



**TAPUYA** LATIN AMERICAN SCIENCE,  
TECHNOLOGY AND SOCIETY

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To cite this article: Raoni Rajão, Ely Bergo de Carvalho & Frank Merry (2020) Appropriations, conflicts and subversions: the social construction of the Brazilian Forest Code, Tapuya: Latin American Science, Technology and Society, 3:1, 43-62, DOI: [10.1080/25729861.2020.1756632](https://doi.org/10.1080/25729861.2020.1756632)

To link to this article: <https://doi.org/10.1080/25729861.2020.1756632>



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Published online: 24 Jun 2020.



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## Appropriations, conflicts and subversions: the social construction of the Brazilian Forest Code

Raoni Rajão <sup>a</sup>, Ely Bergo de Carvalho <sup>b</sup> and Frank Merry<sup>c\*</sup>

<sup>a</sup>Department of Production Engineering, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil;

<sup>b</sup>Department of History, Universidade Federal de Minas Gerais, Belo Horizonte, Brazil; <sup>c</sup>Conservation Strategy Fund, Washington, DC, USA

### ABSTRACT

It is often said that Brazil has some of the most advanced forest laws in the world, but this strong legislation has been rarely translated into effective environmental governance. To understand the challenges of implementing environmental policies in Brazil and elsewhere, this study conceptualizes the Forest Code as a socially constructed technology, the effects of which emerge from its specific uses. We find that, in contrast to the prevailing view of this law as having no effects in practice, it produced multiple and contradictory impacts due to its appropriation by different social groups. For the technocrats, the law was a partial success as it represented progress towards science-based territorial planning. For the Rural elite the Forest Code was used as way to block access of poor settlers to fertile public areas to preserve future elite agricultural expansion. Finally, settlers viewed the Code as a way to obtain official clearing authorizations used to substantiate future titling claims. From this examination, the article argues that the prevailing economic and legalist perspectives on the effectiveness of environmental policies need to be complemented by sociological perspectives in order to account for the non-deterministic character of scientific perspectives, laws and the social dynamics behind the multiple appropriations of state apparatuses. By understanding how laws, as technologies, are interpreted and appropriated by different social actors we will be able to contribute by proposing legal apparatuses that are more appropriate for the local context in which they are supposed to function.

### Apropriações, conflitos e subversões do Código Florestal Brasileiro

Costuma-se dizer que o Brasil possui algumas das leis florestais mais avançadas do mundo, mas essa forte legislação raramente se traduz em uma governança ambiental eficaz. Para entender os desafios na implementação de políticas ambientais no Brasil e em outros

### KEYWORDS


Socio-environmental conflicts; Brazil; Forest Code; social construction of technology; law as technology

### PALAVRAS-CHAVE

Conflitos socio-ambientais; Brasil; Código Florestal; construção social da tecnologia; lei como tecnologia

### PALABRAS CLAVE

Conflictos socio-ambientales; Brasil; Código Forestal; construcción social de la tecnología; ley como tecnología

**CONTACT** Raoni Rajão  [rajao@ufmg.br](mailto:rajao@ufmg.br), [raoniguerra@gmail.com](mailto:raoniguerra@gmail.com)

\*Present address: Climate Focus, Amsterdam, the Netherlands.

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lugares, este estudo examina o primeiro Código Florestal Federal do Brasil como uma tecnologia socialmente construída, cujo efeito emerge de seus usos e interpretações específicos por atores sociais relevantes. Constatamos que, em contraste com a visão predominante que essa lei não teve efeito na prática, observa-se que o Código Florestal produziu impactos múltiplos e contraditórios devido à sua apropriação por diferentes grupos sociais. Para os tecnocratas, a lei foi um sucesso parcial, pois representou progresso na direção de um planejamento territorial baseado na ciência. Para a elite rural, o código florestal foi usado como forma de bloquear o acesso de colonos pobres a terras públicas férteis para futura expansão agrícola por grandes fazendas. Por fim, os colonos viram o Código como uma maneira de obter autorizações de desmatamento usadas para fundamentar reivindicações de titulação da terra. A partir deste exame, o artigo argumenta que as perspectivas econômicas e legalistas sobre as políticas ambientais precisam ser complementadas por perspectivas sociológicas, a fim de dar conta do caráter não determinístico das leis e da dinâmica social por trás das apropriações múltiplas dos aparatos estatais. Ao entender as leis enquanto tecnologias que são interpretadas e apropriadas por diferentes atores sociais, poderemos contribuir para propor aparelhos jurídicos mais apropriados ao contexto local em que devem funcionar.

### **Apropiações, conflictos y subversiones del Código Forestal Brasileño**

A menudo se dice que Brasil tiene una de las leyes forestales más avanzadas del mundo, pero esta legislación sólida rara vez se ha traducido en una gobernanza ambiental efectiva. Para comprender los desafíos en la implementación de políticas ambientales en Brasil y en otros lugares, este estudio examina el primer Código Forestal Federal de Brasil como una tecnología socialmente construída, cuyo efecto surge de sus usos e interpretaciones específicos por parte de actores sociales relevantes. Encontramos que esta ley, en contraste con la visión predominante de no tener efectos en la práctica, produjo impactos múltiples y contradictorios debido a su apropiación por diferentes grupos sociales. Para los tecnócratas, la ley fue un éxito parcial ya que representaba un progreso hacia la planificación territorial basada en la ciencia. Para la élite rural, el código forestal se utilizó como forma de bloquear el acceso de los colonos pobres a las áreas fértiles públicas para la futura expansión agrícola. Finalmente, los colonos vieron el Código como una forma de obtener autorizaciones oficiales de compensación utilizadas para justificar futuras reclamaciones de títulos. A partir de este análisis, el artículo argumenta que las perspectivas económicas y legalistas prevalecientes sobre la efectividad de las políticas ambientales deben complementarse con perspectivas sociológicas para dar cuenta del carácter no determinista de las perspectivas científicas, las leyes y la dinámica social detrás de las múltiples apropiaciones de aparatos estatales. Al comprender desde una perspectiva sociológica cómo las leyes son interpretadas y apropiadas por diferentes actores sociales, podremos contribuir proponiendo aparatos legales que sean más apropiados con el contexto local en el que se supone que van a funcionar.

## 1. Introduction

The search for effective tropical forest conservation policies is an enduring challenge facing researchers and policy-makers (Fearnside 1989; Moran 1996; Pfaff 1999; Moutinho et al. 2005; Kanowski, McDermott, and Cashore 2011; Rajão 2013). On the one hand, a growing body of scientific evidence reaffirms the importance of forests to mitigate climate change, regulate water regimes and host biodiversity (Oliveira et al. 2013). On the other, tropical deforestation continues at a steady pace worldwide, as national policies seem to have very little effect in halting forest loss. Due to a 70% reduction of deforestation rates between 2005 and 2013 Brazil is being increasingly pointed out as an important exception to this rule (Nepstad et al. 2014). But despite these positive results, the country continues to lead the ranking of countries losing more forests yearly, with a recent upward trend that threatens to revert the positive results obtained so far (Fonseca, Souza, and Veríssimo 2015).

It is possible to identify in the literature two main approaches to the study of the effectiveness of forest conservation policies. Many studies look at the issue of deforestation mostly as a legal problem. Based on a formalist perspective, local actors are often conceived as citizens that are bound to a “political body” by a social contract that establishes a set of rights and obligations. Therefore, while citizens have the right to a healthy environment they also have to give up part of their freedom and limit their ability to damage the environment (Hirakuri 2003; Brito and Barreto 2006; Drummond and Barros-Platiau 2006; McAllister 2008; Gomes and Martinelli 2012; Schmidt and McDermott 2014). From this conceptualization, it follows that as long as a forest conservation law is coherent with the Legal Order of a given country it must (and will) be obeyed due to its legitimacy and the ability of the state to enforce its regulations through the use of force (Unger 1996; Bobbio 1997). Legal analysts recognize the problem of enforceability (i.e. sanctioning) of the law and the differing degrees of legal efficacy that might follow. Yet it largely conceives local actors as *homo juridicus*; legal subjects that should follow the prescriptions of the law in a deterministic way. In the case of the study of forest laws in Brazil, legal analysis tends to focus on the relation between national and international laws (McCleary 1991), conservation obligations and property rights (Gomes and Martinelli 2012), and the legal jurisdiction of municipalities, states and the federation (Irigaray and Rios 2005). Therefore, legal analysts tend to evaluate and reaffirm the force of the Brazilian Forest Code as a coherent “normative reality,” while blaming its lack of effects on the incompetence, scarcity of resources and the political will of the executive branch of the government to tackle deforestation (Pereira 1950; Hirakuri 2003; Brito and Barreto 2006; Drummond and Barros-Platiau 2006). Because of the general tendency to understand laws as apart from and above society, mainstream legal analysis has been criticized for its inability to bring institutional change (Unger 1996) and for being “autopoietic systems [... an] endless dance of internal correlations in a closed network of interacting elements [... rather than] an open responsive legal order, adapting to, and at the same time, shaping the social environment” (Teubner 1987; Luhmann 1988, 1–2).

In response to a growing discontent with the legalist approaches to environmental laws, scholars and policy-makers have been increasingly looking at economic theories

as a way to explain and shape deforestation patterns and their relation to the law. The economic approach presupposes a radically different understanding of the role and effects of environmental laws. As explained by Veljanovski (2007, 8) “the economist does not view law as a set of rights and remedies but a system of incentives and constraints affecting future actions.” In this view local actors are conceived as *homo economicus*: rational economic agents with stable preferences that behave to maximize their utility and that would stop deforestation only if the net financial benefit obtained from the “standing trees” is higher than from their conversion to other agricultural uses (Becker 1976; Tietenberg and Lewis 2012). It should be acknowledged that economists have also attempted to go beyond their traditional assumption of perfect markets and have striven to take into account the influence of formal and informal rules in economic behavior. For instance, some economists argue that regulations may be a source of failure as much as the markets they intend to tame. Therefore powerful groups inside and outside the government may “capture” laws that have been conceived in the public interest in order to foster their own economic objectives (Stigler 2003; Jordana and Levi-Faur 2004).

Similarly, new institutional economics posits that agents are metaphorically (e.g. being citizens in a state) and in some cases literally (e.g. signing an agreement) bound to each other via contracts that establish their individual obligations and rights (Williamson 1996). However, in contrast to the formalistic emphasis of legal analysis, new institutionalist economic agents will only obey forest conservation laws if the benefits of abiding that set of rules (e.g. access to markets, green certifications) are higher than the ones obtained by breaking the rules or the costs of infringement (in the form of punishment) or if the likelihood of being detected is substantial (North 1990). In relation to research on forest laws in Brazil this approach is particularly evident in the studies that estimate the opportunity cost of deforestation reduction (i.e. the forgone profits from land-use change), suggesting that if those costs are compensated it will be possible to reduce or even halt tropical deforestation in Brazil (Faminow 1998; Bond 2009; Nepstad et al. 2009). Also, other studies have argued that it is likely that forest laws in Brazil have not been fully implemented due to prohibitive costs of compliance (Stickler et al. 2013) and the costs and benefits of sustainable timber production in the Amazon (Barreto et al. 1998). In the cases in which it was possible to observe an effect of forest laws in command and control, actions have changed agents’ cost-benefit calculations by increasing the risk of being fined (Arima et al. 2014; Börner, Marinho, and Wunder 2015).

Despite the differences between the economic and legal perspectives on forest laws, it is possible to argue that they both tend to provide deterministic accounts of the relation between local actors and the law. On the one hand, economics tends to describe the relation between economic agents and law in an instrumental way, excluding other dynamics that may hinder the realization of economic rationality (Hirsch, Michaels, and Friedman 1987; Godelier 2014). On the other, legal analysis often focuses on the interrelation of laws largely in isolation from economic forces and other social dynamics (Luhmann 1988; Unger 1996). Therefore, while the latter attributes deterministic powers to the law provided that it is properly sanctioned due to the legitimacy of a macro-actor (the State), the former gives deterministic powers to the economic system due to the freewill of a micro-actor (the economic

agent). While the importance of economics and legal analysis to the study of environmental laws is undeniable, the prevalence of these two perspectives leaves out of the picture the study of how local actors actually interpret, adopt and adapt forest laws as a consequence of not only legal and economic determinants, but also due to specific historical trajectories and social contexts.

More recently a small but growing number of scholars have been drawing on sociological perspectives to study the processes and outcomes of laws. These studies have looked at issues such as participation, power, equity, legitimacy and efficacy of forest policies (Sandström, Crona, and Bodin 2014; Rantala et al. 2015; van der Hoff et al. 2015). The wide range of topics has also been accompanied by theoretical perspectives that emphasize the role of discourses (Leipold 2014), institutional logics (Froger and Méral 2012) and blame-games (Rajão and Georgiadou 2014) in shaping environmental governance. In this context, the present study seeks to challenge the prevailing view that the Forest Code has brought no effects until recently (for exceptions see Dean 1995; Silva 2005; Schmidt and McDermott 2014) when it has been conceived as a socially constructed technology, drawing from the social study of technology. The remainder of this paper is organized as follows. The next section provides an overview of the sociology of law and technology and proposes an approach to study the social construction of the law. The third section provides an account of the multiple meanings and practices concerning Brazil's first Forest Code based on secondary and primary archival sources. The fourth and final section discusses the implications of this research for our understanding of forest laws and the challenges involved in controlling deforestation in Brazil.

## 2. Law and society

The study of the role of law in society coincides with the emergence of sociology as a discipline in the works of Karl Marx and Frederick Engels ([1845] 1970), Émile Durkheim ([1893] 1984) and Max Weber ([1922] 1968). From their initial insights, a variety of studies have looked at the relation between formal rules, norms and cognition (Powell and DiMaggio 1991), the ways in which local social practices constitute the juridical field (Bourdieu 1987), the role of formative contexts in shaping society's conflicts and resolutions through the law (Unger [1987] 2001), and in what ways legal facts emerge as the result of socio-technical networks (Latour 2010; Rajão and Vurdubakis 2013). Based on sociological interpretations, current legal practices have been criticized with respect to their tendency to bureaucratize and limit political communication and public participation (Bora 2010), because of their inability to consider alternative institutional arrangements (Unger 1996), for being increasingly colonized by undemocratic forms of scientificism and economicism (Supiot 2007), and due to their self-referential character (Teubner 1987; Luhmann 1988). Despite their differences, these approaches to the sociology of the law jointly refuse both economic determinism and the legal formalism of conventional legal analysis by "focusing on law-in-action rather than law-on-the-books, [...] highlight [ing] the ways in which extralegal social processes continuously construct and reconstitute the meaning and impact of legal norms" (Suchman and Edelman 1996, 907).

An important turn in this field in recent years has been the conceptualization of the law as both part of a technological apparatus and as a technical device in itself. In relation to

the first point, there has been a shift in the focus of the analysis of power away from the legal texts and towards the social and technical mechanisms that enable these texts to have power effects in practice (Latour 1990; Foucault, Burchell, and Gordon 1991; Hunt and Wickham 1994). In particular, Actor-Network Theory conceptualizes technology as “society made durable,” that is, as an artifact that embeds the interests of specific social groups and is able to enforce those interests through time and space. By technology the scholars working on this approach mean not only physical artifacts but also written rules and the way those affect actors. In Latour’s (1990) classic demonstration of ANT’s principle, he explains how hotel management adopts different strategies to enforce the role where all guests should leave the room keys at the reception. It starts with the manager giving oral notices of that rule and ends with him giving a bulky keychain to the guests as an ally in his effort to obtain the guests’ alignment. In this view the law is conceived as a component in a broader technology of governance that involves “an assemblage of forms of practical knowledge, with modes of perception, practices of calculation, vocabularies, types of authority, forms of judgment, architectural forms, human capacities, non-human objects and devices, inscription techniques and so forth” (Rose 1999, 52). In regard to the second point, some authors have drawn parallels between characteristics of technical instruments and legal texts (Twining and Miers 1999; Tranter 2007). Supiot (2007) argues that the meaning of technical objects is not pre-given in their material characteristics but depends on the intentions of their developers and their actual uses. That is

its interpretation is therefore not enclosed within the letter of its texts but open to the spirit that informs it. It can serve different ends at different times in the history of political systems as well as in the history of science and technology. (Supiot 2007, 115)

Another important consequence of the conceptualization of law as a technology is the recognition that its material elements cannot be separated from its uses and interpretations in practice. This is a relation particularly clear in the Social Construction of Technology (SCOT) approach developed in the 1980s that gained considerable preeminence in the field of social studies of science and technology (STS) (Pinch and Bijker 1984; MacKenzie and Wajcman 1999). In the same way the sociology of the law has shown that the effects of the law are not the mere consequence of law’s textual content, SCOT argues that the success or failure of technological artifacts is not determined by their inner technical characteristics. Instead, the effects of a given technology, and by extension, of what that technology actually “is” (in an ontological sense), only become apparent when we consider the ways in which the technology is perceived, embraced and used by different social groups. In this sense, SCOT argues that technology is socially constructed not only by its creators but also by its users.

Starting from the elements identified by SCOT, the present article examines the social construction of the Brazilian Forest Code, understood here as not only how that piece of legislation was created but also how it was interpreted and used in practice. In order to do so, this study first identifies the *social groups* that played relevant roles in developing and adopting (or not) the Forest Code. In the same way, for each of these groups an effort was made to delineate the *frames* of reference that contain the “current theories, goals, problem-solving strategies, and practices of use” in relation to the Forest Code (Bijker 2012, 167). Furthermore, by looking at how the same legal text is framed by different

groups, this study aims to emphasize the *interpretive flexibility* of the law – a topic that is also a central concern of critical legal scholars (Unger 1996; Twining and Miers 1999). In close relation to these frames, the key problems of each group have been highlighted, as well as the possible solutions that the adoption (or defiance) of the Forest Code has provided. After understanding how the Forest Code was framed by different social groups, and outlining the consequences of these contrasting uses of the law, the study analyzes whether these interpretations have stabilized and reached closure or are still a controversial topic and an evolving legal drama from the point of view of the social groups involved (Pfaffenberger 1992).

In order to develop a history of the social construction of the Forest Code, this study has considered mainly two data sources. First, this study was based on a detailed content analysis of national and state-level forest legislation, also taking into consideration the contribution of legal scholars. Second, primary data was collected from courts of justice and local government archives related to environmental fines and land titling processes. The focus of data collection was on the state of Paraná, in the south of Brazil. This region is particularly relevant due to the conflict between President Getúlio Vargas' colonization plan to "March to the West," and the calls to establish rational policies to conserve the state's highly prized Araucária forests. From these documents, it was possible to gain a better understanding of the frames and interpretive flexibility provided by the legislation that have informed specific judicial and administrative practices. For more details on data sources see Carvalho (2008).

### 3. The social construction of the Forest Code

During colonial times the Portuguese imposed laws governing access to forests in Brazil, with particular attention on commercially valuable dyewood – including the species that gave the name to the country – and other export hardwoods (Miller 2000; de Carvalho Cabral and Cesco 2007). Between Brazil's independence in 1822 and the creation of the First Republic in 1889, there was a gradual deregulation of the sector with the abrogation of laws imposing forest conservation measures on private lands. It was only following the abandonment of the liberalism of the First Republic and the adoption of centralizing industrial policies that the creation of a nation-wide policy designed to regulate private land use became possible. It was in this context that the legislation known as the Forest Code emerged in 1934 as Decree n. 23793 (Dean 1995). The text of the Forest Code stated that from thereon the Brazilian government would strive to regulate the use of "forests as well as the other types of vegetation of recognizable utility to the lands they cover" (Art. 2, Decree n. 23.793/1934). With this purpose the Code restored some of the concepts contained in colonial forest laws and established that private land owners had to maintain the "protective" riparian vegetation alongside rivers (Art. 8) and that "no owner of lands covered with forests can cut down more than three quarters of the current vegetation" (Art. 23). Despite the intentions of the legislators forests continued to fall, leading to the emergence of the prevailing view that the Brazilian Forest Code had led to no practical effects (Pereira 1950; Hirakuri 2003; Brito and Barreto 2006; Drummond and Barros-Platiau 2006; Arima et al. 2014). In order to go beyond current legalist and economic understandings of the Brazilian Forest Code, this section analyzes the origins and effects of the 1934 Forest Code from the point of view of three relevant



social groups: (1) the technocrats – a group of civil servants that wrote the law as part of the modernization of the State; (2) the rural elite that opposed and adapted the law to maintain their traditional rule over the territory; (3) and the settlers (usually small farmers) that used the Forest Code in creative ways in order to prove the rightful possession of their lands.

### **3.1. The technocrat's Forest Code**

In order to understand the reasons for the creation in 1934 of a strict land-use policy in a country still dominated by a rural economy, it is necessary to look at the intellectual movements that motivated the formation of a technocracy which influenced the policy-making process during that period. In the late eighteenth century, a small but influential group of members of the Brazilian elite had the opportunity to study in Portugal and other parts of Europe, becoming familiar with the Enlightenment, Positivist movements, and key concepts from modern science. These scientific ideas led prominent scientists and politicians, such as José Bonifácio de Andrada e Silva, Joaquim Nabuco, Alberto Loeffgren, Alberto Torres and Augusto de Lima to reflect on the relation between the economic progress of the country and its natural environment, shedding new light on the ongoing devastation of the Atlantic Forest (Dean 1995; Pádua 2002; Silva 2005; Hochstetler and Keck 2007).

While this new scientific outlook was not adopted by most social groups in Brazil, it found strong resonance amongst the highly educated urban middle class that was starting to obtain key technocratic positions within the government (Andrews and Bariani 2009). Three main environmental problems related to deforestation were identified by the Brazilian technocrats as particularly urgent: land degradation, local climate change and wood shortage. First of all, Brazil's technocrats were especially concerned with the little regard that the rural elite had for its land. Since forested areas were abundant and cheap, the large monoculture plantations of sugar cane and coffee could often benefit from the rich soils of recently cleared land. As a consequence, the Brazilian agricultural frontier marched generation after generation northwestwards, leaving a trail of degraded lands in its wake (Dean 1995). Influenced by Physiocratic economic theories that placed the origin of economic wealth on land and argued that government laws should be in harmony with nature, this group maintained that traditional agricultural practices, such as slash and burn, were wasting the country's principal resource. From this analysis, it was argued that the adoption of European science and technology was urgent in order to modernize the country's agricultural sector and to save forested lands for future generations (Pádua 2002).

There was also concern amongst the technocrats that widespread deforestation was interfering with the local weather. Observations and theoretical speculations were used to propose that forests were crucial for attracting clouds and maintaining a regular rainfall regime needed for agriculture (Andrade 1912; Pereira 1950). As far back as 1824, José Bonifácio warned that if the rate of deforestation continued Brazil would "in less than two centuries, be reduced to the arid plains and deserts of Libya" (see also Arruda 1925; Pádua 2002, 5). Even if the rural elite remained largely unconvinced of the importance of forests, by the 1930s the role of forests in rainfall became increasingly accepted not only by a small group of politicians and scientists, but also by a rising

urban middle class that were suffering the effects of severe draughts in some of Brazil's largest cities (Dean 1995; Pádua 2002).

Finally, the inability of Brazilian forests in the Southeast to supply the wood for its internal markets and the sudden increase of timber imports during the 1910s attracted considerable criticism. The preoccupation with the lack of wood was especially strong amongst a group of Brazilian and foreign scientists that, having studied scientific forestry and related subjects in Europe, saw this situation as the consequence of the inability of the country to adopt modern forest management techniques (Ioris 2008). Simultaneously, the waste created by the oversupply of wood from the Paraná Araucária forests followed by the global economical crisis of 1929 led to calls for state intervention in the sector (Pereira 1950, 131).

While considering how to deal with "the forest issue," different commentators looked at the world's most scientifically advanced countries for inspiration and conceived the creation of forest laws as a central part in the emergence of Western civilization (Arruda 1925; Pereira 1950). In the justification contained in the first draft of the Forest Code published in 1931, the authors recognized that key points of the Brazilian Code were based on the forest laws of Switzerland and the United States (Diário Oficial, November 23, 1931: 18628-9). Therefore, the Forest Code intended not only to deal with the specific problem of forests, but also to allow Brazil to be more civilized by becoming more similar (at least formally) to its source of inspiration in the Global North regardless of its actual effects on the ground. It is therefore possible to argue that from the point of view of the technocrats that demanded the approval of stricter forest laws, the Code was created not only to promote forest conservation but also (and most importantly) to disseminate a scientific comprehension and rational management of the territory. The Forest Code represented the official endorsement of a perspective that saw the territory from a "God's-eye view," where scientific abstractions (i.e. calculated forest yields, climatic theories, soil analyses) took precedence over the immediately perceived (i.e. forests that can be cleared to satisfy farmers' immediate needs) (Scott 1998, 57). From this perspective, the limited implementation of the Forest Code did not take away its merits nor transformed it into a mere rhetorical exercise. On the contrary, the Forest Code represented an abstract yet crucial step towards the implementation of a state closer to the ideals promulgated by the Enlightenment and Positivist movements.

### **3.2. The rural elite's Forest Code**

The technocrats may have been successful in influencing the government to approve the Forest Code in 1934. But while this group won a political battle in Rio de Janeiro – the country's capital at the time – they were far from being a prevalent social group. Brazil was still a rural country dominated politically and economically by more or less the same families of *latifundiários* (owners of large estates) that ruled the country since the colonial period (Prado Junior [1945] 1978). This social group interpreted the Forest Code as undue interference in their right of use, since it restricted the expansion of the agricultural frontier by limiting clear-cut deforestation within their properties and ordering the protection of riparian forests (Pereira 1950). In this context, it should not be surprising that the rural

elite attempted to influence the implementation of the Forest Code at both national and local levels.

At the national level, the rural elite and their political representatives acted to ensure that the newly approved Forest Code would not have means of implementation. The technocrats that drafted the code were well-aware that farmers would not comply with the new law of their own accord. The Forest Code therefore required the creation of a new “Forest Police” in order to “execute the police measures for the conservation of forests” (Art. 56, § 1º, Decree n. 23.793/1934) and indicated that 50% of the guards’ salary would come from the fines issued by them (Art. 65, § 1º, Decree n. 23.793/1934). In this way, the technocrats wanted to make sure that the Forest Code would be enforced by a police force under the direct control of the federal government, and therefore distant from the corrupting influence of the rural elite. However, the supporters of the Forest Code were not able to overcome both the inertia of the government’s machinery and the active resistance of the rural elite. The new Forest Police remained as merely words on paper until 1989, when the federal government created the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) as a response to mounting criticism concerning the ongoing deforestation of the Amazon (Dean 1995; Hochstetler and Keck 2007).

The implementation of the Forest Code faced opposition not only from the rural elite, but also from some of the supporters of the timber industry during that period. In line with large farmers’ interests, some government officials believed that it would be a waste of resources to leave the country’s best soils to native forests. Instead, they proposed that it would be of great utility if all native forests were cleared, leaving the best areas for agriculture and the poor soils for planted homogeneous forests with species such as Eucalyptus. Based on such argument forest devastations became a necessary element of the agricultural modernization of the country (Guimarães 2008). For instance, Edmundo Navarro de Andrade, the scientist that introduced eucalyptus to Brazil and was the interim Minister of Agriculture who paradoxically co-signed the Code with Getúlio Vargas, wrote that “to force a landowner to conserve its forests, preventing him from exploring his lands as he wants, is shameful, violent and brutal” (Andrade 1912, 97, 101).

The fact that the rural elite interfered in the implementation of the Forest Code does not imply that they ignored the law. There is evidence that the rural elite used its political influence within the state governments to foster their own interests. Particularly in the state of Paraná. Here a small but active group of state-level guards enforced some aspects of the law in order to ensure state control over the territory, even though these actions were inefficient in relation to the protection of native forests. Given the economic and political influence of large landowners, these local guards did not act upon private lands, concentrating instead on public lands undergoing colonization by small settlers. A document detailing the enforcement of the Forest Code in the Northeast of the state of Paraná reported that the actions of local guards “reduc[ed] by more than 60% the invasion and uncontrolled fires in the lands owned by the State.”<sup>1</sup> But the document also mentions that forest guards controlled only settlers “without titles,” suggesting that the large farmers with regular land titles were systematically ignored. In another report, the Department of Geography, Lands and Colonization of the state of Paraná indicated that local forest guards worked tirelessly to “save the remaining forest patrimony, in public lands,

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<sup>1</sup>DEPARTAMENTO de Terras e Colonização. 5ª Inspeção de Terras. op. cit., [s.d]. p. 21

from the iconoclast fury of the devastators [...] the *sertanejos* [countryfolk] who are unaware of the economic losses caused by criminal deforestation and the [lack of] respect for the law.”<sup>2</sup> Most importantly, by having this patrimony in safe hands, these forests and rich soils could be taken over by substantial farmers that would finally transform those lands into “green gold” (i.e. coffee plantations).

The conceptualization of small farmers as irrational and uncivilized found in the official reports from the state of Paraná also had a wider resonance with the perspective of intellectuals at the time. For instance, in his influential essay “Roots of Brazil”, historian Holanda ([1936] 1995) pointed out that Brazilian farmers insisted in deforesting new areas and used slash and burn techniques rather than more conservationist ones (and work intensive) due to people’s laziness and lack of care for the land. But prejudices against small farmers were best represented in popular culture by the figure of Jeca Tatú from influential writer and political activist Monteiro Lobato. Monteiro originally presented Jeca in 1918 as a *cabloco* – (a person of mixed Indigenous Brazilian and European ancestry) whose inherent dullness and irrationality contrast with the natural beauty of Brazil (Lobato 1919; Cukierman 2007; Guimarães 2008). A few years later the writer revisited the character and presented Jeca not as inherently stupid, but as a sick and uneducated peasant. The piece, sponsored by a pharmaceutical company that promised a cure for the country’s laziness, shows Jeca Tatú probably drunk, resting in the middle of the day with his faithful dog and a bottle of *cachaça* while the work was unfinished, as suggested by the empty basket (Figure 1). The author therefore continued to suggest that without the tutelage of the government and the civilizing effect of modern science, Jeca Tatú (and by extension, the country’s small farmers) were doomed to destroy Brazil’s lavish vegetation and remain in poverty (Lobato 1924).

In contrast, when carried out by big farmers forest clearing was a way to turn “unproductive lands” into “wealth” (Andrade 1912). For this reason, the strict compliance to the law by large farmers through the creation of a national Forest Police was neither necessary nor desirable. Instead, when the deforester was a small farmer – a Jeca Tatú, – this act became a “crime” and an “economic loss” that had to be prosecuted with the weight of the law. The rural elite and their representatives at the state governments therefore needed to join forces in order to ensure the preservation of forests in public lands as a standing reserve for the future expansion of the “agribusiness.”

The evidence presented above contradicted the theory that Brazil was doomed by a widespread “culture of transgression” whereby its citizens simply disregarded laws such as the Forest Code (Amado and Brasil 1991; Cardoso and Moreira 2008). Instead, it was possible to observe that rather than ignoring the law, the rural elite adopted the Forest Code in an instrumental way, leading to the emergence at a local level of different legal effects for different social groups. Damatta’s (1979) work on the use of the expression “do you know who you are talking to?” in Brazil also helps to illuminate this issue. Here a member of the Brazilian elite when confronted with both an officer or an individual from a poorer background would use this phrase to reassert his/her own position above the law. Thus, a large farmer would feel empowered to say to a forest ranger

<sup>2</sup>Departamento de Geografia, Terras e Colonização. Relatório 1947 apresentado ao Excelentíssimo Sr. Cél. Antenor de Alencar Lima digníssimo Secretário de Viação e Obras Públicas pelo Engº Diretor do Departamento de Geografia, Terras e Colonização. Curitiba, 1948.



**Figure 1.** Illustrations from the book “Jeca Tatuzinho” (Lobato 1924).

that he was “daring” to fine his farm, threatening to “denounce” him to his superiors. Likewise, the same member of the rural elite would deny the rights of possession (*usucapião*) of small farmers, based on the assumption that his higher position in society entitled him to a privileged access to public lands. This process was particularly important as a way to maintain the tradition of “normative enclosure” whereby the rural elite “self-produced their norms while not subordinating themselves to the wider norms created by the political power” (Avritzer 2008, 155). Large farmers as well as close friends and families of politicians and senior officials were therefore considered “persons” in this scheme: modern farmers that must be treated with cordiality and never with restrictions and fines given the wealth they brought to the country through agricultural exports. Poor settlers, in contrast, were just “individuals”: uncivilized country-folk that must be taught and controlled with the full power of the law in order to preserve the country’s public lands (Damatta 1979).

### **3.3. The settlers’ Forest Code**

Recall that one of the main impacts of the Forest Code was to limit the access of small farmers to public lands in the forested frontier. Paradoxically, however, there is evidence that while limiting access to land, the Forest Code also facilitated access to land titles by providing official documents to farmers. Following the transfer of the Portuguese crown to Brazil in 1808, there was a growing interest of the state in regulating more closely the access to land and the colonization process. For this reason, after a long debate, the state approved in 1850 a Land Law trying to prohibit the acquisition of new possessions in public lands but legitimizing the lands already grabbed and turned into pasture or agricultural fields (Art. 5, Law n. 601/1850). Despite the attempt of the government to move in

this direction, land-grab continued to take place and was eventually legitimized under the constitutions that followed the 1937 coup and of the New State (1947) in place at the same time as the Forest Code (Dean 1995; Avritzer 2008; Silva 2008). In particular, the Brazilian constitution of 1946 stated that "The States will ensure the preference in the acquisition of up to 25 hectares of grabbers of devolved lands that have taken those areas as their usual homes [...] for ten consecutive years" (Art. 156 § 1° and 3°, Federal Constitution from 1946), a provision extended to 100 hectares in 1964. In the state of Paraná the law was even more lenient in relation to land-grabbers since it established that the lands would not be sold but rather that the state would award up to 25 hectares of land for free, provided that the farmer gave proof that he neither had other lands nor the means to pay for them (Art. 84 § 2°, Paraná State Constitution from 1947). The law was straightforward in relation to the requirements to provide land titles for small land-grabbings: farmers, who had to build a farmhouse and live on the land and, most importantly, they had to turn the areas into productive lands by replacing its forests with pasture and crops.

In parallel to this political and legal context, a culture that reinforced the importance of land acquisition through possession and deforestation was developed in Brazil among small farmers. Different studies show that peasants often prefer to face hardship and carry out subsistence farming on their own piece of land rather than receive a salary, food and shelter from a large farmer (Woortmann 1990; Woortmann 2004). Woortmann (1990) explains that this practice escapes economic rationality and can only be understood in relation to a "moral order" in which the farmer seeks to fulfill the role of both "freeman," who has control over his work and time, and of a "father" who passes on a symbolic and material patrimony to his descendants. But here the ownership of land is not conceived merely in legal terms. Most peasants considered that a piece of land could only be owned if it was cleared and farmed by them, showing a "conception of rights very close to the poor: the rights (of use) derived from work in opposition to the rights (of property) derived from money" (Martins 1996, 44). Yet, the process of public land acquisition by possession has often been conflictual, the use of violence is common and the law of the strongest tends to prevail (Silva 2008).

In a context where the law of the strongest tended to dominate, the presence of any sort of official document witnessing that someone arrived in an area and turned its forests into productive farms was of great value. For this reason, many deforestation and farming licenses issued by the Forest Service to settlers could be found in land regularization processes such as the ones of the First Tribunal of the Jurisdiction of Campo Mourão, in the state of Paraná between 1949 and 1964. As in many cases concerning lands, the case files of process n° 590 from 1962 dealt with a repossession law suit whereby a party with a land title was trying to expel a farmer that lived on the land. In order to counter the accusation of land invasion, the defendant Nicolau Susienka argued that he had taken a "legitimate possession" of the public land long before the state had issued a land title, rendering the title invalid. In order to prove his point, the defendant presented three land clearing licenses issued in the name of Pedro Organik, the farmer that previously occupied the land and that had sold the right of possession to Nicolau Susienka. Licenses such as these were kept with great care for many years, and in cases like the above, passed on to other farmers when the possession of the land was sold. One of the licenses declared that:

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Secretary of Roads and Public Works, Department of Geography, Lands and Colonization. 10 Inspectorate of Lands. Forest Service.  
License n. 630  
Mr. Pedro Organik, occupier of the lands, located at the location Rio do Peixe, in the municipality of Campo Mourão and district of Col. Cantú, outside the surveyed areas.  
Is authorized to execute the clearing and burning of 5 alqueires [12,1 hectares] of forests in the location mentioned above, included in an area not larger than [illegible] alqueires. It must be observed the construction of firebreaks (minimum of 6 meters) in order to avoid the danger of fire propagation.  
The owner of the cleared land must occupy his land, otherwise it will be revoked, implying the loss of the cleared land, that will then be given to the legitimate owner of the lands.  
19 May 1949  
[Signed]  
Forest Guard

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It is important to notice in the text of the license above the concern of the forest guard with the spread of fires into the forest and other farms as well as the restriction of the size of the farm. However it appears that the technocrats' main concern was the "unproductive" use of the land. For this reason the document threatened to withdraw the land if it was not effectively used for the plantation of crops or pasture. It should be noticed that the ability to use the bureaucratic mechanisms from the Forest Code to legitimize the grabbing of public lands did not necessarily lead to socially just land distribution. More educated small farmers were aware of the legal possibilities of the documents produced by the Forest Code, as were the large farmers. While the licenses offered some legal evidence of possession, land titles issued by registries often had a higher weight. Therefore, even though the preexistence of a possession of a plot of public land invalidated official land titles concerning the same area, the latter type of documents were still deemed more trustworthy. This explains why Nicolau Susienka lost the lawsuit mentioned above despite the presentation of documents from the Forest Code proving the occupation of the land. Since the forgery of land registries and the use of violence to expel farmers or to force them to sell their possessions were not uncommon during this period, we can see how small farmers were able to grab these lands as long as they remained out of the sight of big farmers (Dean 1995; Silva 2008).

#### 4. Discussion and conclusion

The examination of the relation between the Forest Code and the relevant social groups shows that this legislation was not a single entity capable of ordering society according to the cold letter of the law. Instead, there were many and, in some cases, contrasting faces, interpretations and uses of the Forest Code. The technocrats who wrote the Code were concerned not only with the rational use of timber and the maintenance of soil and water resources, but also with the importance of creating a state guided by the scientific principles set by the Enlightenment and Positivist movements in Europe. The Forest Code was an environmental policy aimed at concrete results and a symbol of the level of modernity and intellectual aspiration of Brazilian society. This consideration helps explain why the 1934 Code has been considered "the biggest step that has been taken in Brazil in favor of the protection of its forests" regardless of its ability to effectively control deforestation (Duarte 1950, 156). In the same way, rural elites interpreted the Forest Code not only as a threat but also as an opportunity. Given the land-use restrictions imposed by the Forest

Code it is understandable why this group mobilized its political clout at the national level to block the creation of an independent Forest Police to enforce this law. In parallel at the local level the rural elite also used the code to limit the access to forested (and fertile) lands by small farmers and to maintain its tradition of “normative enclosure.” Yet, this attempt to control the territory was not fully realized due to the agency of settlers who were able to mobilize the Forest Code for an entirely different purpose. While the issuing of licenses for deforestation was meant as a way to restrict the conversion of lands to agriculture, the documents produced in this process became legal proof of the small farmers’ occupation, which could pave the way for a future definitive land title and the acquisition of future deforestation rights. In this way, the Forest Code unwillingly became an instrument for the acquisition of lands in line with small farmers’ “moral order,” namely as a way to become proper freemen and fathers regardless of the availability of more economically rational options in the short term.

By considering the Forest Code as a socially constructed technology this study demonstrates the importance of going beyond the legal and economic determinisms that currently dominate researchers’ and policy-makers’ understanding of the effects of environmental laws. As with bicycles, gravitational wave readings and hotel keys (to cite some of the most prominent examples), the existence of the Forest Code was determined as much by its uses and interpretations as by its material and textual characteristics. It is undeniable that the examination of the relation between the Forest Code and the legal order of Brazil and other countries offered by mainstream legal perspectives provides important clarifications concerning the relevance and legitimacy of this law (Pereira 1950; Benatti 2005; Brito and Barreto 2006; McAllister 2008; Gomes and Martinelli 2012).

But the construction of a *homo juridicus* fails to recognize the multiplicity of interpretations and uses of the Forest Code. While traditional legal analysis conceives the social order and the legal order as being mirrors of each other, it was possible to observe at times the obstruction of the law, other selective enforcement, and even the subversion of the explicit intentions of the legal text. A similar issue can also be seen in relation to a strictly economic interpretation of the Forest Code and its effects. In line with Börner, Marinho, and Wunder (2015) and Arima et al. (2014) the relation between the Forest Code and farmers’ behavior, the appropriation of the code by land-grabbers and the rural elite can be accounted for as the result of “regulatory capture” (Stigler 2003) or cost-benefit calculations concerning the risk of breaking the rules (North 1990). Yet, the reduction of these different social groups to classes of *Homines economici* attempting to maximize their utility fails to account for the symbolic, cultural and moral dynamics surrounding the Forest Code. Here both the *homo economicus* and *juridicus* fall for the same type of technological demonism that has been strongly criticized by STS. For the technocrats, the meaning of this law went well beyond its ability to shape farmers’ behavior as it represented a symbolic step necessary for the realization of a positivist state. When the rural elite similarly ignored the law in relation to their own lands, making an instrumental use of the Forest Code to restrict access of small farmers to fertile lands, they were expressing a form of personalism that dates back to the colonization of the country. Finally, when small farmers kept with great care the documents by the Forest Code for decades, they were not simply considering the economic gain from the lands they farmed, but also the realization of a moral obligation towards their family as freemen and fathers.



While referring to the origins of Brazil's Forest Code, this study also provides some insights into current dynamics and interpretations of the same legislation in the twenty-first century. Between 2003 and 2012 the federal government was able to successfully frame the Forest Code as a strong instrument for forest conservation, leading to a sharp reduction in deforestation rates in the Amazon. As a response, the same rural elite that ignored the legislation in the first half of the twentieth century was able to weaken a law that was finally able to hurt them. This trend became even stronger after the election of a new conservative president in 2018, who reinterpreted the already weakened Forest Code as the source of an unfair "industry of environmental fines." If those trends were to be analyzed solely from an economic or legal perspective, the complex social changes that Brazil has gone through in the last decade would certainly be lost.

It must be emphasized that the study of the law as a socially constructed technology does not intend to supplant either legal or economic analyses as important venues for understanding forest laws. On the contrary, it intends to provide a bridge to connect and expand the insights provided by different disciplines concerning the challenges of governance. Therefore, what is being argued here is the importance of going beyond the analysis of the effects of environmental laws as the evaluation of whether a certain pre-given objective (i.e. realization of rights or economic optimization) has been reached. Instead, the present study invites other researchers and policy-makers to consider the effects of environmental laws from the perspective of the different groups that interpret, adopt and sometimes subvert these legal texts rather than focusing merely on the more overt textual and material elements of the law. In this way we hope to improve the design and to anticipate barriers to environmental governance in the Global South.

### Disclosure statement

No potential conflict of interest was reported by the author(s). While Prof. Raoni Rajão was an Associate Editor of *Tapuya* at the time of submission, Prof. Rajão was not involved in the peer review process which was handled by anonymous, independent referees in line with *Tapuya's* Peer Review Policy.

### Funding

This work was supported by Conselho Nacional de Desenvolvimento Científico e Tecnológico; Fundação de Amparo à Pesquisa do Estado de Minas Gerais; Gordon and Betty Moore Foundation; Instituto de Pesquisas Ambientais da Amazônia.

### Notes on contributors

**Raoni Rajão** is Associate Professor in Environmental Management and Social Studies of Science & Technology in the Department of Production Engineering at the Federal University of Minas Gerais (UFMG) in Brazil. He also teaches in the graduate programs of Production Engineering, and Environmental Analysis and Modelling both at UFMG, Forest and Nature Conservation at Wageningen Universiteit and Environmental Policy and Economics at the University of Bonn. His research interests include spatially explicit modeling, ecological economics, political ecology and science-policy interface with a particular focus on climate and forest policies in Brazil. He has collaborated with different agencies of the United Nations, the World Bank and the German Technical

Cooperation (GIZ), and has advised senior officials from state and federal governments in the creation of environmental policy.

**Ely Bergo de Carvalho** is Associate Professor in the Department of History at the Federal University of Minas Gerais (UFMG). He leads and supervises master's and PhD students in Environmental History, Identities and Conflicts in the Appropriation of Nature, Agrarian Conflicts, Practices and Representations in the Appropriation of the Natural World, History of Science and Technology, History of Brazilian Republic. Ely graduated from the History program in the State University of Maringa (1999), and obtained a master's (2004) and PhD (2008) in History from the Federal University of Santa Catarina. He has also been visiting professor at University of California, Santa Cruz (2015–2016).

**Frank Merry** is a Senior Consultant at Climate Focus, specialized on the balance between humans and the environment. During his decades of fieldwork, he has engaged equally with frontier households, government, and the private sector primarily in Latin America, but also more recently in Africa. Before joining Climate Focus, Frank was an independent consultant, serving the World Bank and the Inter-American Development Bank, among others. Prior to that, he was Research Associate Professor in Forest Resources and Environmental Conservation at Virginia Tech, a Program Officer at the Gordon and Betty Moore Foundations, and an Associate Scientist at the Woods Hole Research Center. He holds a PhD in Forest Resources and Conservation, with a focus on natural resource economics, from the University of Florida.

## ORCID

Raoni Rajão  <http://orcid.org/0000-0002-1133-4837>

Ely Bergo de Carvalho  <http://orcid.org/0000-0002-9271-9033>

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