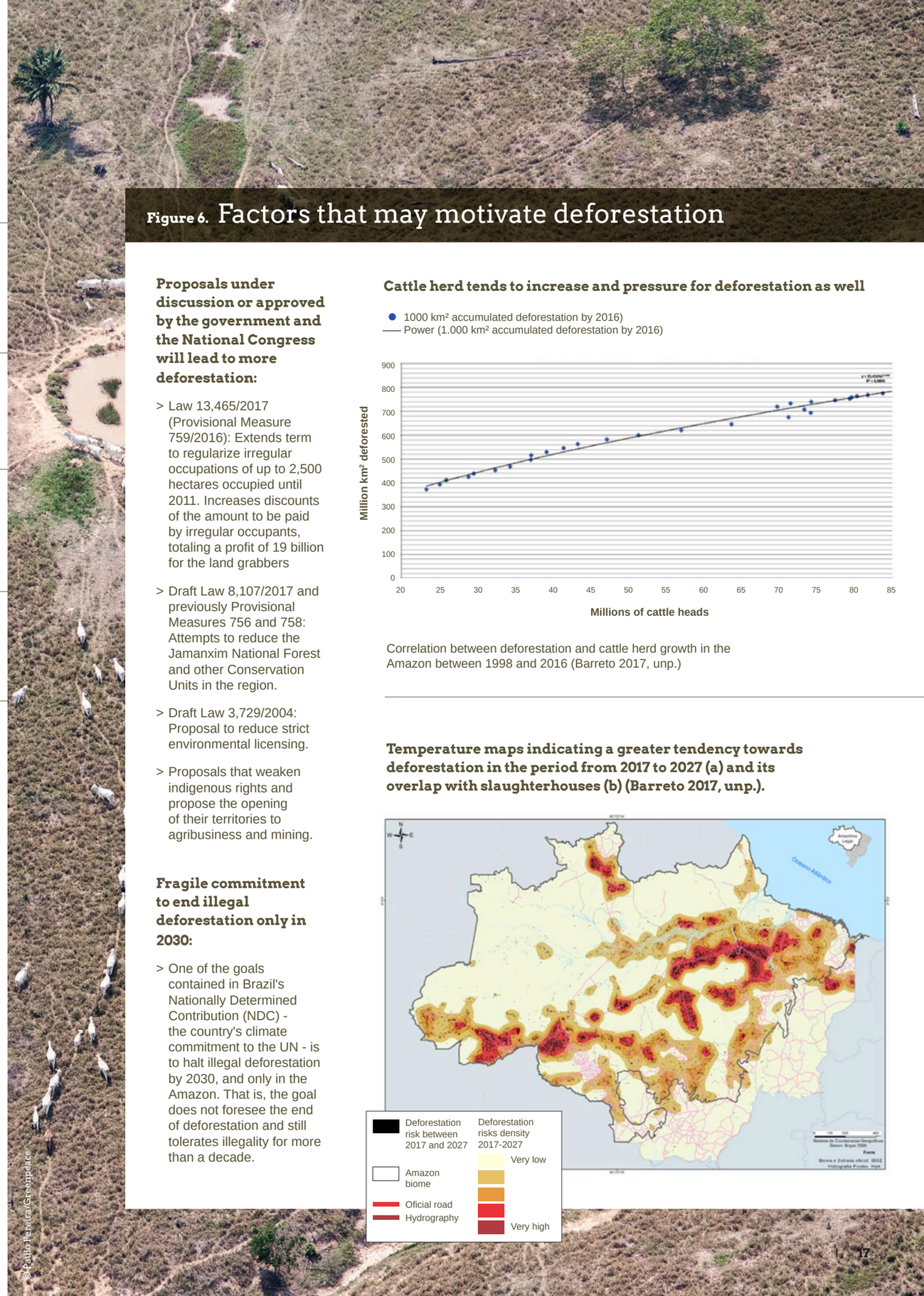


Figure 6. Factors that may motivate deforestation

Proposals under discussion or approved by the government and the National Congress will lead to more deforestation:

> Law 13,465/2017 (Provisional Measure 759/2016): Extends term to regularize irregular occupations of up to 2,500 hectares occupied until 2011. Increases discounts of the amount to be paid by irregular occupants, totaling a profit of 19 billion for the land grabbers

> Draft Law 8,107/2017 and previously Provisional Measures 756 and 758: Attempts to reduce the Jamanxim National Forest and other Conservation Units in the region.

> Draft Law 3,729/2004: Proposal to reduce strict environmental licensing.

> Proposals that weaken indigenous rights and propose the opening of their territories to agribusiness and mining.

Fragile commitment to end illegal deforestation only in 2030:

> One of the goals contained in Brazil's Nationally Determined Contribution (NDC) - the country's climate commitment to the UN - is to halt illegal deforestation by 2030, and only in the Amazon. That is, the goal does not foresee the end of deforestation and still tolerates illegality for more than a decade.

Cattle herd tends to increase and pressure for deforestation as well

Correlation between deforestation and cattle herd growth in the Amazon between 1998 and 2016 (Barreto 2017, unp.)

Temperature maps indicating a greater tendency towards deforestation in the period from 2017 to 2027 (a) and its overlap with slaughterhouses (b) (Barreto 2017, unp.).

5

How do we eliminate deforestation from the Amazon?

After decades of trials and errors, successes and failures, advances and setbacks, there is enough knowledge in Brazil about how to achieve ZD with social, economic and political responsibility. It is necessary to discourage deforestation and at the same time support the sustainable use of the forest, seek recognition and positive incentives for forest conservation and compensate best agricultural practices. The implementation of this vision depends on the government, businesses, rural producers, and also on manifestations of society, which elects representatives, demands and finances public policies and buys and invests in companies (Figure 7).

The end of deforestation in the Amazon will result from four short-term actions:

1

THE IMPLEMENTATION OF EFFECTIVE AND PERENNIAL ENVIRONMENTAL PUBLIC POLICIES

2

SUPPORT FOR SUSTAINABLE FOREST USES AND IMPROVED AGRICULTURAL PRACTICES

3

THE DRASTIC RESTRICTION OF THE MARKET FOR PRODUCTS ASSOCIATED WITH NEW DEFORESTATION

4

THE ENGAGEMENT OF VOTERS, CONSUMERS AND INVESTORS IN EFFORTS TO ELIMINATE DEFORESTATION

Figure 7. How to get there: summary of the proposals

What do we win with Zero Deforestation?

1 | Reduction of greenhouse gas emissions in Brazil, contributing to the NDC

2 | Reduction of diseases and deaths from fire pollution

3 | Reducing the risk of climate change and consequent impacts on agricultural production

4 | Opening new commodity markets and sustaining more demanding markets

5 | Reduction of legal risk for companies and rural producers (fines, embargos)

6 | Diversification of revenue sources in protected forests (tourism, timber, non-timber products, environmental compensation)

7 | Reduction of income concentration and violence in the field associated with land grabbing

8 | Reduction of slave labor

9 | Preservation of rights of traditional and indigenous peoples

ZERO DEFORESTATION IN THE AMAZON

GOVERNMENT ACTIONS

1 | Effective and perennial public policies

- Increase the effectiveness of environmental monitoring
- Curb illegal land grabbing (Allocate public forests for conservation, monitor payment of Rural Territorial Tax, fight irregular settlement occupations)
- Resume the creation of Conservation Units and the demarcation of Indigenous Lands
- Do not reduce area or degree of protection of Conservation Units
- Adopt an end to deforestation in its goals and act in coordination with the States
- Promote total and active transparency of data that helps in the control of productive chains (CAR, GTA, DOF)

2 | Support sustainable forest use and best farming practices

- Strengthen plans that increase income associated with forest conservation
- Create programs that compensate the producer who conserves areas beyond what is required by legislation
- Increase financial transfers to municipalities and states that reduce deforestation and maintain greater forest stock
- Prioritize rural credit to municipalities that have reduced deforestation
- Establish that in a maximum of ten years, all rural credit will go to low carbon agriculture
- Supervise compliance with the resolution to grant rural credit only to legal producers
- Support capacity building to increase productivity in areas already deforested

BUSINESS AND INVESTORS ACTIONS

1 | Monitor product origin

- Demand from governments transparency of socio-environmental data that are fundamental to the monitoring of supply chains
- Slaughterhouses and supermarkets already committed should monitor the entire cattle supply chain - including indirect suppliers
- Committed supermarkets should intensify the implementation of the agreements, including also the monitoring of indirect slaughterhouse suppliers

2 | Boycott producers that deforest

- Supermarkets should require slaughterhouses to commit to controlling deforestation
- Supermarkets and slaughterhouses not yet involved in agreements should immediately commit to zero deforestation
- Commitments for the end of deforestation should be extended to the Cerrado

3 | Strengthen production without deforestation

- Support producers in environmental regularization and increase in productivity

4 | Publicly report the results of audits and progress in the implementation of zero deforestation agreements

5 | Corporate consumers and countries that invest in Brazil have to establish criteria aligned with ZD and environmental compliance, observing respect for local communities

SOCIETY | Action towards government

1 | Demand the end of public subsidies for deforestation

2 | Demand protection of public lands

3 | Demand support for sustainable production

4 | Mobilize against measures that increase deforestation

5 | Vote on representatives who support conservation

SOCIETY | Actions towards the private sector

1 | Invest and buy from companies that avoid deforestation

2 | Carry out and support campaigns against companies that promote deforestation

Effects expected from these actions on rural producers and illegal land grabbers

1 | Increasing costs and risks associated with speculative deforestation (illegal grabbing of public land)

2 | Reduction of market and revenues for products associated with new deforestation

3 | Increased capacity to increase productivity in areas already deforested

4 | Increased support from entrepreneurs and politicians for zero deforestation, given the support of more sustainable activities

5.1

Effective public policies

5.1.1 Increase the efficiency of surveillance and curb illegal land grabbing

Reducing deforestation in a context of scarce public resources will depend, to a large extent, on increasing the effectiveness of punishment for environmental crimes. The current Director of the Department of Forests and Deforestation Control in the Ministry of the Environment, in his doctoral thesis, has already proposed more effective procedures. Some are already in practice and have already generated positive results, such as the increase in the number of legal notices and embargoes applied by IBAMA, especially through remote actions. The legal notices are sent by mail after crossing maps of deforestation detected by satellite images, the maps of real estate obtained from the Rural Environmental Registry (CAR) and authorizations for deforestation. The cost of each remote legal notice (R$ 600) is 4.66 times lower than that based on field surveillance (R$ 2,800). This measure may increase the likelihood of a crime being notified by 192%, according to Jair Schimitt. The government can use satellite imagery to monitor if the embargoed areas are being used and, thus, prosecute anyone who persists in the crime.

To reduce trial time, it is still necessary to adopt automated administrative processes, as is already done in some Courts of Justice. Such a measure would increase the likelihood of cases going to trial by 169%, according to Schimitt. The effective collection of fines would generate a large volume of resources to intensify the surveillance and implementation of protected areas.

It is even more important that the government broaden and strengthen the punishment of companies buying and financing products from illegally deforested areas. After all, it is more effective to punish a few companies than the thousands of farmers they finance or source from. A good example was the Shoyo operation, which fined Santander Bank R$ 47.5 million for financing the planting of soybeans in embargoed areas.

Another was the *Carne Fria* (literally “Cold Meat”) operation, which investigated 15 slaughterhouses and an exporter of live cattle that bought from embargoed areas on 24 farms. Ibama crossed public information of the animal transit guides (GTA) with the embargoes[XVII]. Intervention by the Federal Public Prosecutor´s Office was necessary for the government of Pará to release the GTA data[XVIII]. Even after that, the Pará government continues to hamper access to such data[7]. Therefore, states truly committed to combating deforestation should provide full data transparency (see section 5.3).

Meanwhile, after Operation Cold Meat, the Minister of the Environment apologized to the producers and declared that the operation was inopportune[8] and that the acting superintendent of Ibama in Pará, who participated in the set-up of the operation, was dismissed[9]. These reactions reinforce the importance of society shielding the environmental organs from political influence, as indicated in section 5.4.

One of the key roles of surveillance is to curb the theft of public lands. As already seen, at least 24% of the deforestation verified today has its origin in land grabbing of public lands. Public authorities must intensify operations against organized squatters, who, in addition to destroying forests, carry out other crimes, such as money laundering, which provide for harsher penalties than violations against the environment[10].

Another strategy to combat illegal land grabbing and the speculative deforestation of potential efficiency would be the effective collection of the Rural Territorial Tax (ITR). Such a tax was created in the 1970s to curb speculation in unproductive land. The collection could increase 100 times based on analysis done in Pará (from about R$ 5 million to R$ 500 million per year) using rural real estate maps (CAR) and satellite images to identify land use. ITR's revenues could be reinvested primarily in rural areas in the form of incentives for forest conservation and the adoption of better agricultural practices in areas already deforested.By closing the frontier for illegal occupation and collecting the ITR effectively, the public authority would also signal to farmers that the increase in production should occur in areas that are already deforested. In addition to the environmental benefit, combating illegal land grabbing would help reduce conflicts that occur over dispute for public lands.

© Otávio Almeida/Greenpeace

5.1.2 Create and ensure the implementation of protected areas

In the Amazon there are about 70 million hectares of public forests that have not been destined yet to a specific use , part of which has been cleared by illegal land squatters. It is essential that public authorities create protected areas on these public lands, including indigenous lands and Conservation Units for various uses such as tourism, scientific research and use of forest products (e.g. extractive reserves). Where the type of public land allocation still needs to be better studied, the government should institute Areas under Provisional Administrative Limitation (ALAP), while conducting studies to decide future allocation. The creation of ALAP, which prevents any use of the areas, is especially relevant around regions that will receive infrastructure projects that quickly attract immigrants and illegal land squatters.

If the creation of new protected areas results in a decrease of deforestation, the opposite is true. Ending forest protection, as a result of actions to reduce the size of protected areas, can motivate illegal deforestation. In the Jamanxim National Forest in Pará, the announcement of the federal government’s decision to reduce the protected area could result in a significant increase in deforestation in the coming years[XIX]. Therefore, public authorities should not reduce the size or degree of protection of Conservation Units.

5.1.3 Increase the ambition and coordination of state and federal policies

The urgency of eliminating deforestation requires that federal and state governments have bold goals and coordinate their activities. Some states have already set targets to reduce deforestation that are bolder than that of the federal government. For example, the governor of Pará declared that the state could eliminate net deforestation by 2020. And Mato Grosso, in a strategy that unites efforts from the government, companies and civil society support, has set the goal of eliminating illegal deforestation by 2020[11]. However, just as at the federal level, the implementation of these state plans falls short of what is needed due to political resistance[12] and budget constraints. Deforestation in Mato Grosso in recent years is still high. The federal government should revise its goals, include an end to deforestation, and act in coordination with states to avoid the sense that illegal deforestation will be tolerated until 2030, considering NDC's goal of eliminating illegal deforestation by 2030.

5.2

Support sustainable forest use and improved agricultural practices

5.2.1 Potentiate a forest economy

Extraction of forest products yielded an average R$ 3 billion based on 2015 and 2016, according to IBGE, of which R$ 1.8 billion came from logging and R$ 537 million from açaí[13] extraction. However, this potential is poorly explored regionally, since much of the production is exported to other regions instead of being processed in the Amazon. Production is also often associated with predatory practices (for example, about half of the logging is illegal). It is therefore essential to support best practices in producing these products by strengthening and improving the quality of existing programs and plans to reduce deforestation and increase income associated with forest conservation, including the National Plan for Biodiversity Products Supply Chain and General Policy for Minimum Price for Biodiversity Products (PGPMBio), National Program for Strengthening Family Agriculture (PRONAF) and the National Policy for Technical Assistance and Rural Extension (PNATer).

These programs have the potential to serve populations in Conservation Units such as extractive reserves and Agrarian Reform settlement projects (See Table 2). Such programs should be linked to centers of scientific research and development as is done with other products of national agriculture (such as Embrapa Grape and Wine, Embrapa Beef Cattle and Embrapa Milk Cattle)[14].

In addition, infrastructure planning for the Amazon needs to be articulated with local development plans, with the objective of stimulating sustainable production chains that are already underway. Infrastructure plans in the Amazon are currently focused on large energy and transport projects that have little positive impact on local development plans and contribute to the expansion of the agricultural frontier and real estate speculation that stimulate deforestation.

Policies to support forest conservation could be strengthened with state and municipal resources that reward forest conservation. The Green ICMS Tax, implemented by Pará and Mato Grosso, transfers additional tax resources to municipalities with better conservation performance[15]. These experiences could be adopted by other states.

State governments also have the power to influence the allocation of more resources to conservation in private areas. They can, for example, accelerate the application of the Forest Code, which provides for the offsetting of forest liabilities in the same biome, creating an Environmental Reserve Quota (CRA) market. By this system, the rural property that conserves forest beyond the legal minimum (Legal Reserve) can sell conservation quotas for those that need to compensate for the excessive deforestation in other properties. This quota market can reach R$ 5.8 billion in Mato Grosso alone[xx].

CRAs could guarantee protection of up to 3.6 million hectares if the entire Amazon Legal Reserve deficit were offset by them. However, a study by Esalq and Imaflora points out that there are 12 million hectares of forests on private land that are not protected by the Forest Code (i.e. in addition to the required Legal Reserve and Permanent Protection Area). Thus, discounting the potential of CRAs, there are still 8.4 million unprotected hectares. To encourage the protection of these areas it would be advisable to create means of payment for environmental services for landowners who conserve forests beyond legal protection[xxi].

Given that conservation of the Amazon contributes to the country's climate balance, therefore, for agricultural production and energy generation, it is fair to allocate additional federal resources to the region. One way to do this would be to increase allocations from the Participation Funds to states and municipalities. Today, the federal government transfers R$ 50 billion a year to the states through the FPE (State Participation Funds). If only 2% of the FPE resources were distributed according to a forest protection criterion (states with more protected areas would receive an additional one), about R$ 1 billion would be allocated to forest conservation. Of these, approximately R$ 770 million would be destined to the Amazon biome, which hosts 77% of the continental area of the Brazilian Conservation Units[16]. This approach is consistent with the new PPCDAm approach, which provides for the elaboration of economic, fiscal and tax standards and instruments[xxii].

© Paulo Pereira/Greenpeace

Box 3. The importance of the agrarian reform settlements for forest conservation

The **2,220 land** reform **settlements** georeferenced and recorded in the National Institute of Colonization and Agrarian Reform (INCRA) database amount to 34.5 million hectares, of which 22 million are forests that hold about 8 billion tons of CO_2, equivalent to four years of total national emissions of greenhouse gases. The proportional contribution of settlements to deforestation in the Amazon was almost 30% (Table 1) for the period 2003 to 2014. Deforestation has been concentrated (2.6% of settlements account for 72% of deforestation), indicating focus on critical areas[xxiii]. Recent studies supported by the Amazon Fund indicate that the combination of adequate agricultural technical assistance, intensification and diversification of production and payments for environmental services in settlements in Pará reduced deforestation by almost 80% and increased the income per family by 60%[xxiv]. In addition to conservation support, it will be necessary to combat the irregular occupation of settlements by people who do not fit the profile of land reform beneficiaries, including middle and large-scale landowners, who have great potential to increase deforestation in these areas.

5.2.2 Favor better agricultural practices

Increasing production and efficiency of the activities in the deforested areas will allow to maintain the socioeconomic contribution of this sector without new deforestation. Some progress has already been made, but cattle ranching in the country continues to be extensive and low in productivity. For example, its potential does not reach 34%. If it rose to 52% (which would still be low), livestock would meet the demand for beef and, consequently, grain, by 2040 without the need for additional forest conversion and still avoid the emission of 14 billion tons of CO_2[xxv]. See in Box 4 a simulation of how to grow the agricultural economy in the Amazon without deforestation.

The most powerful policy to support the adoption of best agricultural practices is the rural credit and other subsidies of the federal government's Agriculture and Livestock Plan, which is financed with taxes from all Brazilians. In 2017/2018, this plan totaled around R$ 200 billion[17]. However, only 1.1% of rural credit is earmarked exclusively for low carbon agriculture through the ABC (Low Carbon Agriculture) Program. To encourage a more rapid adoption of more sustainable practices, the federal government needs to adopt two main measures:

1. **prioritize rural credit only for municipalities that reduce deforestation** and thus encourage rural producers, mayors and governors to engage against deforestation;

2. **establish a transition goal** (for example, a maximum of 10 years) so that all rural credit is allocated to ABC alone. In doing so, the taxpayer would encourage that the entire system of research, development, and technical assistance focus on techniques compatible with reducing deforestation and increasing production with low greenhouse gas emissions.

Irrespective of promoting more efficient use of the cleared areas, to reduce deforestation globally we will need to reduce food waste and change food practices (Box 5).

Box 4. How to grow the agricultural economy without deforestation?

The most obvious way to continue **increasing agricultural income without deforestation would be to increase production in areas already deforested**, especially in areas for cattle farming, whose productivity is very low. Here we exemplify this potential.

How much of gross revenue would be required to produce in areas already cleared to offset the revenue that would be generated from production in newly deforested areas? We estimate that they would be around R$ 700 million per year, assuming the average deforestation rate of the scenarios projected for the next ten years (1.16 million hectares per year) and the average gross revenue of R$ 604 per deforested hectare in the region.

How can we produce another R$ 700 million per year in areas already cleared for pasture? It would be possible to increase the average productivity of livestock from 80kg to 300kg per hectare per year with the adoption of an average level of technology (Barreto & Silva, 2013). This would result in an additional annual gain of approximately R$ 1,790/ha, considering the value of the cattle in 2016 in important livestock production municipalities of the region (R$ 8.13 per kilo[xxvi]).

Thus, by dividing the additional gross revenue to be produced without deforestation (R$ 700 million per year) by the revenue gain with productivity increase (R$ 1,790/ha), we found that it would be necessary to improve productivity by about 391 thousand hectares of pasture per year. This area represents only 4% of pasture with the best potential for productivity improvement in the region (about 10 million hectares). Thus, it would be possible to continue to increase livestock production for 26 years with only a moderate increase in productivity in this area (10 million hectares/391 thousand hectares to be restored per year).

How much would it take to invest to reform the pastures? Approximately R$ 778 million per year, considering an investment of R$ 1,989/ha[18] for the pasture reform (391 thousand hectares multiplied by R$ 1,989/ha). This investment would be equivalent to 2.8% of gross cattle and dairy income and 15% of rural credit granted by the federal government for investment in livestock (R$ 5 billion) in the states of the Legal Amazon in 2016. This shows that the sector itself generates resources and receives enough public investments to afford the productivity gains needed to compensate for the elimination of deforestation. Thus, it would be possible to clear deforestation without socioeconomic losses, only improving cattle ranching.

© Valdemir Cunha / Greenpeace

Box 5. Zero deforestation worldwide requires less food waste and changes in production and consumption

Up to 14 percent of the emissions generated by agriculture in 2050 could be avoided by better managing the use and distribution of food, according to a new study by the Potsdam Institute for Climate Impact Research (PIK). Between 30% and 40% of all food produced on the planet is never consumed, because it deteriorates after being harvested and during transportation or because it is thrown away by traders and consumers[19].

Irrespective of the increase in production only in areas already deforested, it will also be necessary to reduce the consumption of animal protein globally. As the world population grows and productivity rates of agricultural production reach the limit, a greater amount of land would be required to produce if current conditions of production and consumption are maintained. This model is unsustainable, and experts (including the FAO, UN Food and Agriculture Organization) have recommended more efficient use of agricultural products and food with a greater emphasis on the use of plants (instead of animal protein) and alternative sources of animal protein (e.g., edible insects need six times less feed to produce the same amount of bovine protein)[20] .

A 2015 study by Imaflora illustrates the Brazilian case of the nutritional inefficiency of production. In 2006, agriculture produced 35 times more protein than cattle production did, although pastures occupy 2.6 times more area than agriculture. The 2006 harvest would meet the protein needs of 2.1 billion people, while meat production would feed only 85 million[XXVII]. In addition, today, much of this land used for agriculture is intended to provide food to fatten animals for human consumption and not eat the vegetable protein itself.

The shift to diets less dependent on animal protein and more sustainable production systems is necessary and requires the promotion of a just transition from the current model of production and consumption respecting the social, economic and cultural differences of each country.

5.3

Reducing the Market to products associated with deforestation

Companies that buy or finance agricultural products should reduce the market for products associated with deforestation and support the adoption of better agricultural practices. They may do so voluntarily or because of financial risks, market blockages, or legal pressures from investors or consumers, which are becoming more and more common (Box 6). The various initiatives to monitor corporate commitments and legal action against buyers and financiers of deforestation mean that risks are increasing and will increase further as many commitments have targets for 2020.

Recent experiences show that when companies monitor the origin of products and boycott purchases from deforested areas, producers stop deforesting[XXVIII]. Therefore, companies that claim to be committed to zero (absolute or liquid) deforestation - whether they are processors, such as slaughterhouses, retailers, supermarkets, or industries such as leather - must trace the source of all their products that can be associated with deforestation, such as meat, milk, soy, corn, cocoa and palm oil, among others. For example, in the case of the Amazon, slaughterhouses and supermarkets must trace the cattle from the breeding and raising farms that supply the finishing farms from which they buy. Likewise, supermarkets that have announced policies aligned with zero deforestation in the acquisition of beef also need to implement their systems and monitor the indirect suppliers (farms) of the slaughterhouses (where calves are produced).

Pilot projects show the technical and financial feasibility of this complete tracking of livestock - for example, the total cost would be around ten cents per kilo of meat for the final consumer. This type of initiative could scale up with the participation of more public and private actors, as happened with the successful program to combat foot-and-mouth disease[XXIX].

Buyers should also demand that half of the slaughterhouses that haven't committed against deforestation - with slaughtering capacity equivalent to 30% of the total Amazon region - engage in the agreements, and that supermarkets that have not yet published policies to control deforestation associated with cattle production, such as large Amazon networks like DB, Líder and Cencosud, do so immediately. This would reduce unfair competition from those who are already restricting purchases from deforested areas.

The adhesion of producers will be as big as the support of the supply chain of their business. Thus, companies should broaden their initiatives to support environmental regularization and increase productivity. For example, governments and companies in the livestock supply chain could help train about 2,000 people needed to improve livestock productivity[XXX].

The government also plays a crucial role in strengthening company agreements by providing public information to help monitor farms and other land uses. The livestock supply chain, for example, could be freed from deforestation if the Ministries of Agriculture and Livestock (MAPA) and the Environment (MMA) and the state health defense agencies made the CAR data available (in the case of MMA) and the animal transit guides (in the case of states). Slaughterhouses, supermarket chains and other interested parties could crosscheck this data to identify the origin and destination of the livestock. It is likely that governments will release this data only after more pressure from consumers and companies committed to forest conservation, as there is resistance in the rural sector against increased surveillance and transparency, as was evident in the reactions against the dissemination of CAR data and against IBAMA's Operation Cold Meat.

The total and active transparency of other data generated by governments (municipal, state and federal) is also fundamental in monitoring supply chains that act as potential drivers of deforestation and forest degradation. Among this information are the Forest Origin Documents and/or Forest Transport Guides and the Mapping of Forest Degradation in the Brazilian Amazon (DEGRAD).

Box 6. International commitments to end of deforestation

Zero deforestation is, increasingly, a global commitment. Due to growing recognition of the diverse benefits of forests for climate and food production, the goal of zero deforestation is being pursued by several international agreements. In September 2014, for example, 179 entities, including governments, companies, movements and NGOs, signed the New York Declaration on Forests to eradicate tropical deforestation by 2030. Brazil was the only country in the group that did not sign the document, initially claiming that it was not invited.

The New York Declaration gave a clear message to commodity markets worldwide: the destruction of forests is no longer tolerated by global society. Thus, countries that do not adopt policies aimed at eliminating deforestation will certainly lose market and competitiveness. Along the same lines, in 2010, the Consumer Goods Forum, an alliance of 400 multinational companies with revenues of US$ 4 trillion, had already committed to eliminate deforestation in its production chains by 2020[21]. Finally, in 2015, the UN adopted the Sustainable Development Objectives for 2030, which have among their goals "to promote the implementation of sustainable management of all types of forests by 2020, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation."[22] In 2017, it was the turn of the president of France, Emmanuel Macron, to announce plans to block the importation of commodities produced from deforestation.

Box 7. Deforestation in the Cerrado should also be eliminated

Market commitments for zero deforestation in Brazil are focused on the Amazon. But the private sector needs to go one step further and include the protection of other threatened biomes. In the Cerrado, for example, destruction has occurred at an even greater speed than in the Amazon: between 2013 and 2015, about 19,000 km² of forest were destroyed. Due to the gravity of the situation in the biome, environmental organizations came together and launched in September 2017 a manifesto: ***In the hands of the market, the future of the Cerrado: we need to stop deforestation*** (in Portuguese *"Nas mãos do mercado, o futuro do cerrado: é preciso interromper o desmatamento"*)[23].

The main cause of the destruction of the Cerrado is the expansion of agribusiness over native vegetation. Therefore, in the manifesto it is requested that the companies that buy soy and beef from the Cerrado, as well as the investors that work in these sectors, adopt policies and effective commitments to eliminate deforestation and to disconnect their productive chains from recently deforested areas. The organizations also warn that compliance with the law alone is not enough, as it authorizes that another 40 million hectares be legally deforested in the biome. They also demand that the government and the private sector develop incentives and economic instruments to reward producers who conserve areas of native vegetation. The document was recently supported by a group of leading international companies (including Carrefour, McDonald's, Nestlé, Unilever and Walmart) and Prince Charles.

5.4

The role of society, voters, consumers, and investors

Opinion polls show that most Brazilians support forest conservation[24] and, in fact, at various times society's participation and pressure have favored the conservation of the Amazon, including recent campaigns against policies that facilitate destruction[25]. However, systemic political corruption and the lack of prioritization of environmental issues by governments make it difficult for the population's demands to be met[XXXI]. In this context, social pressure must be even stronger and continuous against attempts to weaken forest protection, such as easing environmental licensing, reducing the protection of Conservation Units, halting the demarcation of Indigenous Lands and extending the term in order to legalize land grabbing.

However, it is not enough to reject destructive policies; it is necessary to support projects that promote the sustainable development of the region - for example, the Sustainable Amazon Plan, launched in May 2008, which provides for the valorization of socio-cultural and ecological diversity and the reduction of regional inequalities. The population may also demand that their taxes be used only for policies that favor conservation and best practices, such as those described in previous sections. In addition, to give political sustainability to conservation, citizens should elect politicians who understand the value of forests to the well-being of the population and the economic development of the country.

Every Brazilian and a global citizen, as a consumer, can help transform companies into conservation allies through purchases and investments (several of which are listed on stock exchanges and others financed by public resources). Corporate markets also play an important role. The Soy Moratorium has shown that rural producers changed rapidly when European soybean consumers announced that they would not buy soy from deforested areas. In addition to ceasing deforestation, they began to invest in production in areas already deforested. In the last decade, the pressure of the national and international market, which, even buying less than what is consumed internally, also managed to push the largest companies to adopt systems of socio-environmental control for livestock production. Also under pressure from civil society, the largest retail chains had to adopt policies for sourcing cattle aligned with zero deforestation. Thus, initiatives that assess and bring visibility to commitments to conservation are essential to channel attention from society and promote changes in policy and business. Along the same path, it is essential that countries investing in the country and in their businesses also demand criteria aligned with zero deforestation and respect for local communities.

Box 8. Zero Deforestation, a bill to defend the forests

After a broad mobilization by society, in 2015 a bill was passed in the National Congress that defends the end of deforestation in Brazilian forests. The project was supported by more than 1.4 million Brazilians and is still being processed in the Chamber and Senate. It is essential that society remain mobilized so that the project is discussed and the actions that build this path become a reality.

© Fabio Nascimento / Greenpeace

Notas

1 We estimate that each hectare deforested in the Amazon states produced an average of R$604 of gross value of agricultural products (VAP - which includes meat, milk, grains, cassava, cacao, etc.) in 2016, considering data made available by the federal government on VAP (Brazil, 2017. Ministry of Livestock and Supply, Gross Value of Agricultural Production) and total deforested area. To estimate the average value of production we use only the states whose territory covered the Amazon biome (that is, excluding Mato Grosso and Tocantins that includes parts of the Cerrado). But to estimate the total value generated, considering the deforested area per year throughout the biome.

2 We estimate the average annual GDP between 2007 and 2016 at R$3.54 trillion with IBGE data (https://brasilemsintese.ibge.gov.br/contas-nacionais/pib-valores-curentes.html). We then divided the total gross annual crop value for this period (R$453 million) by the average annual GDP

3 Table 4 shows how this GDP increase can be offset by the deforestation of new areas, with a moderate increase in livestock production.

4 The area may be larger since some of the areas registered in the Rural Environmental Registry are possessions derived from land grabbing.

5 Reproduced based on Moutinho et al 2016 (https://elementascience.org/articles/125)

6 http://www.bbc.com/portuguese/noticias/2015/09/150916_desmatamento_brasil_qualidade_ar_rb

7 http://www.oeco.org.br/reportagens/governo-contra-governo-sem-guia-de-transito-gado-ilegal-no-para-fica-impune/

8 https://www.poder360.com.br/brasil/ministro-do-meio-ambiente-se-desculpa-com-produtores-carne-fria-foi-inoportuna/

9 http://www.oeco.org.br/reportagens/operacao-carne-fria-do-ibama-autua-jbs-mas-governo-federal-tenta-abafar/

10 http://www.mpf.mp.br/pa/sala-de-imprensa/noticias-pa/mpf-pa-operacao-desmonta-maior-quadrilha-de-desmatadores-da-regiao-amazonica

11 http://pci.mt.gov.br/

12 http://www.oeco.org.br/reportagens/governo-contra-governo-sem-guia-de-transito-gado-ilegal-no-para-fica-impune

13 https://sidra.ibge.gov.br/

14 https://www.embrapa.br/uva-e-vinho/apresentacao; https://www.embrapa.br/gado-de-corte; https://www.embrapa.br/gado-de-leite/apresentacao

15 In Mato Grosso, the registration of the legal reserve is already part of the requirement for the transfer of the tax to the municipalities. In Pará, the distribution of ICMS is linked to the reduction of deforestation and to the amount of forests. (https://www.semas.pa.gov.br/2016/05/25/nova-metodologia-de-repasse-do-icms-verde-e-apresentada-pela-semas/)

16 77% of the continental area of Brazil's Conservation Units are in the Amazon biome. MMA, 2017. Table of Conservation Units by Biome of the National Register of Conservation Units (CNUC), updated on 07/10/2017. Available at: <http://www.mma.gov.br/images/arquivo/80112/CNUC_JUL17%20-%20C_Bio.pdf>. Accessed on: 10/31/2017 18 http://www.agricultura.gov.br/assuntos/sustentabilidade/plano-agricola-e-pecuario/

17 http://www.agricultura.gov.br/assuntos/sustentabilidade/plano-agricola-e-pecuario/

18 Value originally estimated by Barreto & Silva, 2013 (http://imazon.org.br/como-desenvolver-a-economia-rural-sem-desmatar-a-amazonia/#ancora1) and updated to current value using the IGP-M (FGV) rate.

19 https://exame.abril.com.br/tecnologia/desperdicio-de-alimentos-contribui-para-mudancas-climaticas/

20 See http://www.fao.org/edible-insects/en/ and https://www.economist.com/blogs/economist-explains/2014/09/economist-explains-20

21 http://www.theconsumergoodsforum.com/sustainability-strategic-focus/sustainability-resolutions/deforestation-resolution

22 http://www.itamaraty.gov.br/images/ed_desenvsust/ODSportugues12fev2016.pdf

23 http://d3nehc6yl9qzo4.cloudfront.net/downloads/manifestodocerrado_set2017_4.pdf

24 See examples of research at: https://oglobo.globo.com/politica/codigo-florestal-segundo-pesquisa-datafolha-79-dos-brasileiros-sao-contra-perdao-de-multas-quem-desmatou-ilegalmente-2876725

25 https://oglobo.globo.com/economia/governo-recua-suspende-decreto-que-extinguiu-reserva-mineral-na-amazonia-21772031

References

I Strassburg, B. B. N., A. E. Latawiec, L. G. Barioni, C. A. Nobre, V. P. da Silva, J. F. Valentim, M. Vianna, and E. D. Assad. (2014). When enough should be enough: Improving the use of current agricultural lands could meet production demands and spare natural habitats in Brazil. Global Environmental Change 28(0):84–97.

II Dean, W. (1996). A ferro e fogo: a história e a devastação da Mata Atlântica brasileira. São Paulo: Companhia das Letras.

III Celentano, D.; Veríssimo, A. (2007). O Avanço da Fronteira na Amazônia: do Boom ap Colapso, Belém, PA:: Imazon. 44p. Available at: http://imazon.org.br/PDFimazon/Portugues/estado_da_amazonia/o-avanco-da-fronteira-na-amazonia-do-boom-ao.pdf. Accessed Nov. 01, 2017

IV Celentano e Veríssimo, op. cit.

V INPE. (2016). Projeto Terra Class – Mapeamento do Uso e Cobertura da Terra na Amazônia Legal Brasileira. Available at: http://www.inpe.br/cra/projetos_pesquisas/arquivos/TerraClass_2014_v3.pdf

VI Dias-Filho, M. (2014). Diagnóstico das pastagens no Brasil. Belém, PA : Embrapa Amazônia Oriental. 36 p. : il. ; 15 cm x 21 cm. – (Documentos / Embrapa Amazônia Oriental, ISSN 1983-0513; 402). *Available at:. https://www.infoteca.cnptia.embrapa.br/bitstream/doc/986147/1/DOC402.pdf*

VII Gibbs HK , Rausch L , Munger J , Schelly I , Morton DC , et al. (2015). Brazils Soy Moratorium: Supply chain governance is needed to avoid deforestation. Science 347(6220): 377378. doi: 10.1126/science.aaa0181.

VIII Moutinho, P., Guerra, R. & Azevedo-Ramos, C. (2016). Achieving zero deforestation in the Brazilian Amazon: What is missing? Elementa: Sci. Anthropocene, 4(1), 1-11,

IX Mendonça, M. J. C., M. d. C. V. Diaz, D. C. Nepstad, R. S. d. Motta, A. A. Alencar, J. C. Gomes, and R. A. Ortiz (2004). The economic costs of the use of fire in the Amazon, Ecological Economics, 49: 89-105

X Sistema de Estimativas de Emissões de Gases de Efeito Estufa (SEEG) - Observatório do Clima (OC). (2017). V5.0. Available at: <http://plataforma.seeg.eco.br/sectors/mudanca-de-uso-da-terra-e-floresta>. Accessed on: 10/31//2017.

XI Arima, E. Y., Barreto, P., Araújo, E., & Soares-Filho, B. (2014). Public policies can reduce tropical deforestation: Lessons and challenges from Brazil. Land Use Policy, 41, 465–473.

XII *Soares-Filho, B., Moutinho, P., Nepstad, D., Anderson, A., Rodrigues, H., Garcia, R., Dietzsch, L., Merry, F., Bowman, M., Hissa, L., Silvestrini, R., Maretti, C. (2010). Role of Brazilian Amazon protected areas in climate change mitigation. Proc. Natl. Acad. Sci. U. S. A. 107, 10821–10826*

XIII *Lima, et al. A., Capobianco, J., Moutinho, P. (2008). Desmatamento na Amazônia: medidas e efeitos do Decreto Federal 6.321/07. IPAM, Brasília.*

XIV *Assunção J, Gandour C, Rocha R, Rocha R., (2013). Does Credit Affect Deforestation? Evidence from a Rural Credit Policy in the Brazilian Amazon. Climate Policy Initiative; Rio de Janeiro, Brazil. pp. 1–48.*

XV Barreto, P., unpub.

XVI Spencer, T., Pierfederici, R. et al. (2015). Beyond the Numbers: Understanding the Transformation Induced by INDCs – Executive Summary, October 2015, IDDRI – MILES Project Consortium, Paris, France, 12 p.

XVII Barreto, P., Pereira, R., Brandão, A., Baima, S. (2017). Os frigoríficos vão ajudar a zerar o desmatamento da Amazônia? (p. 158). Belém: Imazon.

XVIII *Ministério Público Federal. Procuradoria da República em Altamira. Recomendação No 01/2016 GAB02/PRM/Altamira-PA. Available at: http://www.mpf.mp.br/pa/sala-de-imprensa/noticias-pa/rios-voadores-mpf-recomenda-a-adepara-disponibilizacao-de-dados-ao-ibama.*

XIX *IPAM. (2017). Premiando a grilagem na Amazônia: Jamanxim pode ser só o começo. Notícia. 14/07/2017. Available at: http://ipam.org.br/premiando-a-grilagem-na-amazonia-jamanxim-pode-ser-so-o-comeco/*

XX *RAJÃO, R., SOARES-FILHO, B.S., et al. (2015). Cotas de reserva ambiental (CRA): viabilidade econômica e potencial do mercado no Brasil. Available at: http://csr.ufmg.br/cra/*

XXI *Guidotti, V., Freitas, FM., Sparovek, G., Pinto, LF, Hamamura, C., Cerignoni, F., Carvalho, T.. (2017). Números detalhados do novo Código Florestal e suas implicações para os PRAs. Sustentabilidade em debate, Número 5 - Piracicaba, SP: Imaflora.. 10 p.*

XXII Plano de Ação para prevenção e controle do desmatamento na Amazônia Legal. Plano operativo 2016-2010. Brasília, DF: Ministério do Meio Ambiente (2016). *Available at: http://www.fundoamazonia.gov.br/FundoAmazonia/export/sites/default/site_pt/Galerias/Arquivos/Anexo_II_-_PLANO_OPERATIVO_DO_PPCDAm_-_GPTI___p_site.pdf*

XXIII Alencar, A., Pereira, C. , Castro, I., Cardoso, A., Souza, L., Costa, R., Bentes, A. J., Stella, O., Azevedo, A., Gomes, J., Novaes, R. (2016). Desmatamento nos Assentamentos da Amazônia: Histórico, Tendências e Oportunidades. IPAM, Brasília, DF, 93p.

XXIV *IPAM. (2015). Technical Report to Amazon Fund. IPAM. Belém, Brazil/ Stella et al. 2015. Assentamentos Sustentáveis na Amazônia (PAS): Viabilizando Agricultura Familiar de Baixo Carbono. In Caminhos para uma Agricultura Familiar sob Bases Ecológicas: Produzindo com Baixa Emissão de Carbono./ Azevedo, A., Campanili, M., Pereira, C., Eds.; IPAM: Brasília, Brazil, pp. 183–197/ Pinto, E.P.P. (2016). O papel do pagamento por serviços ambientais conforme a realidade de diferentes perfis de agricultores familiares da Amazônia. 138 f., il. Dissertação (Mestrado em Desenvolvimento Sustentável), Universidade de Brasília, Brasília. Available online: http://repositorio.unb.br/handle/10482/23022.*

XXV *Strassburg et al. op. cit.*

XXVI *Anualpec. (2016). Anuário da Pecuária Brasileira. IEG/FNP. Agribusiness intelligence/Informa.*

XXVII Guidotti, V., Cerignoni, F., Sparovek, G., Pinto, LFG, Barreto, A. (2015). A funcionalidade da agropecuária brasileira (1975 a 2020). Sustentabilidade em debate, No 2. Piracicaba: Imaflora 10 p.

XXVIII *Gibbs HK, et al. (2016). Did ranchers and slaughterhouses respond to zero-deforestation agreements in the Brazilian Amazon? Conserv Lett. 2016;9:32–42.*

XXIX Barreto, P., Pereira, R., Brandão, A., Baima, S. (2017). Os frigoríficos vão ajudar a zerar o desmatamento da Amazônia? (p. 158). *Belém: Imazon.*

XXX Barreto P. and Silva D., 2013, Como desenvolver a economia rural sem desmatar a Amazônia? Belém: Imazon.

XXXI *Barreto et al. 2017. Op. Cit.*

© Fábio Nascimento / Greenpeace

© Greenpeace / John Novis

ZERO DEFORESTATION WORKING GROUP

GREENPEACE · imaflora · Imazon · ICV Instituto Centro de Vida · Instituto Socioambiental · IPAM Amazônia · The Nature Conservancy (Proteger a natureza é preservar a vida.) · WWF

SUPPORT

Climate and Land Use Alliance · Gordon and Betty Moore Foundation · Norad · Fundo Amazônia