Deforestation (lack of) control in the Brazilian Amazon: from strengthening to dismantling governmental authority (1999-2020)

(Falta de) controle do desmatamento na Amazônia brasileira: do fortalecimento ao desmantelamento da autoridade governamental (1999-2020)

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ARTICLE – VARIA

ABSTRACT

The deforestation control policies in the Brazilian Amazon have gone backwards in recent years. This article analyses the trajectory of these policies between 1999 and 2020, understanding how and why the State's regulatory capacity has evolved and recently been dismantled. This research is based on a qualitative approach, taking deforestation rates as a reference point and compiling the main forestry regulations at the national level in a timeline that covers the rise and fall of these policies. The conclusions show that between 1999 and 2012, the institutional trajectory followed a capacity-building pattern. However, this pattern went into reverse from 2013 onwards. The period from 2019 has witnessed a process of active dismantling, culminating in a new surge in deforestation and a notable reduction in forest policy density, which has resulted in significant land use changes that may cause irreversible damage to the rainforest and the ecological services it provides.

Keywords: Policy dismantling. Land use policies. Deforestation. Brazilian Amazon.

RESUMO

As políticas de controle do desmatamento na Amazônia brasileira têm recuado nos últimos anos. Este artigo analisa a trajetória dessas políticas entre 1999 e 2020, na busca por compreender como e porque a capacidade regulatória do Estado evoluiu e, recentemente, foi desmantelada. Esta pesquisa se baseia em uma abordagem qualitativa, utilizando as taxas de desmatamento como ponto de referência e compilando as principais regulamentações florestais em nível federal em uma linha do tempo que cobre a ascensão e a queda dessas políticas. As conclusões mostram que, entre 1999 e 2012, a trajetória institucional seguiu um padrão de desenvolvimento de capacidades. No entanto, esse padrão foi invertido a partir de 2013. A partir de 2019, está em curso um processo de desmantelamento ativo, marcado por uma nova onda de desmatamento e por uma notável redução na densidade das políticas florestais.

Palavras-chave: Desmantelamento de políticas. Políticas de uso da terra. Desmatamento. Amazônia brasileira.

1 INTRODUCTION

In democracies – an essential pillar of which is the alternation of power – some axes of public policies are expected to follow nonlinear paths. Thus, according to different political priorities, some regulation mechanisms manifest increases or decreases in their intensity or effectiveness. The case of environmental policies in Brazil is no exception: although the creation and implementation of such policies can be more intense at times, there are also moments of retreat. However, over the past few decades, there has been a clear overall trend towards strengthening governmental regulatory capacity (BURSZTYN; BURSZTYN, 2012). Added to this, it should be noted that there have been very intense setbacks in recent years, which may compromise the path towards evolution.

The process of institutionalising public policies and instruments for forest preservation and control of deforestation in the Brazilian Amazon must be understood within two broader frameworks: the restoration of democracy in Brazil during the 1980s and the emergence of environmental issues on national and international agendas. These milestones prove fundamental when explaining the incremental densification in Brazilian environmental policies.

The growing perception of a global environmental crisis gained traction from the United Nations Conference on Human Environment in 1972 and culminated in the diffusion of the notion of sustainable development in the 1980s (BRUNDTLAND, 1987). At the same time, a process of re-democratisation was underway in Brazil, the democratic regime being restored in 1985, following on from 21 years of military dictatorship. At this time, organised civil society started to mobilise around socio-environmental agendas (AVRITZER, 2017; FRIEDMAN; HOCHSTELLER, 2002; MITTERMEIER *et al.*, 2005), and a new federal constitution was approved in 1988 (FC/88), introducing a healthy environment as a fundamental right of citizenship.

Until the 1980s, the Brazilian environmental policy framework was relatively undeveloped and fragmented. Regulations such as the Forest Code (Law no 4,771/1965), the Water Code (Decree-Law no 7,841/1934) and the National Environment Policy (Law no 6,938/1981) were relatively marginalised within the State structure. The FC/88 brought about an important paradigm shift by transferring environmental law from the sphere of property rights to that of citizenship and collective rights.

The United Nations Conference on Environment and Development (Unced) was held in Rio de Janeiro in 1992, spawning multilateral protocols such as the Framework Convention on Biological Diversity (CBD) and the Framework Convention on Climate Change (UNFCCC). These frameworks boosted and provided parameters for internalising environmental issues within national and subnational frameworks.

A significant number of Brazilian national environmental policies became the responsibility of the Ministry of the Environment (ME), created in 1992. Within its structure, this Ministry incorporated the Brazilian Institute for the Environment and Renewable Resources (Ibama), responsible for enforcing federal regulations on deforestation.

A period of consolidation followed concerning environmental policies and instruments. The National Environment Fund (NEF) was created in 1996; the National Water Resources Policy was established in 1997 (Law no. 9,433/97); the Law of Environmental Crimes was enacted in 1998 (Law no. 9,605/1998); and in 2000, the National System of Conservation Units (known by the Brazilian acronym Snuc[1] Law no. 9,985/2000) was established.

The Amazon has always held a prominent position on the Brazilian environmental agenda. In addition to its socio-ecological value, recognised for hosting most of the Brazilian and a large part of the world's biodiversity, the Amazon Forest encompasses approximately 40% of the national territory and retains an essential cultural heritage in the form of diverse indigenous and local peoples. Furthermore, in the early 1990s, although it had a relatively high degree of integrity (primary forests covered 90% of the territory), it was under strong pressure from agricultural frontier expansion (TERRABRASILIS/INPE, 2020). Thus, protecting and conserving the Amazon has represented a sensitive and central topic in the process of institutionalising the environmental agenda in Brazil during the post-democratisation process and poses a political challenge that requires the integration of several sectoral policies. Therefore, understanding the evolution of forest policy in relation to the Amazon is also, to a certain extent, to understand the evolution of Brazilian environmental policy.

This article analyses the institutional trajectory of national policies and instruments on land use change, taking as a key indicator the rates of deforestation in the Amazon between 1999 and 2020, a period covering six presidential terms: the second term of Fernando Henrique Cardoso (1999-2002); Luís Inácio Lula da Silva's first (2003-2006) and second terms (2007-2010); Dilma Rousseff's first (2011-2014) and second (2014-2016) terms; and Michel Temer (2016-2018) and Jair Bolsonaro's (2019-2020) terms. The aim here is to understand how governmental changes in different presidential terms have influenced the State's regulatory capacity and to reflect on the trend of dismantling in recent years.

The article is divided into five sections, this Introduction comprising the first. The second section addresses the theoretical framework. The third presents the methodology. The fourth presents the results of the analysis of the annual deforestation rates and a timeline composed of the main institutional-change milestones while also discussing those data. The final considerations summarise the main research findings.

2 CAPACITY BUILDING, PATH DEPENDENCE AND POLICY DISMANTLING

To understand the process of institutional capacity building, it is essential to acknowledge the need to "respect the historicity inherent in socio-political structures" (SKOCPOL *et al.*, 1985, p. 28). North (1990, p. 99) perceived the concept of path dependence as "a way to narrow the choice set and link decision-making conceptually through time". Policies are strongly impacted by their past trajectory, which shapes their future (PIERSON, 2000). Limited by the broader context, change and transformation tend to be incremental, gradual and low in intensity.

Path dependence is formed by historical sequences in which certain events lead to institutional patterns or generate chains of actions and reactions that influence the trajectory of politics through institutional inertia (MAHONEY, 2000). The beginning of the trajectory is unpredictable, as there are several possible decision-making paths. However, once the decision is made, the path to be followed tends to be conditioned by the previously made decision (PIERSON, 2000).

The existence of complex normative frameworks, interrelation of diverse policies and interplay of forces between stakeholders in multiple arenas make sudden changes in public policies rare. Creating new policies that do not represent an evolution compatible with the previous institutional trajectory becomes challenging. It is also difficult to dismantle policies since lock-in mechanisms (MAHONEY, 2000) delimit not only the possible paths of change but also represent the high costs related to dismantling. Acting to dismantle a policy tends to generate strong reactions from the actors who support and benefit from the policy, that is, from its advocacy coalition (SABATIER; WEIBLE, 2007).

The idea of path dependence has been revised, emphasising some limitations. Among the criticisms is that path dependence only explains institutional stability and not the changes perceived by its defenders as exceptions to the rule (DOBROWOLSKY; SAINT-MARTIN, 2005; GREENER 2005; KAY, 2005).

After 2008, due to European austerity policies, cases of dismantling gained ground in academic debate (BAUER *et al.*, 2012). This occurred for two main reasons. Firstly, austerity led to dismantling policies it had taken decades to build and expand. In some cases, the dismantling process was intense, generating strong societal reactions (JORDAN *et al.*, 2013). In other cases, the process faced few and only mild adverse reactions (GÜRTLER *et al.*, 2019; SABOURIN *et al.*, 2020). Secondly, the post-crisis context was marked by the global rise of far-right populist groups with agendas explicitly committed to the destruction of certain policies, including those related to environmental sustainability and climate change (GÜRTLER *et al.*, 2019; HUBER *et al.*, 2020; KROLL; ZIPPERER, 2020; KULIN *et al.*, 2021; LEVITSKY; ZIBLATT, 2018; LOCKWOOD, 2018; MOUNK, 2018).

Bauer and Knill (2012, p. 6) defined the dismantling of public policies as:

> a change of a direct, indirect, hidden or symbolic nature that either diminishes the number of policies in a particular area, reduces the number of policy instruments used and/or lowers their intensity. It can involve changes to these core elements of policy and/or it can be achieved by manipulating the capacities to implement and supervise them.

Therefore, the focus is on the preferences of political actors, who put different dismantling strategies into practice that have different impacts on policies. This can lead to policy weakening and/or destruction (BAUER *et al.*, 2012). While path-dependence scholars tend to emphasise the institutional structure, the literature on dismantling places a greater focus on agency: politicians are seen as rational actors whose actions in relation to dismantling tend to be guided by a cost-benefit assessment, the aim being to maximise support among the electorate or specific interest groups (lobbies).

Politicians may either want to be directly related to dismantling, receiving "credit" for the destruction, or to avoid its political costs by keeping it hidden, transferring responsibility to other actors and government levels, or wrapping it up in appealing narratives such as efficiency. In most policies, including social ones, politicians tend to avoid exposing themselves as opponents and bear the associated costs. However, some actors may expect benefits from openly dismantling them in areas marked by strong ideological content, such as environmental policies (Table 1).

Table 1 | Dismantling environmental and social policies: main differences.

Dismantling features	Environmental policies	Social policies
Behaviour of politicians	They may prefer to be openly linked to the dismantling, receiving the "credit".	The tendency is to avoid the costs, adopting more "hidden" strategies.
Costs and benefits	Diffuse benefits for society and costs concentrated in specific sectors and social groups (generally well organised and endowed with economic power).	Benefits concentrated in certain social groups (target audience). Diffuse costs for society.

Behaviour of advocacy coalitions	More fluid coalitions; higher mobilisation and reaction costs. Reaction to dismantling tends to be lower.	Cohesive coalitions; lower costs for organisation and mobilisation. Reaction to dismantling tends to be greater.
Relative difficulty in dismantling	Easier dismantling.	Difficult dismantling.

Source: Authors' work, based on Bauer et al. (2012); Bauer and Knill (2012); Gürtler et al. (2019); Jordan et al. (2013) and Sabourin et al. (2020).

Dismantling strategies work in two ways: in terms of density and intensity (BAUER *et al.*, 2012; JORDAN *et al.*, 2013). A decrease in density means a reduction in the number of policies and/or regulations. Density reduction is the disappearance of one or more structures, instruments or functions relevant to the policy's orientation, implementation and/or supervision.

A reduction in intensity means a decrease in the level of advantages or restrictions of a given policy. In social policies, this can be the value of a social benefit or its target audience. In environmental policies, the intensity can, for example, be limits on atmospheric emissions or the percentage of the area destined for environmental preservation on rural properties. The reduction of resources allocated for implementation and impacts on the operational capacity of monitoring and evaluation are also part of the dimensions present in intensity-reduction dismantling.

3 METHODOLOGICAL PROCEDURES

The methodology adopted has a qualitative approach. In addition to the specialised literature, this article uses annual deforestation rates for the period 2000[2]-2020 provided by the National Institute for Space Research (Inpe). We present a timeline that shows the main decisions, policy interventions and key moments in the creation, modification and extinction of federal laws and ordinances; resolutions of the National Environment Council (Conama); and environmental management instruments that come under the responsibility of the ME and other FG agencies directly related to deforestation policies from 1999 to 2020.

We used official Brazilian government websites (executive, legislative and judicial branches) to identify the main institutional changes in the federal forest policy. Additionally, we reviewed newspaper reports and organised civil society publications to help to identify the directions of such changes.

These data are analysed from an institutionalist perspective (FIORETOS *et al.*, 2016), emphasising concepts such as policy dismantling (BAUER *et al.*, 2012; BAUER; KNILL, 2012; JORDAN *et al.*, 2013). Therefore, this article mainly focuses on dismantling by reducing institutional density. Primarily, this entails analysing the creation, transformation and extinction of regulations, policies and management instruments. However, as a complement to this, in describing institutional changes, we have emphasised some changes in policy intensity.

The FG's actions have been divided into categories (see Table 2): measures that implied an increase in institutional density (green marker); measures that led to dilution[3] of the institutional framework (red marker); and "ambiguous" measures that represent flexibilisation or a reduction in scope within the institutional framework that stopped short of actual elimination, or, alternatively, that simultaneously promoted an increase and a reduction in institutional density (orange marker).

The next step consisted of arranging the measures chronologically along a timeline with the deforestation data on the Brazilian Amazon between 2000 and 2020 (see Figure 1). After this step, we proceed to a qualitative analysis of the institutional changes' contexts. This qualitative analysis allows us to develop a typology of three distinct moments in the historical-political trajectory of federal forest policy: 1999-2012 (institutionalisation), 2013-2018 (soft dismantling) and 2019-2020 (severe dismantling).

It is worth noting that although the qualitative methodology used here does not allow for a causal analysis of measures and deforestation rates, it does provide a chronological alignment of how these policies evolved and deforestation data, which has, in turn, allowed us to pose hypotheses to be explored in future research.

4 RESULTS AND DISCUSSION

This section analyses the capacity building and dismantling of national policies and practices related to land use change and deforestation in the Brazilian Amazon. Figure 1 and table 2 show a predominance of measures to increase institutional density between 1999 and 2012. Then, there followed an "ambiguous" period in which, on the one hand, the institutional design of federal environmental policies remained relatively stable and, on the other, a reversal of the trend (2013-2018) was noted. Finally, 2019-2020 marked a severe and active dismantling of environmental policies, with an accumulation of measures directly and openly related to reducing institutional density.
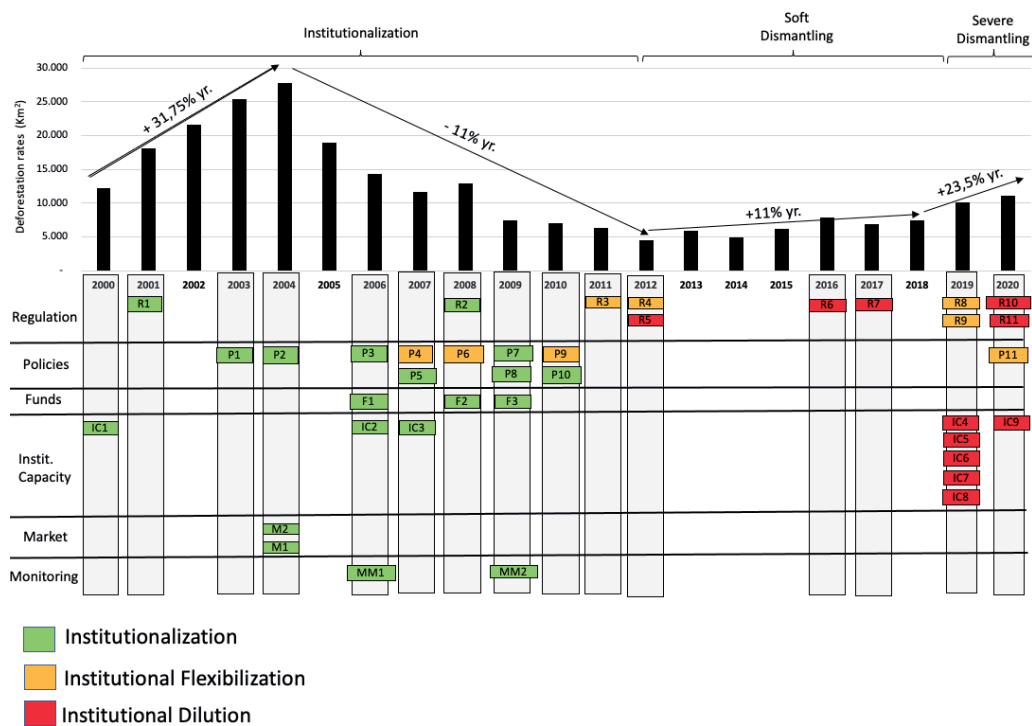

Figure 1 | Institutionalisation of the environmental agenda for the Amazon between 2000 and 2020 in relation to the evolution of deforestation rates.

Source: Authors' work; data from PRODES/INPE (2020).

Table 2 | Governmental measures, a brief description of their content and an assessment of their relevance in institutional density. Green: institutionalisation measure; Orange: soft dismantling measure; Red: severe dismantling measure. Type of Measure – IC: Institutional Capacity; R: Regulation; P: Policies; M: Market; F: Funds; MM: Monitoring

Measure		Impact
Snuc	IC1	Established the framework for the management of National Conservation Units in Brazil.
Forest Code adjustment	R1	Among other adjustments, it increased the obligatory preservation area on rural properties from 50% to 80% in the Amazon.
Arpa	P1	Created to support the expansion of Snuc.
PPCDAm	P2	Provided a framework to articulate and integrate information, institutions and actions in controlling deforestation.
Prodes incorporated in PPCDAm	M1	Provided annual data on the area deforested and deforestation rates.
Deter	M2	Provides real-time data on deforestation. In the PPCDAm, it is used as information for the short-term planning of surveillance operations.
National Forestry Development Fund	F1	Designed to promote sustainable forestry activities and technological innovation.
Transfer of the SFB to the ME	IC2	The SFB coordinates the concession and exploitation of national forests. Within the ME, the SFB became more integrated to combat and control deforestation.
General Law of Public Forests	P3	Established the legal framework and instruments for public forest sustainable management.
Soy Moratorium	MM1	Pact between civil society and soy production chain to ban the purchase of soy produced in illegally deforested areas.
Growth Acceleration Program (PAC)	P4	National infrastructure investment program. In the Amazon, it financed the construction of large hydroelectric dams and road developments that historically acted as deforestation drivers.
ICMBio	IC3	ME agency created to implement the Brazilian CUs policy.
List of priority municipalities for combating deforestation	P5	Planning instrument to focus combat and control mechanisms in a short list of municipalities covering the majority of deforested areas.
Regulatory change on sanctions that an environmental agent can undertake	R2	Allowed environmental inspectors to disable or destroy equipment used in illegal deforestation in hard-to-reach forest areas.
AF	F2	Finance sustainable actions in the Amazon rainforest.
PAS	P6	Established guidelines and proposed the drafting of sectorial plans for sustainable development in the Brazilian Amazon. Has had ambiguous impacts in considering the integration of environmental issues from a broader developmentalist paradigm.
PNMC	P7	Establishes political instruments and guidelines for climate adaptation and mitigation policies.
CF	F3	Supports projects to reduce greenhouse gas emissions and climate adaptation.
1st National Climate Change Plan	P8	Presented during COP 14 in Poland, among its goals was an ambitious reduction in Amazon deforestation rates.
Beef Industry Conduct Adjustment	MM2	Pact between producers, beef industry and the FG to block the sale of cattle meat from embargoed lands or from areas engaged in illegal environmental acts.
MacroZEE	P9	Planning instrument regulating land use in the Amazon.
1st sectoral mitigation plans	P10	Establishes guidelines and mitigation actions for different sectors. The PPCDAm was included in the national plan.
Law reformulating the cooperation framework among entities of the Brazilian federation	R3	Restricted the inspection powers of environmental agencies and created loopholes to disrespect the pact between the federal entities regarding the competencies of the environmental licensing of infrastructure projects, centralising competencies at the national level; potential negative consequences for deforestation.

Measure		Impact
FC-2012	R4	Eased environmental requirements and sanctions for illegal deforestation committed prior to July 2008. Also established the CAR and PRA as instruments for environmental conformity of rural properties.
Reduction of limits for 7 CUs	R5	Reduction of 86 thousand hectares of CU areas for implementing a hydroelectric dam and roads.
Part of a CU to move to a more flexible land use category	R6	A part of Jamanxim national forest was converted into an Environmental Protection Area (EPA), a less restricted CU type.
Part of a CU moved to a more flexible land use category	R7	Another part of Jamanxim national forest was converted into an EPA. This conversion was carried out to allow the construction of a section of railway.
Change in the administrative process for environmental fines	R8	The collection of fines imposed by the Ibama and ICMBio was suspended until a conciliation hearing. In practice, this measure limited the application of fines related to illegal deforestation.
Termination of the deadline for registering properties in the CAR	R9	Eliminated the pressure on producers to regularise their environmental situation, reinforcing the perception of tolerance and flexibility in the environmental legislation enforcement.
Transfer of SFB from the ME to the MAPA	IC4	The SFB is responsible for managing the CAR. The agriculture lobby had long demanded the transfer of the SFB from the ME to the MAPA.
SCCF	IC5	The SCCF and its Department of Forests and Combating Deforestation, responsible for the implementation of the PPCDAm, has been extinguished.
Elimination of the PPCDAm Executive Committee and Inter-ministerial Working Group	IC6	Even though the PPCDAm still formally exists, the SCCF and its Executive Committee's elimination was annulled.
Reformulation of the Conama	IC7	Changed the composition of the Council and the mechanisms for choosing the subnational governments and civil society representatives.
Elimination of the Foco	IC8	Paralysed the AF's work and led the main donors to cancel their contributions.
Exclusion of Civil Society from FNMA debates	IC9	The FNMA's Deliberative Council decides on project selection and allocations of the fund's resources.
Revocation of Conama Resolutions 302/2002 and 303/2002	R10	The changes in Resolution 302/2002 eliminated the obligation to delimit a 100m strip as a Permanent Protection area around artificial reservoirs in rural areas. Resolution 303/2002 regulated restricted deforestation in mangroves, sandbanks and dunes.
Deregulation of timber export control (NI-7)	R11	Ibama directly controlled the origin of timber before exportation. Deregulation suspended this power.
National Plan for the Control of Illegal Deforestation and Recovery of Native Vegetation (2020-2023)	P11	The Plan was a response from Bolsonaro's government to the PPCDAm, whose governance structure was dismantled. It was formulated without the participation of civil society and does not present goals, targets or actions. Furthermore, no information is available on the source of funds or the institutional coordination responsible for its implementation.

Source: Authors' work.

The following three subsections present a discussion based on the data collected. Each subsection addresses a specific period in the trajectory of federal environmental policies over the past 20 years.

4.1 1999-2012: INSTITUTIONALISATION AND CONSOLIDATION OF ENVIRONMENTAL POLICIES

The high rates of deforestation between 1999 and 2004 were related to two factors: an increase in international demand for commodities (soy and beef) and the devaluation of the Brazilian currency (ALBERNAZ, 2006; BARBER *et al.*, 2014; BARONA *et al.*, 2010; LAURANCE, 2007; LAURANCE *et al.*, 2011; MORTON *et al.*, 2006). Furthermore, transitions between governments with different political orientations, usually marked by uncertainty and the expectation of changes in administration, also contributed to deforestation (RODRIGUES FILHO *et al.*, 2015).

In the late 1990s and early 2000s, the aforementioned factors combined within a context of low institutional capacity for forest conservation and land use policy in the Brazilian Amazon, leading to an institutionalisation process marked by capacity building and institutional densification. A set of actions and measures related to the creation and implementation of public policies was identified for the period comprising 1999 to 2012[4]. These actions were characterised by an incremental advance and relatively constant institutional consolidation, resulting in a significant reduction in annual deforestation rates in subsequent years.

Figure 1 shows that early institutional development was focused on regulatory measures, mainly on creating and implementing policies, plans and programs. This process was associated with the mobilisation of civil society and its participation in policy-making and activism by civil servants in governmental institutions (ABERS; OLIVEIRA, 2015). Between 2003-2008, the ME was headed by Marina Silva, who had historically played a leadership role in the socio-environmental agenda. During her term, a high percentage of the ME's high-ranking positions were occupied by NGO activists involved with indigenous and local populations and forest conservation movements.

Concerning regulatory acts, the period after 1998 saw the emergence of acts aimed at combating and controlling deforestation. An important milestone in the early days of this policy was the enactment of the Environmental Crimes Law[5] Which established the legal provision that made deforestation a crime. In 2001, the Forest Code was modified, expanding the mandatory area for the preservation of native forests from 50% to 80% and the areas of the *Cerrado* (a savanna-type ecosystem) within rural properties in the Amazon territory from 20% to 30%[6]. These measures created a more restrictive environment for deforestation and established legal bases for surveillance to counter illegal activity.

In the field of conservation, scientific evidence points to the efficiency of protected areas – such as conservation units (CUs) and indigenous lands (ILs) – as barriers to the expansion of deforestation, particularly those located close to roads and large urban centres (PLAFF *et al.*, 2015). In 2000, the Snuc[7] established guidelines and instruments for the creation and management of protected areas in Brazil. Furthermore, the Amazon Protected Areas program (Arpa) was launched in 2003 to expand and strengthen the Snuc. Arpa provided resources and improved the management of protected areas (ARAÚJO, 2010). CUs have therefore undergone substantial expansion in the Amazon since 2006 (PNUC, 2020), representing an expression of the institutionalisation of protected area policies.

Another indicator of the increase in the institutional capacity building was the approval of the General Law of Public Forests in 2006[8], which (i) regulated the management and exploitation of public forests, (ii) transferred administration of the Brazilian Forest Service (SFB) to the ME, and (iii) created the National Fund for Forestry Development. This new legislation was particularly important, as over 600,000 km^2 of Amazon land was classified as public forest in 2006 (AZEVEDO-RAMOS *et al.*, 2016). In 2007, the Chico Mendes Institute for Biodiversity Conservation (ICMBio) was created to propose, implement, manage, protect, monitor and inspect CUs[9].

The escalation of deforestation rates and the still incipient regulation framework inspired the formulation of the Amazon Deforestation Prevention and Control Plan (PPCDAm), which was launched in 2004 (BRAZIL, 2004). Actions implemented under the PPCDAm received the support of the Amazon Deforestation Monitoring Program (Prodes), a system aiming at monitoring deforestation using satellite images and internationally acknowledged for its technical robustness (KINTISH, 2007; MARQUES, 2019). The Prodes, under the coordination of Inpe, produces data with good spatial resolution annually, providing key information for planning the PPCDAm.

However, efficient control also requires real-time data on deforestation rates, which can guide timely enforcement actions. Thus, at the request of the ME, in 2004, Inpe developed the System for Deforestation Detection in Real Time (Deter), which produces daily deforestation alerts and identifies pressure spots in the forest (MARQUES, 2019). The transparency of Prodes and Deter data is guaranteed

by the open access of its bases and methodologies (INPE, 2019). Since 2007, the FG has used these two systems to refine the focus of its action by establishing a list of priority municipalities for PPCDAm actions. The initial list, which included 39 municipalities, has been updated under deforestation rates.

Furthermore, new regulation adjustments have increased the command-and-control framework. A 2008 Federal Decree regulated the Environmental Crimes Law, expanding the scope of sanctions that environmental authorities can apply in cases of violations[10]. Among these, it is worth noting the possibility of destroying equipment used during the violation (such as tractors and trucks) when it is impossible to arrest the perpetrators.

Other mechanisms that do not fall within the scope of governmental policies are important in explaining institutional capacity building, such as the soy moratorium, declared in 2006, by means of which, under pressure from the national and international consumer market, the rural production chain blocked the purchase of soybeans from illegally deforested areas. The impact of the moratorium was immediate. Prior to its signing, 30% of soy planting in the Amazon was directly carried out in newly deforested areas, while this figure dropped to 1% afterwards (GIBBS *et al.*, 2015). The restrictions imposed by the moratorium were partially circumvented through fraud regarding the origins of illegal soy (which was sold as originating from legal areas) and associated with deforestation leakage to less protected areas, such as Cerrado areas or, indirectly, by displacing pasture towards the deforestation frontier (CARVALHO *et al.*, 2019).

The increase in institutional density resulting from the aforementioned actions, instruments and policies explains much of the consistent and significant drop in deforestation rates since 2005, framing land use change decisions by local actors (ARIMA *et al.*, 2014; CABRAL *et al.*, 2018; GIBBS, 2015; MAIA *et al.*, 2011; MELLO; ARTAXO, 2017). Even with the boost of a new cycle of the agricultural commodities market starting in 2006, forest-loss rates have remained relatively stable.

Some management instruments were enacted towards the end of 1999-2012. Among these, it is worth mentioning the creation of the Amazon Fund – AF[11], the resources for which played an important role in bringing the PPCDAm into operation. Furthermore, the Plan for a Sustainable Amazon (PAS) was launched in 2008, followed shortly afterwards by Amazon Ecological-Economic Macrozoning (MacroZEE), which was introduced in 2010. Both sought to reconcile forest protection and deforestation control with land use change actions as a result of pressures from the agricultural sector, in reaction to environmental policy enforcement.

This period also coincided with an impulse to institutionalise the climate agenda within the political and legal frameworks through the National Policy on Climate Change (PNMC)[12]. Brazilian foreign policy strategy was to present the country as a leader in global climate change governance. In order to legitimise such a goal, Brazil set an ambitious voluntary target to mitigate its emissions by reducing deforestation[13], its main source of greenhouse gas emissions (AMORIM, 2010; BRAZIL, 2010).

In summary, the period between 1999 and 2012 was characterised by a relatively constant institutional capacity-building framework. Several of these measures and regulations were interconnected, in line with the characteristics of path dependence. The FG's orientation was favourable to the consolidation of forest policies during the presidential terms of both FHC and Lula. At the same time, opposite advocacy coalitions were not very organised or active during this period.

4.2 2013-2018: INSTITUTIONAL STABILITY AND REVERSAL OF THE DENSIFICATION TREND

The process of institutional capacity building regarding the forest protection agenda has provoked resistance inside and outside the FG, with the strengthening of advocacy coalitions opposed to forest

policies. Among the signs of a resurgence in anti-deforestation-control lobbies was Marina Silva's departure from the ME in 2008 due to disagreements between Silva and other ministers (especially Dilma Rousseff, former Minister-Chief of Staff) during the PAS preparation process. Marina Silva had been in charge of the ME since the beginning of Lula's first term (2003-2006), and her agenda was beginning to clash with those of other government sectors pushing for a *developmentalist approach*[14].

The economic sectors involved in deforestation reacted strongly. On the one hand, they adapted to market pressures through pacts and environmental commitments such as the soy moratorium and the signing of the "Term of adjustment"[15] for meat companies (CARVALHO *et al.*, 2019). On the other hand, they organised among themselves politically to delay, soften or even reverse Brazil's institutional framework related to environmental protection.

During Dilma Rousseff's terms, the anti-environmental agenda in the National Congress was strengthened by an organised coalition – the farmers' parliamentary front. In 2010 this group managed to instigate a resumption of the debate on the Forest Code. President Rousseff was a former minister of energy and mining; she often held positions contrary to those of former minister Marina Silva and was sometimes seen as anti-environmental.

Along with the strengthening of the farmers' parliamentary front, in 2012, the ideological shift within the FG culminated in the approval of a new and milder instrument: the FC-2012[16], which had less institutional density than the previous forest code. The FC-2012 adopted a more lenient framework regarding the illegal deforestation crimes committed prior to 2008, promoting regulatory changes such as the establishment of more flexible criteria in defining permanent preservation areas (PPAs) and legal reserves (LRs) on rural properties. It also changed the articles that determined parameters for the restoration of environmental liabilities[17] (RORIZ *et al.*, 2017).

In addition, FC-2012 also introduced two important instruments related to forest management on rural properties: the Rural Environmental Registry (CAR) and the Environmental Regularization Program (PRA). The former was a georeferenced statement of the property's environmental status, identifying its assets and liabilities. If effectively implemented, the result generates an important land use database for monitoring changes in the Amazon, with a positive impact on environmental policy enforcement (SOARES FILHO *et al.*, 2014). The latter was a "Term of adjustment", in which farmers commit to restoring environmental liability when identified by the CAR.

Expectations regarding the role played by the CAR and PRA as instruments for controlling deforestation have been affected by their slow implementation process. Initially, the deadline for registration was set in 2014, but successive rescheduling followed, reinforcing the perception by local actors that legislation could always be manipulated (RORIZ *et al.*, 2017). Furthermore, adhesion to the CAR alone did not prevent illegal deforestation in many areas, nor did it guarantee that PRAs were carried out (AZEVEDO *et al.*, 2017; MOUTINHO *et al.*, 2016).

FC-2012 represented a milestone on the trajectory of policies to combat and control deforestation in the Amazon, which had previously been predominantly marked by capacity building and density increases. In contrast, the period following the FC-2012 saw the coexistence of measures that continued the institutionalisation of deforestation-control policies alongside actions, regulations and changes in the implementation of management instruments that made land use policies more flexible. This led to deforestation rates once more increasing from 2013 onwards (SOARES FILHO *et al.*, 2014).

In addition, this period also accelerated the institutionalisation and consolidation of the Brazilian climate agenda, which in many respects reinforced measures to control deforestation and protect the Amazon biome, especially in mitigation actions. One example was the Climate Fund (CF), a financial mechanism for mitigation and adaptation actions. Then there were other sectoral mitigation plans and the implementation of the Low Carbon Agriculture plan, which was aimed at forest protection, either

through the direct protection of forest areas or by indirectly reducing the pressure on new areas for the intensification of agriculture on the agricultural frontier (LA ROVERE *et al.*, 2013; TABOULCHANAS *et al.*, 2016).

4.3 2019-2020: ACTIVE DISMANTLING OF POLICIES TO COMBAT DEFORESTATION

Policies designed to combat and control deforestation encountered a major setback during Jair Bolsonaro's administration, which started in January 2019 (FERRANTE; FEARNSIDE, 2019; 2020). The trend towards reducing policy density identified in the previous period deepened during Bolsonaro's term. Figure 1 shows that this dismantling was aimed at regulatory aspects and institutional capacity to implement the previously created instruments.

The new political authorities responsible for implementing environmental policies no longer hide their alignment with the anti-environmental political lobby. Rather, they have sought to associate their image with the dismantling process, a typical characteristic of active dismantling (BAUER; KNILL, 2012).

In a highly ideological political environment, the FG has justified the extinction of and changes to instruments and policies as necessary for expanding national sovereignty, increasing individual freedoms and encouraging production and economic growth. Additionally, scientific denialism (BURSZTYN *et al.*, 2021) has served as an argument for dismantling the State's capacity and inaction (MCCONNELL; HART, 2019). For instance, the following have all been denied by the FG: the reality of deforestation and forest fires; evidence from satellite data (ARAÚJO; VIEIRA, 2019); scientists' warnings; and climate change evidence and prospects (COUTINHO *et al.*, 2020; PEREZ *et al.*, 2020; SANTOS *et al.*, 2020). In the meantime, international commitments have also been disregarded.

During the transition of government in 2018, the president-elect announced the possible elimination of the ME, generating national and international reactions. Finally, the ME was maintained but with fewer responsibilities. On the first day of government, the SFB was transferred from the ME to the Ministry of Agriculture, Livestock and Supply (Mapa)[18] Accentuating the "productive" bias of forest policies.

Following the decision to maintain the ME, Ricardo Salles[19] was appointed to head it, a lawyer with links to the agribusiness sectors most at conflict with environmental regulations. Minister Salles made it clear that he considered environmental issues in Brazil to be excessively regulated, which in turn generated losses for productive activities. In addition to defending the interests of beef and soy exporters to the detriment of environmental protection, Salles was also a spokesperson for groups historically at odds with actions implemented by the ME: loggers, illegal miners and invaders of indigenous lands (CAPELARI *et al.*, 2020).

At an inter-ministerial meeting held in April 2020, Salles said it was important to take advantage of the fact that public attention was focused on the Covid-19 pandemic to move forward with deregulation and the repeal of environmental standards. Vale *et al.* (2021) analysed measures to dismantle environmental policies beyond those related to forest policies and the Amazon biome during the pandemic. The authors have identified 57 legislative acts that have changed environmental policies since the beginning of the Bolsonaro government's term, almost half of these being drafted after the onset of the pandemic in Brazil in March 2020.

Soon after taking office, Salles eliminated the Secretariat for Climate Change and Forests, or SCCF, and the Department of Forests and Combating Deforestation, which was responsible for implementation of the PPCDAm[20]. As well as losing its leadership and coordination structures, the PPCDAm also lost its governance structure, with the extinction of its Executive Committee and the Permanent Inter-ministerial Working Group[21]. It was not until July 2020 that the FG presented the National Plan for the Control of Illegal Deforestation and Recovery of Native Vegetation (2020-2023), which includes

actions related to deforestation (BRAZIL, 2020). In contrast to the PPCDAm, this plan was created without the participation of civil society and consolidated in a document that did not stipulate either objectives, targets or actions. Moreover, no information is available regarding the source of funds or those responsible for their allocation.

With regard to illegal deforestation surveillance, the government's actions have been marked by measures to reduce intensity, such as cutting resources for inspection, replacing civil servants in management positions with appointees committed to anti-environmental lobbies, and issuing informal guidelines to loosen law enforcement. From the point of view of density, setbacks can also be found in relation to regulation. One such example is Normative Instruction n. 7 (NI-7), enacted by the president of Ibama in February 2020[22]. Based on the justification of "fewer civil servants" and "great procedural and supervisory demand", it was decided that Ibama would no longer be responsible for directly inspecting the shipment of timber cargo destined for exportation at national ports. In practice, the NI-7 represents a loosening of inspection, which benefits the international illegal timber trade. In addition, Decree 9,760/2019[23] suspended the collection of fines imposed by Ibama and ICMBio until a conciliation hearing was held, a measure that limited the application of fines related to illegal deforestation. Furthermore, the FG removed the deadline for registering properties in the CAR[24], eliminating the pressure on producers to regularise their situation.

Density reduction is also witnessed in the suspension of international transfers received by the AF. Since the beginning of Bolsonaro's term, the AF has not supported new projects, even with its available resources. After Minister Salles questioned the resource-management model and defended its reformulation, the financing countries – notably Norway and Germany – suspended their donations to the AF. The formal justification for this suspension was the rupture of the fund's governance structure, emphasising the elimination of the Fund's Orientation Committee – Foco.

The Foco was eliminated on April 11, 2019[25] by means of Decree No. 9,759, which dismantled the National Policy for Social Participation. This decree got rid of several federal councils and committees. Its initial scope had been to eliminate all councils, adopting the argument that only those which could prove their worth would be recreated in the future[26]. Bolsonaro's government also excluded civil society representation from the deliberative council of the National Environment Fund (FNMA)[27].

Other councils, such as Conama and the National Council for Water Resources (CNRH), provided for by law, were maintained. However, following the limitations enforced by Decree 9,759/2019, Bolsonaro's government used another strategy to weaken legally instituted councils: internal restructuring, characterised by attempts to implement government control, reducing member numbers and the co-option of civil society representatives. This strategy relies on changing the rules for how councils operate, such as reformulating their duties, composition and internal regulations (AVELINO *et al.*, 2020).

In the case of the CNRH, Decree no. 10,000/2019[28] reduced the representation of Brazilian states, water-user sectors and civil society organisations. In addition, this decree allows the FG to edit norms and resolutions *ad referendum*, without the need for a broad debate among the council's members.

The dismantling of Conama was crucial for forest policy. This council has been active as the main decision-making body of the National Environment System (Sisnama) since 1981. Its decisions and resolutions were central to Brazilian environmental policies, making technical and political elements compatible (FONSECA *et al.*, 2012).

In May 2019, the FG issued Decree no. 9,806[29], changing the composition of Conama and its operating rules. The number of Conama councillors was reduced to 23 from 96. FG representation, which was previously guaranteed for all ministries, now only has ministries linked to productive and economic activities. With regard to representatives from civil society, the number of councillors was reduced from 23 to four. In addition, the choice of civil society representatives, which previously involved an

election process, was changed to comprise a random draw. The decree also limited the mandate of civil society councillors to one year, with renewal prohibited.

These changes[30] reduced the importance, decision-making capacity and representativeness of Conama. Specifically, with regard to representation, the proportional weight of the FG increased, and that of civil society decreased. Furthermore, using a random draw to appoint civil society organisations disregards councillors' autonomy and representativeness. Furthermore, limiting the term of office to one year and vetoing renewal makes it difficult for the councillor to have enough time to manage the internal rules of a participatory space known for its highly technical content.

The consequences of the changes at Conama were immediate, as was the revocation of four resolutions in different areas of environmental policy in September 2020. Two of them directly impacted forest policies: Resolutions 302 and 303, which had been in force since 2002. The former demarcated an area of permanent preservation, a 30-meter strip around artificial reservoirs in urban areas, extended to 100 meters in rural areas. The latter regulated articles of the forest code that restricted deforestation in mangroves, sandbanks and dunes. The outcome of this regulation could result in a significant increase in aquaculture, notably shrimp farming, in sandbank areas along a strip of water 300 meters from the beach[31].

5 FINAL CONSIDERATIONS

Governments in democratic societies face two paths: to act or not to act. While acting can mean strengthening intervention mechanisms, it can also take the form of the organised dismantling of these mechanisms. The recent Brazilian political landscape, which has undergone many notable shifts, constitutes a laboratory for the study of decision-making.

This article explores the construction and dismantling of the institutional capacity to control and combat deforestation in the Brazilian Amazon. We have qualitatively analysed the capacity-building and dismantling processes, comparing the results with effective deforestation rates. The data reveal that, in terms of environmental policies, the first two decades of this century displayed a first period characterised by institutional capacity building and then a tendency towards active dismantling.

There was a predominance of capacity building and institutional densification between 2000 and 2012. During this period, the environmental institutional framework expanded, and the number of policy instruments increased significantly, taking advantage of a favourable context: a global trend in pro-environmental protection and the participation of grassroots organisations and socio-environmental movements in government structure and policy. Consequently, environmental policy enforcement was promoted, enabling progressive control over land use changes historically associated with deforestation and a reduction in and relative control of deforestation rates.

The period between 2013 and 2018 can be characterised as ambiguous: on the one hand, the tendency towards densification was maintained; while on the other, some measures reducing institutional density were adopted. The ambiguity identified is related to the organisation and capillarity of agribusiness coalitions and their links with government institutions. In addition, the flexibility of certain rules changed the structure of incentives and the forms of relationship between the State and civil society, diluting the effectiveness of policies. This represented the beginning of a dismantling process. In the final years of this period, it is possible to note the impact of the above on deforestation rates, which rose once more.

The first two years (2019-2020) under Bolsonaro's denialist government have been testimony to a surprising process of institutional deconstruction. The FG is now transforming national environmental policy from a fundamentally different perspective than the one that guided its trajectory in previous

years. The architecture of the command-and-control model itself has been called into question, illustrated by changes in the levels of environmental protection, the extinction of policies, and the exclusion of civil society from the decision-making process.

The soft dismantling during Dilma Roussef's term and the severe dismantling during Bolsonaro's term show that the FG's ideological orientation and the role of advocacy coalitions are fundamental in explaining both capacity building and the dismantling of forest policies in the Brazilian Amazon. As witnessed in deforestation rates for 2019 and 2020, this article has identified an apparent convergence between less command and control and increased deforestation.

The shortest way to undermine environmental protection is to give little importance to the problems by limiting the action of the responsible bodies and reducing budgets or personnel, defined in the literature as a reduction in institutional intensity. However, as highlighted in this article, what is happening in Brazil is much more complex: an active dismantling in which institutional density is significantly reduced. It has impacts not only on enforcement on the ground. It also has a symbolic impact on local actors' discourses and narratives, the way they think, consider risks and benefits, take decisions, and support and manifest behaviours that were not socially accepted a few years ago regarding the environment.

The dismantling of institutional capacity is disturbing in at least two ways. On the one hand, as with civil engineering – which shows that a structure's construction is slower than its implosion – demolishing institutional capacity is easier than building it. On the other hand, regarding the environment and, in particular, rainforest ecosystems, the damage goes far beyond institutional dismantling. Many land use changes are irreversible. Even those areas left for regeneration will take decades to return to pre-deforestation ecological status or may never return to the same biodiversity and ecosystem services. When it comes to the resilience of forests, it is not simply a matter of time before they return to sustainable conditions, and impacts affect the long-term dynamics of the planet. Thus, there is a mismatch between institutional resilience and environmental resilience. Even if the combat and control of Amazon deforestation returned to the path initiated in the early 1990s, a large part of the environmental impact generated by dismantling would be permanent.

The results presented here make it possible to suggest new questions that might inspire further studies. This article focused mainly on institutional density. The data considered in the analysis led to immediate and structural changes, such as laws, decrees and formal regulations. However, changes in institutional intensity are also relevant in explaining dismantling. Actions or inactions that lead to a scarcity of resources, reduction of personnel, changes in the direction and patterns of implementation, and the parameters for guiding policies, as well as symbolic aspects, affect the rise and fall of public policies.

NOTES

1| This paper's acronyms referring to Brazilian institutions will follow the Portuguese standard.

2| The data published by Inpe in 2000 refers to deforestation actions effectively carried out in the previous year (1999).

3| We use the term dilution to express closing FG institutions and/or the revocation of policies or regulations.

4| This comprises FHC's second term, Lula's two terms and the first two years of Dilma Rousseff's first term.

5| Law n° 9.605, February 12th, 1998. Available at: http://www.planalto.gov.br/ccivil_03/LEIS/L9605.htm. Accessed on: 11/02/2021.

6| Provisional Measure n° 2.166-67, August 24th, 2001. Available at: http://www.planalto.gov.br/ccivil_03/mpv/2166-67.htm. Accessed on: 11/02/2021.

7| Available at: http://www.planalto.gov.br/ccivil_03/LEIS/L9985.htm. Accessed on: 11/02/2021.

8| Law n° 11.284, March 2nd, 2006. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2004-2006/2006/Lei/L11284.htm. Accessed on: 11/02/2021.

9| Law n° 11.516, August 28th, 2007. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2007/Lei/L11516.htm. Accessed on: 11/02/2021.

10| Decree n° 6514, July 22nd, 2008. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2008/Decreto/D6514.htm. Accessed on: 11/02/2021.

11| Decree n° 6.527, August 1st, 2008. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2008/Decreto/D6527.htm. Accessed on: 11/02/2021.

12| Law n° 12.187, December 29th, 2009. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2009/Lei/L12187.htm. Accessed on: 11/02/2021.

13| The Brazilian target of reducing between 36,1% and 38,9% of its greenhouse gas emissions by 2020 was presented during the COP 15, in Copenhagen, in 2009.

14| Developmentalist refers to an approach that values economic development over environmental sustainability.

15| The Term of adjustment is a legal instrument that establishes obligations and conditions for repairing environmental damage or changing courses of action by landowners or private corporations.

16| Law n° 12.651, May 25th, 2012. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2011-2014/2012/Lei/L12651.htm. Accessed on: 11/02/2021.

17| Environmental liabilities mean the portion of the rural property that was irregularly deforested or deviating from its expected land use.

18| Provisional Measure n° 870, January 1st, 2019; later became the Law n° 13.844, June 18th, 2019. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2019-2022/2019/Mpv/mpv870.htm. Accessed on: 11/02/2021.

19| In June 2021, Salles resigned from the ME after being investigated by the Brazilian Supreme Court (STF) for involvement in the illegal timber trade. The new Minister is Joaquim Leite, Salles' former secretary for the Amazon. Leite was an advisor to the Brazilian Rural Society (SRB) for two decades and is a member of the same anti-environmental advocacy coalitions as Salles.

20| Decree n° 9.672, January 2nd 2019. Available at: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/decreto/D9672.htm. Accessed on: 11/02/2021.

21| Decree n° 9.922, July 3rd 2003. Available at: http://www.planalto.gov.br/ccivil_03/DNN/2003/Dnn9922.htm. Accessed on: 11/02/2021.

22| Normative Instruction n° 7, February 21st 2020. Available at: http://www.ibama.gov.br/component/legislacao/?view=legislacao&legislacao=138707. Accessed on: 11/02/2021.

23| Decree n° 9.760, April 11th 2019. Available at: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/Decreto/D9760.htm. Accessed on: 11/02/2021.

24| Law n° 13.887, October 17th, 2019. Available at: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/Lei/L13887.htm. Accessed on: 11/02/2021.

25| Decree n° 9.759, April 11th 2019. Available at: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/decreto/D9759.htm. Accessed on: 11/02/2021.

26| The STF decided to limit the scope of Decree 9.759/2019. The STF's decision pointed out that the presidential decree could not eliminate councils whose existence was stipulated by law.

27| Decree n° 10.224, February 5th 2020. Available at: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2020/decreto/D10224.htm. Accessed on: 11/02/2021.

28| Decree n° 10.000, September 3rd, 2019. Available at: http://www.planalto.gov.br/ccivil_03/_Ato2019-2022/2019/Decreto/D10000.htm. Accessed on: 11/02/2021.

29| Decree n° 9.806, May 28th, 2019. Available at: http://www.planalto.gov.br/ccivil_03/_ato2019-2022/2019/decreto/D9806.htm. Accessed on: 11/02/2021.

30| Internal Regulation of the National Environment Council. Available at: http://www2.mma.gov.br/port/conama/processos/503DCE74/RI_VLimpa61aRE.pdf. Accessed on: 11/02/2021.

31| Changes to Resolutions 302 and 303 were suspended by the STF at the time this article was being completed.

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REFERENCES

ABERS, R.; OLIVEIRA, M. Nomeações políticas no Ministério do Meio Ambiente (2003-2013): interconexões entre ONGs, partidos e governos. **Opinião Pública**, v. 21, n. 2, p. 336-364, 2015. DOI: https://doi.org/10.1590/1807-01912015212336

ALBERNAZ, A.; SOARES FILHO, B.; NELSON, B. **Estratégias de Conservação para o Programa Arpa**. Internal Report. Ibama, Brasília, 2006.

AMORIM, C. Brazilian foreign policy under President Lula (2003-2010): an overview. **Revista Brasileira de Política Internacional**, 53, p. 214-240, 2010. DOI: https://doi.org/10.1590/S0034-73292010000300013

ARAÚJO, M. **Avaliação da Implementação do Programa Arpa entre os anos de 2003 e 1º quadrimestre de 2010**. Funbio, Brasília. 2010. Available at: http://arpa.mma.gov.br/wp-content/uploads/2014/08/avaliacao-fase-um1.pdf. Accessed on: 14 February 2021.

ARAÚJO, R.; VIEIRA, I. C. Deforestation and the ideologies of the frontier expansion: the case of criticism of the Brazilian Amazon monitoring program. **Sustainability in Debate**, v. 10, n. 3, p. 354–378, 2019. DOI: https://doi.org/10.18472/SustDeb.v10n3.2019.27258

ARIMA, E. *et al.* Public policies can reduce tropical deforestation: lessons and challenges from Brazil. **Land Use Policy**, v. 41, p. 465-473, 2014. DOI: https://doi.org/10.1016/j.landusepol.2014.06.026

AVELINO, D.; FONSECA, I.; POMPEU, J. (ed.) **Conselhos Nacionais de Direitos Humanos:** uma análise da agenda política. 260p. Ipea, Brasília, 2020.

AVRITZER, L. Civil Society in Brazil. *In*: ALVAREZ, S. *et al.* (ed.) **Beyond Civil Society.** Duke University Press, 2017. DOI: https://doi.org/10.1215/9780822373353

AZEVEDO, A. *et al.* Limits of Brazil's Forest Code as a means to end illegal deforestation. **Proceedings of the National Academy of Sciences**, v. 114, n. 29, p. 7653-7658, 2017. .ç10.1073/pnas.1604768114

AZEVEDO-RAMOS, C. *et al.* **Florestas públicas na Amazônia:** designar para desenvolver e conservar. Ipam, Belém. 2016. Available at: https://ipam.org.br/wp-content/uploads/2016/10/Policy-brief-florestas-pu%CC%81blicas.pdf. Accessed on: 14 February 2021.

BARBER, C. *et al.* Roads, deforestation, and the mitigating effect of protected areas in the Amazon. **Biological Conservation**, v. 177, p. 203-209, 2014. DOI: https://doi.org/10.1016/j.biocon.2014.07.004

BARONA, E. *et al.* The role of pasture and soybean in deforestation of the Brazilian Amazon. **Environmental Research Letters**, v. 5, n. 2, p. 1–9, 2010. DOI: https://doi.org/10.1088/1748-9326/5/2/024002

BAUER, M.; KNILL, C. Understanding policy dismantling: an analytical framework. *In*: BAUER, M. (ed.) **Dismantling public policy:** preferences, strategies, and effects. OUP, Oxford, p. 30-56, 2012.

BAUER, M. *et al.* (ed.). **Dismantling public policy:** preferences, strategies, and effects. OUP, Oxford, 2012.

BRAZIL. Ministério do Meio Ambiente. **Plano de Ação para a Prevenção e Controle do Desmatamento na Amazônia Legal.** Brasília, Ministério do Meio Ambiente. 2004. Available at: http://greenpeace.org.br/amazonia/pdf/govfed_desmatamento_2004-03.pdf. Accessed on: 11/02/2021.

BRAZIL. Ministério da Ciência e Tecnologia. **Segunda Comunicação Nacional do Brasil à Convenção-Quadro das Nações Unidas sobre Mudança do Clima**. Brasília: Ministério da Ciência e Tecnologia. 2010. Available at: https://cetesb.sp.gov.br/inventario-gee-sp/wp-content/uploads/sites/34/2010/10/2comunicacao_nacional_v2.pdf. Accessed on: 11/02/2021.

BRAZIL. Ministério do Meio Ambiente. **Plano Nacional para Controle do Desmatamento Ilegal e Recuperação da Vegetação Nativa (2020-2023)**. Brasília, Ministério do Meio Ambiente. 2020. Available at: https://www.socioambiental.org/sites/blog.socioambiental.org/files/nsa/arquivos/plano_controle_desmatamento_ilegal_mma_2020.pdf. Accessed on: 14 February 2021.

BRUNDTLAND, G. **Report of the World Commission on Environment and Development:** our common future. United Nations General Assembly document A/42/427, 1987.

BURSZTYN, M.; BURSZTYN, M. A. **Fundamentos de política e gestão ambiental:** caminhos para a sustentabilidade. Garamond, Rio de Janeiro, 2012, 612p.

BURSZTYN, M. *et al.* The role of science in the Age of Denial and in times of pandemic: sustainability at the heart of the debate. **Sustainability in Debate**, v. 11, n. 3, p. 8–13, 2021. DOI: https://doi.org/10.18472/SustDeb.v11n3.2020.35623

CABRAL, A. *et al.* Deforestation pattern dynamics in protected areas of the Brazilian Legal Amazon using remote sensing data. **Applied Geography**, v. 100, p. 101-115. 2018. DOI: https://doi.org/10.1016/j.apgeog.2018.10.003

CAPELARI, M. *et al.* Large-Scale Environmental Policy Change: analysis of the Brazilian reality. **RAP** – **Revista Brasileira de Administração Pública**, v. 54, p. 1691-1710, 2020. DOI: https://doi.org/10.1590/0034-761220190445

CARVALHO, W. *et al.* Deforestation control in the Brazilian Amazon: a conservation struggle being lost as agréments and regulations are subverted and bypassed. **Perspectives in Ecology and Conservation**, v. 17, n. 3, p. 122-130, 2019. DOI: https://doi.org/10.1016/j.pecon.2019.06.002

COUTINHO, S. M. *et al.* The Nexus+ approach applied to studies of Impacts, vulnerability and adaptation to climate change in Brazil. **Sustainability in Debate**, v. 11, n. 3, p. 24–56, 2020. DOI: https://doi.org/10.18472/SustDeb.v11n3.2020.33514

DOBROWOLSKY, A.; SAINT-MARTIN, D. Agency, actors and change in a child-focused future: 'Path dependency' problematised. **Commonwealth & Comparative Politics**, v. 43, n. 1, p. 1-33, 2005. DOI: https://doi.org/10.1080/14662040500054198

FERRANTE, L.; FEARNSIDE, P. Brazil's new president and 'ruralists' threaten Amazonia's environment, traditional peoples and the global climate. **Environ. Conserv.**, v. 46, p. 261, 2019. DOI: https://doi.org/10.1017/S0376892919000213.

FERRANTE, L.; FEARNSIDE, P. Brazil threatens indigenous lands. **Science**, v. 369, p. 481–482, 2020. DOI: https://doi.org/10.1126/science.abb6327

FIORETOS, O.; FALLETI, T.; SHEINGATE, A. Historical institutionalism in political science. *In*: FIORETOS, O.; FALLETI, T.; SHEINGATE, A. (ed.) **The Oxford handbook of historical institutionalism.** OUP, Oxford, p. 3-28, 2016.

FONSECA, I.; BURSZTYN, M.; MOURA, A. Conhecimentos técnicos, políticas públicas e participação: o caso do Conselho Nacional do Meio Ambiente. **Revista de Sociologia e Política**, v. 20, n. 42, p. 183–198, 2012. DOI: https://doi.org/10.1590/S0104-44782012000200013

FRIEDMAN, E.; HOCHSTETLER, K. Assessing the third transition in Latin American democratisation: representational regimes and civil society in Argentina and Brazil. **Comparative Politics**. v. 35, n. 1 p. 21-42, 2002. DOI: https://doi.org/10.2307/4146926

GIBBS, H. *et al.* Brazil's Soy Moratorium. **Science**, v. 347, n. 6220, p. 377-378, 2015. DOI: https://doi.org/10.1126/science.aaa0181

GREENER, I. The potential of path dependence in political studies. **Politics**, v. 25, n. 1, p. 62-72, 2005. DOI: https://doi.org/10.1111/j.1467-9256.2005.00230.x

GÜRTLER, K.; POSTPISCHIL, R.; QUITZOW, R. The dismantling of renewable energy policies: the cases of Spain and the Czech Republic. **Energy Policy**, v. 133, p. 1-11, 2019. DOI: https://doi.org/10.1016/j.enpol.2019.110881

HUBER, R.; FESENFELD, L.; BERNAUER, T. Political populism, responsiveness, and public support for climate mitigation. **Climate Policy**, v. 20, n. 3, p. 373-386, 2020. DOI: https://doi.org/10.1080/14693062.2020.1736490

INPE. Instituto Nacional de Pesquisas Espaciais. **Metodologia usada nos projetos Prodes e Deter.** Inpe, Brasília, 2019, 33p. Available at: http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes/pdfs/Metodologia_ Prodes_Deter_revisada.pdf. Accessed on: 14 February 2021.

JORDAN, A.; BAUER, M.; GREEN-PEDERSEN, C. Policy Dismantling. **Journal of European Public Policy**, v. 20, n. 5, p. 795-805, 2013. DOI: https://doi.org/10.1080/13501763.2013.771092

KAY, A. A critique of the use of path dependency in policy studies. **Public Administration**, v. 83, n. 3, p. 553-571, 2005. DOI: https://doi.org/10.1111/j.0033-3298.2005.00462.x

KINTISCH, E. Improved Monitoring of Rainforests Helps Pierce Haze of Deforestation. **Science**, v. 316, n. 5824, p. 536-537, 2007. DOI: https://doi.org/10.1126/science.316.5824.536

KROLL, C.; ZIPPERER, V. Sustainable Development and Populism. **Ecological Economics**, v. 176, p. 106723, 2020. DOI: https://doi.org/10.1016/j.ecolecon.2020.106723

KULIN, J.; SEVÄ, I.; DUNLAP, R. Nationalist ideology, rightwing populism, and public views about climate change in Europe. **Environmental Politics**, p. 1-24, 2021. DOI: https://doi.org/10.1080/09644016.2021.1898879

LA ROVERE, E. *et al.* **Climate and Development**, v. 6, n. sup1, p. 25-33, 2014. DOI: https://doi.org/10.1080/1756 5529.2013.812952

LAURANCE, W. *et al.* Deforestation in Amazonia. **Science**, v. 304, p. 1109, 2011.

LAURANCE, W. Switch to corn promotes Amazon deforestation. **Science**, v. 318, n. 5857, p. 1721, 2007. DOI: https://doi.org/10.1126/science.318.5857.1721b

LEVITSKY, S.; ZIBLATT, D. **How Democracies Die**. Crown, New York, 2018, 167p. DOI: https://doi.org/10.1080/02 589346.2020.1769280

LOCKWOOD, M. Right-wing populism and the climate change agenda: exploring the linkages. **Environmental Politics**, v. 27, n. 4, p. 712-732, 2018. DOI: https://doi.org/10.1080/09644016.2018.1458411

MAHONEY, J. Path Dependence in Historical Sociology. **Theory and society**, v. 29, n. 4, p. 507-548, 2000.

MAIA, H. *et al.* **Avaliação do Plano de Ação para Prevenção e Controle do Desmatamento na Amazônia Legal (2007-2010)**. Brasília: Cepal/Ipea/GIZ, 2011, 54p.

MARQUES, F. Desmatamento na Encruzilhada. **Revista Pesquisa Fapesp**, v. 283. p. 33-35, 2019.

MCCONNELL, A.; HART, P. Inaction and public policy: understanding why policymakers 'do nothing'. **Policy Sciences**, v. 52, n. 4, p. 645-661, 2019.

MELLO, N.; ARTAXO, P. Evolução do Plano de Ação para Prevenção e Controle do Desmatamento na Amazônia Legal. **Revista do Instituto de Estudos Brasileiros**, n. 66, p. 108-129, 2017. DOI: https://doi.org/10.11606/ issn.2316-901x.v0i66p108-129

MITTERMEIER, R. *et al.* A Brief History of Biodiversity Conservation in Brazil. **Conservation Biology**, v. 19, n. 3, p. 601-607, 2005. DOI: https://doi.org/10.1111/j.1523-1739.2005.00709.x

MORTON, D. *et al.* Cropland expansion changes deforestation dynamics in the southern Brazilian Amazon. **Proceedings of the National Academy of Sciences**, v.103, n. 39, p. 14637-14641, 2006. DOI: https://doi.org/10.1073/pnas.0606377103

MOUNK, Y. **The people vs. democracy:** why our freedom is in danger and how to save it. Harvard University Press, Cambridge, MA and London, 2018, 400 p. DOI: https://doi.org/10.1111/1468-2230.12397

MOUTINHO, P. *et al.* Achieving zero deforestation in the Brazilian Amazon: what is missing? **Elementa: Science of the Anthropocene**, v. 4, 2016. DOI: https://doi.org/10.12952/journal.elementa.000125

NORTH, D. **Institutions, Institutional Change and Economic Performance.** Cambridge, Cambridge University Press, 1990. DOI: https://doi.org/10.1017/CBO9780511808678

PEREZ, L. P. *et al.* Climate change and disasters: analysis of the Brazilian regional inequality. **Sustainability in Debate**, v. 11, n. 3, p. 260–296, 2020. DOI: https://doi.org/10.18472/SustDeb.v11n3.2020.33813

PIERSON, P. Increasing returns, path dependence, and the study of politics. **American political science review**, v. 94, n. 2, p. 251-267, 2000. DOI: https://doi.org/10.2307/2586011

PLAFF, A. *et al.* Protected areas' impacts on Brazilian Amazon deforestation: examining conservation–development interactions to inform planning. **PloS One**, v. 10, n. 7, p. e0129460, 2015. DOI: https://doi.org/10.1371/journal.pone.0129460

PNUC. Painel Unidades de Conservação Brasileiras. Departamento de Áreas Protegidas. Ministério do Meio Ambiente. 2020. Available at: https://app.powerbi.com/view?r=eyJrIjoiMjUxMTU0NWMtODkyNC00NzNiLWJiNTQtNGI3NTI2NjliZDkzIiwidCI6IjM5NTdhMzY3LTZkMzgtNGMxZi1hNGJhLTMzZThmM2M1NTBlNyJ9. Accessed on: 14th February 2021.

PRODES/INPE. **Monitoramento do Desmatamento da Floresta Amazônica Brasileira por Satélite.** 2020. Available at: http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes. Accessed on: 14th Februrary 2021.

RODRIGUES FILHO, S. *et al.* Election-driven weakening of deforestation control in the Brazilian Amazon. **Land Use Policy**, v. 43, p. 111-118, 2015. DOI: https://doi.org/10.1016/j.landusepol.2014.11.002

RORIZ, P.; YANAI, A.; FEARNSIDE, P. Deforestation and Carbon Loss in Southwest Amazonia: impact of Brazil's Revised Forest Code. **Environmental Management**, n. 60, p. 367–382, 2017. DOI: https://doi.org/10.1007/s00267-017-0879-3

SABATIER, P.; WEIBLE, C. The advocacy coalition framework: innovations and clarifications. *In*: SABATIER, P. (ed.) **Theories of the Policy Process**. Westview Press, New York, p. 189–220, 2007. DOI: https://doi.org/10.4324/9780367274689

SABOURIN, E.; CRAVIOTTI, C.; MILHORANCE, C. The dismantling of family farming policies in Brazil and Argentina. **International Review of Public Policy**, v. 2, n. 2, p. 45-67, 2020. DOI: https://doi.org/10.4000/irpp.799

SANTOS, D. J. *et al.* Future rainfall and temperature changes in Brazil under global warming levels of 1.5ºC, 2ºC and 4ºC. **Sustainability in Debate**, v. 11, n. 3, p. 57–90, 2020. DOI: https://doi.org/10.18472/SustDeb.v11n3.2020.33933

SKOCPOL, T.; EVANS, P.; RUESCHEMEYER, D. **Bringing the state back in.** Cambridge University Press, New York, 1985, 390p. DOI: https://doi.org/10.1017/CBO9780511628283

SOARES FILHO, B. *et al.* Cracking Brazil's Forest Code. **Science**, v. 344, n. 6182, p. 363-364, 2014. DOI: https://doi.org/10.1126/science.1246663

TABOULCHANAS, K. *et al.* **Avaliação do Fundo Clima.** Cepal/Giz/Ipea, Brasília, 2016. Available at: https://www.ipea.gov.br/portal/images/stories/PDFs/livros/livros/170126_livro_s1601337_pt.pdf. Accessed on: 14 February 2021.

TERRABRASILIS/INPE. **Plataforma de Dados Geográficos**, 2020. Available at: http://terrabrasilis.dpi.inpe.br. Accessed on: 14 February 2021.

VALE, M. *et al.* Covid-19 pandemic as an opportunity to weaken environmental protection in Brazil. **Biological Conservation**, v. 255, 108994, 2021. DOI: https://doi.org/10.1016/j.biocon.2021.10899