

Blame Games in the Amazon: Environmental Crises and the Emergence of a Transparency Regime in Brazil

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In 1992, the Rio Declaration on Environment and Development recognized in its tenth principle the right of “each individual [for] appropriate access to information concerning the environment that is held by public authorities.”¹ Since then, numerous policy papers by the United Nations, donor countries, and NGOs have called for increased transparency and accountability in environmental governance.² The rising salience of environmental transparency regimes is evident in the level of attention (and politicization) of this topic in the negotiations of the United Nations Framework Convention on Climate Change (UNFCCC), as seen in the clash between the USA and China during the Conference of the Parties in Copenhagen (COP15) and recent debates on monitoring, reporting, and verification (MRV) concerning the reduction of emissions from avoided deforestation and forest degradation (REDD+). As a result, questions concerning the emergence of environmental transparency regimes (i.e., the creation of monitoring systems and the validation and disclosure of environmental data) are not a mere “technicality” better left to experts, but one of the hotspots of climate change politics.

Transparency regimes for environmental governance have been scrutinized by a growing number of scholars from different fields. Several authors hail information technologies, especially GIS and remote sensing, for their potential to make environmental harms globally visible on a “digital Earth” and to improve environmental governance.³ Others have started to expose the complexities and contradictions surrounding transparency and accountability in public governance.⁴ Yet others argue for “informational governance” of the environment

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1. UN 1992.

2. Georgiadou et al. 2013.

3. E.g., Esty 2004.

4. Fung et al. 2007; Hood 2011.

because the “strategies, actions and coalitions of actors in environmental politics and governance, as well as the formation, design and functioning of institutions for environmental governance, can no longer be understood without focusing on information and knowledge.”⁵ However, we know of no longitudinal studies focusing simultaneously on environmental information *and* the strategies and actions of actors in environmental politics.

This article contributes to the study of the informational turn in environmental governance. It examines the emergence and evolution since the late 1980s of a transparency regime created by the Brazilian National Institute for Space Research (INPE). Over the years, INPE’s transparency regime has become the main “thermometer” used by Brazilian and international civil society to evaluate the government’s performance in tackling deforestation in the Amazon rainforest.⁶ It is for this reason that Brazil is often cited as the “most advanced country,” “the vanguard of technology,” and even “the envy of the world” when it comes to the creation of a MRV system for REDD+ and other international initiatives in the forest sector.⁷ The longitudinal study of INPE’s transparency regime juxtaposes transparency, the normative doctrine for the conduct of environmental governance, with blame-avoidance, an instrumental force widely considered as a dominant motivation of elected politicians and bureaucrats.⁸ In the remainder of the article we argue that blame-avoidance strategies are the instruments most likely to be used by accountors in their attempt to discount charges of irreparable loss and of historical proportions made by global and national accountees. We analyze two key moments in INPE’s transparency regime to illustrate how a certain blame-avoidance strategy may cause a future crisis and necessitate a new coping line of counter-attack, as the social context changes. Finally, we discuss the contributions of this article to the academic and environmental policy communities.

Accountability, Transparency, and Blame Games

Accountability implies a relationship of obligation between an accountor and an accountee.⁹ The accountor has an obligation to explain (dispute or disqualify) a harm perceived by the accountee.¹⁰ The obligation involves the disclosure of information. It can be formal, as when the accountee delegates authority to the accountor, in the principal-agent relationship typical of soft-power arrangements in modern democracies. But it can also be informal, as in a press conference and

5. Mol, 2008 277.

6. Rajão 2013; Rajão and Hayes 2009.

7. Kintisch 2007, 536.

8. Hood 2011.

9. Bovens 2005.

10. Hood 2011.

even self-imposed, as in voluntary audits in national and international environmental regimes.¹¹ With the rise of accountability's popularity in modern democracies, the notion of transparency too has become preeminent. Here, we define transparency as active *information* disclosure in a specified policy area by government agencies for the purpose of scrutiny and further use by international bodies and national stakeholders and auditors. In this view transparency regimes are a basic requirement for accountability, since without the regular release of detailed governmental information to the public, it is impossible for the public to oversee officeholders and hold them accountable for their actions.

Various intellectual traditions offer explanations for the emergence and functioning of transparency regimes.¹² The legal approach focuses on the normative dimension of transparency regimes, understood as both the following of a written set of rules and the commitment of governmental actors to democratic values. At the national level this approach is most commonly expressed in transparency regulations (e.g., the US Emergency Planning and Community Right-to-Know Act), while at the international level treaties require countries to provide information to their own citizens and other countries in relation to global environmental issues (e.g., Tenth Rio principle, greenhouse gas inventory of the Kyoto Protocol). A common feature of studies and initiatives based on the legal approach is the assumption that environmental transparency regimes should be created by virtue of natural law (*jus naturale*) that establishes the inherent right-to-know of citizens in relation to hazards that might affect their lives. In this context, the state is morally obliged to grant this right to its own people as well as to other states by creating transparency regimes.¹³

From the 1980s onwards, the focus on morality and legal norms has been replaced by an increasing emphasis on the relationship between environmental information and economic efficiency.¹⁴ The economic approach assumes that "perfect information" is as crucial for efficient markets as it is for efficient environmental governance.¹⁵ The economic approach underpins recent transparency regimes by government-regulated corporate actors. With the disclosure of information about the environmental performance of corporations citizens are expected to be able to make more rational choices, change their consuming patterns and even influence, via market means and self-regulation, the emergence of a greener economy. Many studies in this tradition have explored the substantive dimension of transparency regimes, and attempted to establish whether these initiatives have led to better environmental protection or more effective environmental governance.¹⁶

11. Bovens 2005.

12. For an authoritative review see Mol 2008.

13. E.g., Roesler 2012.

14. Mol 2008.

15. E.g., Esty 2004.

16. For a more critical examination see Boström and Klintman 2008.

The legal and economic approaches have been pivotal to both the study of and justifications for the creation of transparency regimes.¹⁷ However, studies in this tradition tend to portray transparency as necessarily and deterministically leading to more accountability, and thus, better governance. For this reason, a growing number of studies have challenged these perspectives and emphasized the need for a sociological approach to the study of transparency regimes.¹⁸ These studies warn us of transparency's perils and argue that measures to increase transparency and accountability are capable of taking degenerate forms, particularly when the values inherent in such measures are incompatible to the institutions that apply them.¹⁹ Some scholars in the sociological approach have gone beyond a static view of governance and related the emergence of transparency regimes to broader historical changes, such as globalization, the rise of the risk society and the changes brought by the information age.²⁰ An important contribution to these different approaches to the study of transparency regimes is offered by a collection of empirical studies in a special issue of *Global Environmental Politics*, which shows how the promises and perils of transparency hinge on dense normative contexts and unclear substantive outcomes.²¹ The collection emphasizes the need to understand the relation between social norms and the way transparency regimes are implemented, especially when broader historical changes are considered.²² The importance of further developing the sociological approach to the study of transparency regimes is thus well justified.

In this article we advance this research agenda in two ways. First, we complement studies that scrutinize transparency-in-practice against normative or substantive criteria, by adopting an instrumental perspective. Second, we attempt to explain transparency outcomes through a better understanding of instrumental factors that shape the actions, strategies and shifting coalitions over time of actors in environmental politics. We focus on blame-avoidance, an instrumental factor that underlies much of political and institutional behavior in practice.²³ To pursue this line of enquiry, we extend the sociological approach by conceptualizing accountability as the performative outcome of a series of exchanges between an accountor (e.g., the government) and accountee (e.g., the citizens) taking place in specific cultural and historical contexts. We emphasize three key exchanging moments: *information*, *debate*, and *consequences*.²⁴ In the *information phase* the accountor publicly *discloses* an account of his conduct to the accountee. The disclosed information may include reports, maps, performance indicators, or

17. E.g., Roesler 2012.

18. Fung et al. 2007; Georgiadou et al. 2013; Hood 2011.

19. Hood 2011; Biermann and Gupta, 2011.

20. Mol, 2008; Boström and Klintman 2008.

21. Gupta 2010; Mol 2010.

22. Mol 2008; Boström and Klintman 2008.

23. Hood 2011.

24. Bovens 2005.

information on procedural (and methodological) issues. In the *debate* phase the accountee uses the disclosed information to question the accountant's behavior on a specific issue. Finally, the accountant has to face the *consequences* of his actions. Here we focus primarily on the *information* phase of accountability, but recognize that bracketing out the other two is difficult because "real world accountability will often depart from this neat model, as the three phases may occur simultaneously, happen in reversed order, or skip one of the elements altogether."²⁵ Further, an accountant is unlikely to leave the political stage without standing for a fight. It is in these critical situations that blame games emerge, namely, as moves and counter-moves between actors in which the accountant strives to downplay blame crises and, at the same time, maximize credit-claiming opportunities. A situation of crisis, especially a crisis of historical proportions is precisely the locus where normative criteria for the conduct of governance meet "blame-avoidance," an instrumental factor that shapes the actions and strategies of political and bureaucratic actors²⁶. In this case, transparency as a normative doctrine does not emerge as the result of truly reflexive governance, a combination of deliberative politics ("puzzling") and collective will formation ("powering") where opportunities and public spaces for deliberation and participation by citizens and stakeholders can be created.²⁷ Instead, transparency regimes in situations of crisis emerge and evolve as an integral part of shifting blame-avoidance strategies of accountants in their attempt to disqualify accountees' perceptions of environmental harm and irreparable loss.

Hood identified three types of blame-avoidance commonly used by policy makers: presentation, agency and policy strategies. Presentation strategies are crucial in the information phase and are usually the first to be deployed when blame storms hit the ground.²⁸ They can range from "winning the argument" to "drawing a line" (i.e., apologizing and promising that the harm will never occur again). Presentation strategies work on the perception of harm and its (re-)presentation. They attempt to (re)present the situation in a favorable light. The acid test of (re)presentation strategies is their persuasive power. In environmental governance, geographic information can be instrumental in presentation strategies because of the rhetorical force and propositional nature of maps and satellite images.²⁹ Agency strategies work on the perception of who is responsible for the harm and attempt to carefully (re-)distribute responsibilities across the organizational chart. They can range from "finding a scapegoat" to "delegation" strategies. Finally, policy strategies also work on the perception of who is responsible for the harm. But instead of pointing to a scapegoat, they achieve their effect by appealing to formal rules or by herding potential blamers in

25. Brandsma and Schillemans 2013, 4.

26. Hood 2011.

27. Hoppe 2010, 251.

28. Hood 2011.

29. Rajão 2013.

order to diffuse responsibility.³⁰ Further, blame games do not occur in a social vacuum. Instead, they hinge at the cultures and rationales for disclosure that dominate in a given context at a given time.³¹ The social context influences which combination of blame avoidance strategies will be adopted during a blame crisis and to what effect. For instance, while governments from hierarchical cultures may prefer “hard” strategies such as winning the argument by appeal to authority, egalitarian cultures may lean towards “soft” strategies that diffuse responsibility by creating partnership structures.³²

The article presents the historical trajectory of an influential transparency regime in Brazil and asks how this regime has emerged amidst environmental crises and how it has been shaped by blame games. The empirical data derive from a study conducted between 2007 and 2009 on the role of GIS and satellite-based remote sensing in the formulation and enforcement of deforestation control policies in the Brazilian Amazon. In the context of this broader study a significant number of documents and oral accounts were collected concerning the creation of a deforestation monitoring system by INPE. The informants for this research were selected because of their role in the creation of INPE’s transparency regime and in the formulation and enforcement of environmental policies in the Amazon. Out of 85 interviews on the role of INPE’s satellite-based monitoring system in policy-making and law enforcement, 12 were conducted with senior officials from the Ministry of the Environment, 10 with scientists from INPE, 5 with members of the national parliament and their aides and 12 with officials from the ministry of the environment. One of the key informants from INPE was re-interviewed in 2012 to clarify and expand some aspects of previously collected data. Thus, it was possible to interview most of the key actors who had developed INPE’s transparency regime in the preceding decades. Moreover, seven interviews were conducted with members from nongovernmental organizations (NGOs) in Brazil that have been actively involved in shaping the policy towards the Amazon and have used intensively the data provided by INPE. In order to avoid possible backlashes against the informants of this study, all sources remain anonymous. It was not possible to interview scientists, members from NGOs and politicians from other countries, due to logistic and availability limitations, except for an interview conducted in December 2013 with a U.S. scientist actively involved in events narrated in this article. The interview data for this study was complemented and crosschecked with scientific studies, news reports and official documents produced by INPE and other institutions. Finally, a content analysis was conducted with the interview and textual material, in line with the interpretive tradition in policy analysis.³³

30. Hood 2011.

31. Gupta 2010.

32. Hood 2011.

33. Yanow 2000.

INPE's Transparency Regime and the Environmental Governance of the Brazilian Amazon

In the last three decades Brazil has been marked by profound institutional changes. The country has undergone a slow and painful process of re-democratization after the end of the military dictatorship in 1985 and the election of its first civilian president since 1965. Aided by this new political context, a new wave of environmental activism inside and outside the government emerged able to support the environmental agenda in a more systematic way. This domestic pressure alongside strong criticisms from developed countries led the Brazilian government to review and suspend, to a large degree, the colonization policies that had triggered the rapid loss of native forests in the Amazon region.³⁴ Major investments in and the use of satellite-based remote sensing accompanied these broader institutional transformations. While the first applications of remote sensing technology in the early 1970s aimed to guide the colonization (and deforestation) of the Amazon, by the 1990s the same technologies had become part of an environmental transparency regime that has contributed to the recent sharp drop in deforestation rates in the region.³⁵ Rather than looking at the slow and gradual process of institutionalization of Brazil's environmental policies and technologies, in this study we focus on the moments of crisis and the moves and counter-moves from different actors that have contributed to the emergence and transformation of INPE's transparency regime. We concentrate on two critical moments. The first moment refers to the creation of the first version of the transparency regime in 1989, and the implications of this regime to environmental policy-making in the following decade. The second moment concentrates on the events around the "opening up" of INPE's transparency regime with the publication on the Internet of its disaggregated deforestation data in 2003. Within this temporal frame, we analyze the relation between Brazilian and foreign scientists, the mass media and policy-makers.³⁶

The Creation of PRODES: Creating a Convenient Transparency Regime

The end of the 1980s was marked by intense debates concerning the future of the Amazon rainforest. The Brazilian government was being blamed by NGOs, the mass media, and heads of state from various developed countries for causing large-scale deforestation of the Amazon with its colonization policies. Amidst this and other accusations, a well-articulated lobbying effort conducted by NGOs in the US and Congress led the World Bank and other multilateral institutions to

34. For a detailed examination of the process of formation of Brazil's environmental policies see Hochstetler and Keck 2007.

35. For a historical and institutional overview of INPE's monitoring see Rajão and Hayes 2009; for an account of how these systems have influenced policy-making and law enforcement see Rajão 2013, and Rajão and Vurdubakis 2013.

36. For an account of the relation between Brazilian and foreign scientists in the context of climate change science and politics see Lahsen 2004.

halt the disbursement of the loans it had granted to colonization policies in the Amazon until the Brazilian government provided warranties that environmental safeguards were in place. Within this scenario of looming crisis, a study by Dennis Mahar, a senior economist from the World Bank, played a particularly important role by making the striking claim that 12.5 percent of the Amazon rainforest was already cleared and blaming the policies of the Brazilian government for this ecological disaster.³⁷ Even though this figure was later proven to be overestimated,³⁸ Mahar was perceived as providing the missing hard evidence that the Brazilian government was responsible for the alarming deterioration of the Amazon. The Brazilian government could join a dangerous blame game to respond to these accusations or face severe financial strain due to restricted lines of credit and the hostility of the international community.

It is possible to argue that PRODES was created in the midst of this crisis to allow the government to remedy the situation and revert the blame game to its favor. PRODES enabled a powerful presentational strategy for blame avoidance. The inability of the Brazilian government to provide reliable and frequent data concerning annual deforestation rates during the 1980s was probably seen as proof of Brazil's incompetence, or even worse, of the country's indifference to one of the world's most important biomes. Indeed, despite INPE's help in the pre-PRODES era, Brazil had generated only two complete deforestation assessments (1975 and 1978), while the three assessments in the following decade (1980, 1981 and 1983) concerned only a selected group of Brazilian states. Thus, by creating PRODES and publishing deforestation data on a regular basis, the government projected an image of a competent and rational manager of the rainforest—a strategy that would help the country to win the argument concerning its rights and capabilities for governing the Amazon, as evidenced by the following quote from a senior politician directly involved in the creation of this transparency regime:

During the 1980s the international community was concerned with the Amazon. [...] As a way to prove that we have the competence to manage the Amazon, the use of satellite images to monitor deforestation started under my government. [...] The idea with this move was again to demonstrate to the international community our preoccupation with the environment.³⁹

The strategy paid off, since the creation of PRODES also allowed the government to dispute the science in Mahar's study and win the argument concerning the extent of deforestation. Mahar had stated that the deforestation data for his study were derived from "Fearnside (1986) and World Bank estimates."⁴⁰ The study of the instrumental dimension of transparency regimes entails at least

37. Mahar 1989.

38. Mahar has recognized this mistake, as his later work adopted PRODES' figures rather than the ones contained in his study of 1989; see Mahar and Ducrot 1999.

39. First author's interview with a senior politician (currently a senator), Brasília, June 2007.

40. Mahar 1989, 6.

three critical issues. Mahar's figures were based on "mathematical projections" which left considerable room for error. With the creation of PRODES, in contrast, the Brazilian government was able to provide "measured values" derived from satellite images.⁴¹ Thus the government was able to win the argument by providing a type of evidence that was epistemologically superior to the evidence put forward by "foreign scientists." At the same time, the government restricted the access to satellite images of the Amazon in order to safeguard its exclusivity on this type of deforestation data. A senior scientist at INPE remarked:

When Brazil started the monitoring of the Amazon, in a way, it was initiated as a response to the expectations, insinuations and estimates from the international community that Brazil had very high deforestation rates in the Amazon. Indeed, Brazil had high values, but not as high as these numbers. [...] For this reason Brazil started doing the monitoring of the Amazon in a defensive manner.⁴²

Finally, the creation of PRODES and the transfer of the role of accountant to INPE allowed the Brazilian government to increase its control over how deforestation data is interpreted and how the related policy problem is framed – another important type of presentational strategy. In Mahar's and other studies it was entirely up to the (foreign) author to provide an explanation for rising deforestation rates, which often meant that the government was blamed for not acting strongly enough to reduce deforestation and (in some cases) for even supporting the destruction of the rainforest through its colonization policies. Most importantly, since the government had no control over how the deforestation data was interpreted and presented, it had no power to frame the problem at hand and divert blame or attract credit accordingly. This situation changed drastically after the creation of PRODES. Now the central government could choose both the timing and the way it presented deforestation data. When bad news (high deforestation) was in order, the government could release the deforestation data jointly with a set of new policies that promised to solve the problem that "had just been detected." It is no coincidence that the key policy changes in relation to the Amazon came about in the years following hikes in deforestation rates (see Figure 1). Similarly, when deforestation rates dropped, the government attributed the success to its own actions, rather than letting the market or other external factors take the credit. For instance, in the same report that presented the positive figures for 1989–1990, the government stated that the drop took place "due to two main reasons: the rigorous law enforcement activity that IBAMA and the national secretary of the environment has been conducting in the region and the cut in the subsidies to the agricultural projects."⁴³

41. Tardin and da Cunha Pereira 1989, 2–3.

42. First author's interview with senior scientist "A" from INPE, São José dos Campos, October 2008.

43. INPE 1991, 1.

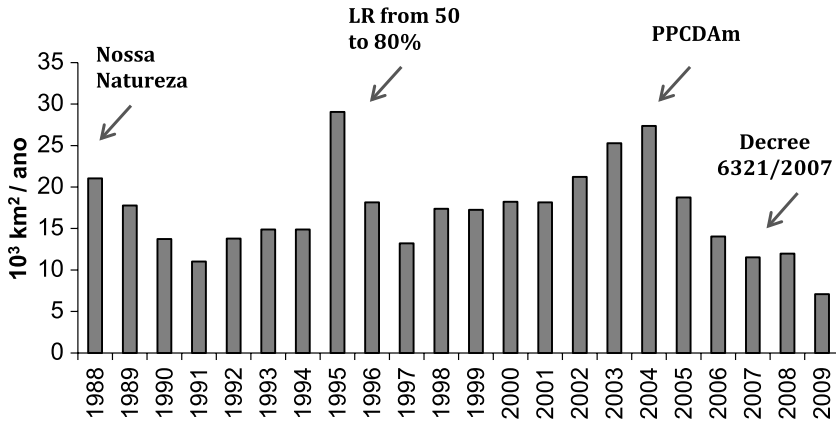


Figure 1
Yearly Deforestation Rates as Measured by PRODES, and the Year of Key Policy Changes

Source: INPE, 2014.

The ability to choose the timing of the release of PRODES deforestation data was another important aspect of the presentational strategy of the central government. While the annual reporting of PRODES deforestation data became regular towards the end of the 1990s, earlier in the decade reporting was rather erratic. When it suited the central government, deforestation rates were calculated and published very quickly. For instance, given the need to thwart Mahar's claims, INPE was requested to calculate deforestation rates in just a few months and to present the results for 1988 in April 1989.⁴⁴ In contrast, data for 1995–1996 were officially released only in 1998 jointly with a projection of the deforestation rate for 1997, a practice Brazil had earlier condemned in relation to Mahar's work. INPE scientists at the time justified these delays in terms of technicalities, but journalists and environmentalists pointed out that the delay was in fact a strategy to protect the central government from blame during a politically sensitive phase for the country. As would later become known, in 1995 PRODES detected the highest deforestation rate since records began. Had this been published during the negotiations of the Kyoto Protocol in December 1997, the argument put forward by Brazil—that it should not have binding targets due to its relatively small level of greenhouse gas emissions—might have been compromised. Moreover, the release of the deforestation data would have been a public relations disaster for Brazilian President Fernando Henrique Cardoso during his trip to England, also in December 1997, to receive the title of *doctor honoris causa* from the London School of Economics and Cambridge University.⁴⁵ The delay in the disclosure of the data also enabled the government to wait until better results appeared in order to (re)present the past in a more

44. Tardin and da Cunha Pereira 1989.

45. Traumann 1997.

favorable manner. When the data for 1995 were finally released, the government also presented the data for the years 1996 and 1997, showing steep decreases. Moreover, by this time the Brazilian government had already signed a presidential decree reducing the total private property that could be deforested legally from 50 to 20 percent. Thus, the Brazilian government claimed that the situation was under control (with more restrictive laws) and that the bad results of 1995 would never happen again—a typical “drawing the line” presentational strategy.⁴⁶ In this way the government (as the accountant jointly with INPE) was able to use PRODES to be one step ahead of its potential critics (the accountees) in the blame game, regardless of the deforestation rates.

The Opening up of PRODES: Neutralizing Blamers Through Participation

In the years that followed the creation of PRODES, the blame-avoidance strategies discussed above had mixed results. On the one hand, the Brazilian government was able to deal effectively with international pressure and normalize its relations with international donors and multilateral banks. It is likely that without the repositioning of the Brazilian government and the blame-avoidance strategies enabled by PRODES, the political success of the UNCED Rio Summit in 1992 and the positive outcome of Kyoto (from a Brazilian perspective) would have been compromised. On the other hand, the instrumental use of PRODES by the central government set into motion a new blame game, with INPE now the main target of the critics.

The circumstances of PRODES' creation led environmentalists and some members of the scientific community to cast doubts on INPE's initial deforestation assessments. For instance, echoing earlier critics who had raised similar reservations against INPE's science in the 1980s, an article from the *Folha de São Paulo* accused INPE of underestimating deforestation and lacking transparency with respect to its methodology. The article accused INPE of not including deforestation that had occurred prior to the 1970s;⁴⁷ not only was the total figure of Amazonian deforestation substantially lower, but some regions, such as the state of Maranhão, which had been already substantially cleared by the 1960s, appeared not to have not suffered any deforestation. Since Maranhão happened to be the home of José Sarney, then the president of Brazil, the article concluded that INPE was “making up” the deforestation numbers due to political pressure. At the same time, the opportunistic delays in the release of PRODES deforestation rates also raised concerns within the scientific community regarding INPE's lack of autonomy from the Ministry of Foreign Affairs and the presidency. Therefore, even though the strategic use of PRODES had enabled the central government to deal with a serious blame crisis, this same strategy provoked a new blame crisis with the scientific community, mass media, and NGOs accusing INPE of scientific

46. Traumann 1998; Tuffani 1998.

47. Tuffani 1989.

misconduct. As civil servants INPE scientists enjoy job security and so did not perceive risk to their positions. However, they felt that the political turmoil might tarnish their scientific credentials, which could alienate them from the prestigious North American and European research institutions where many of them had obtained their PhDs.⁴⁸

In the new blame game, the first strategy adopted by INPE consisted of drawing a line and pledging not to repeat the errors of the past. For instance, Thomas Lovejoy, the scientist who proposed the term “biological diversity” in the early 1980s, reported to Brazil’s main news magazine that “the good news is that there is a promise [by INPE scientists] that this [data delays] will never happen again.”⁴⁹ Similarly, a senior INPE scientist reported, “Fortunately, this does not take place anymore. It is something from the past,”⁵⁰ making a clear distinction between problematic “old times” and a positive present and future. INPE also adopted a policy strategy. It actively involved the scientific community and members of NGOs to share responsibility. In response to the methodological accusations that surfaced during the 1990s INPE decided to open up to the scientific community rather than isolate itself in a defensive manner. The opening up had a humble start when INPE agreed to an inspection from scientists from NASA following accusations concerning the unreliability of PRODES data. In the following year, scientists from INPE, including Antonio Tebaldi Tardin, the leader of the institute’s deforestation assessments, collaborated with Philip Fearnside, one of INPE’s most outspoken critics during the 1980s. The new methodology that emerged took into consideration deforestation before the 1970s, increasing the deforestation figure by 67 percent compared to PRODES initial figure.⁵¹ Collaboration between INPE and some of its former critics paid off. In the years that followed attacks on INPE’s methodology came to a halt, some studies started acknowledging PRODES as a reliable source, and many others started using PRODES data in their own studies. INPE’s “herding” strategy allowed it to share the burden (and potential blame) related to PRODES methodology with members of the scientific community, the main set of actors that could accuse INPE in this regard.

INPE launched a similar herding strategy in relation to NGOs. Big environmental NGOs, such as Greenpeace and WWF, have a long history of conflict with the Brazilian government over its policies towards the Amazon rainforest. One of the key complaints of these groups was the difficulty of getting beyond the aggregated deforestation figures provided by PRODES to detailed geo-referenced deforestation maps and satellite images—the raw data from which the deforestation rates are calculated. Driven by the conviction that all scientific data should be available to public scrutiny and by a desire to contribute to the environmental preservation of the Amazon rainforest, a younger generation of scientists within

48. Lahsen 2004.

49. Traumann 1998, 35.

50. First author’s interview with senior scientist “C” from INPE, Brasília, September 2012.

51. Fearnside, et al. 1990.

INPE was also willing to open PRODES to the NGOs and the general public. In this regard, one INPE scientist confided that while deforestation rates were increasing and data were withheld from public scrutiny, he “was sleeping less than two hours and [...] was tearing out [his] hair.”⁵² This suggests not only the frustration of some INPE scientists with the central government’s irresponsiveness, but also the deep personal commitment they have to the environmental protection of the Amazon rainforest.

But despite these internal and external pressures, the Brazilian central government systematically declined the requests to render PRODES raw data public. As a senior INPE scientist explained, the Ministry of Science and Technology, the Ministry of Foreign Affairs and many old school INPE scientists considered raw data a “strategic asset” and its secrecy a “matter of national security.” It was only with the election of Lula da Silva for the presidency in 2003 and the appointment of Marina Silva as the minister of environment that the political context offered an opportunity for change. A senior scientist from INPE explained that Marina Silva invited many NGOs to take part in the discussions and asked INPE to provide them full access to PRODES data. But even so, some INPE scientists were not sure that they would succeed. In order to avoid the possibility of having the opening up of PRODES data vetoed yet again, a group of INPE scientists decided to bypass the normal hierarchical procedures and published PRODES raw data directly on the Internet. The purpose of this radical transparency tactic was to create an irreversible situation. One of the main initiators of this action explained how this took place:

I asked only one person if it was possible to open the deforestation data – to Marina. I did not ask my own director at INPE. With the support of the minister Marina we have put the data on the Internet. In any case, there isn’t a single document authorising this. But there were also no official requests asking the data to be taken out from the Internet. The idea is that if we made a formal request, this would have been evaluated by different parts of the government and somebody would have said “no.” And you cannot win against a “no” from the Ministry of Foreign Relations.⁵³

The publication of PRODES raw data online took an important strategic asset in blame games out of the hands of the central government, since it prevented it from choosing the timing of publication and made it more difficult to frame deforestation rates to its advantage in an authoritarian way, while protecting INPE from facing accusations of political interference. Further, a burst of collaborative activities involving NGOs, INPE, and the central government became evident. For instance, INPE and the ministry of environment hold an annual “PRODES Seminar” in which prominent NGOs such as Greenpeace, IPAM, ISA, and WWF join governmental agencies in analyzing PRODES deforestation data

52. First author’s interview with senior scientist “B” from INPE, São José dos Campos, October 2008.

53. First author’s interview with senior scientist “A” from INPE, São José dos Campos, October 2008.

and proposing solutions. This and other participatory practices allowed the central government (and the ministry of environment in particular) to obtain some consent from civil society. Rather than shouldering the full burden for its actions, INPE's PRODES data facilitated the sharing of responsibility for policy-making between the central government and some of its fiercest (former) critics.

The involvement of NGOs by the Ministry of Environment works for us not as a validation but as an independent critical appraisal. In this way we are able to make seminars to analyze this result [of deforestation]. Here instead of simply giving a punch by saying "five million kilometres have been deforested etc...", we can come out [to the public] saying that "five million kilometres of deforestation have been lost" but with the analysis of WWF, Greenpeace, IPAM, etc... we can enrich the data instead of making from it just a macabre solemnity.⁵⁴

Thus INPE scientists adopted in the opening up of PRODES a new way of conducting politics that was much more consonant with the restoration of democracy following the end of the military regime in 1985. The hard strategies of the 1980s and 1990s were consonant with a hierarchical, control-obsessed, and censorial political culture. The strategies underpinning the opening up of INPE in the early 1990s and of PRODES in 2003 suggest the presence of a soft approach: a more egalitarian, participatory society consonant with democratic forms of governance. According to various interviewees, the soft power blame-avoidance strategies adopted by INPE have paid back in several regards. Even the most conservative parts of the government have recognized the importance of leading by example rather than by decree. In this regard, they mentioned that Brazil adopted environmental data transparency as part of a broader strategy to turn the country into a "green power" rather than a mere economic or military power like other emerging countries. By doing so, INPE and the central government achieved three main effects. First, INPE was able to improve its profile toward NGOs and the scientific community. Second, by becoming more independent INPE became less of a "lightning rod" for the central government and transferred to it the responsibility to deal with crises. Third and most importantly, the central government was able to share the responsibility of its policies and partially neutralize potential blamers, since the decision-making process now involved actors historically critical of the government for its lack of concern for the environment.

Conclusions

It would be wrong to imply that the emergence and evolution of PRODES are merely the consequence of Machiavellian moves and counter-moves of actors in environmental politics. As already noticed by studies in the legal tradition, the success of PRODES as a key transparency regime in Brazil could be attributed

54. First author's interview with senior scientist "B" from INPE, São José dos Campos, June 2007.

to the heavy investments and continuous political support enjoyed by INPE, its openness and research excellence and its remarkable capability to adapt to different institutional contexts and development aims. From an economic perspective, the improvements in law enforcement effectiveness and efficiency offered by satellite technology also played an important role in the success and expansion of this transparency regime.⁵⁵ However, it would be simplistic (or even naïve) to consider that the evolution of PRODES was a strictly normative and technical matter divorced from political dynamics. The INPE transparency regime did not appear “by decree,” full-grown and in a full set of armor, like Athena did from the head of her father, Zeus. Neither was it the outcome of a linear ascension towards a predetermined normative goal. Instead, the trajectory that led to a strong transparency regime in the Brazilian Amazon was a muddy and tortuous path in which the actors were concerned not only with the “righteousness” or “effectiveness” of transparency regimes but also with the possible *uses* of these regimes and the information they provide as part of broader political strategies (see Table 1). This suggests that the study of transparency regimes should pay attention not only to the normative and substantive dimensions, but also to its *instrumental* dimension. Thus we can argue that the study of the instrumental dimension of transparency regimes entails at least three critical issues.

First, the relationship between accountors and accountees is more complex than the normative literature on accountability and transparency suggests. In the first crisis, the Brazilian central government was the accountor, and the civil society and international community the accountees. By the end of the first crisis, the central government transferred to INPE some of the responsibility concerning the Amazon through the creation of PRODES. Thus a new actor entered the scene to share the accountability burden with the central government. In the second crisis INPE was the main accountor, while the central government could use PRODES behind the scenes to deflect blame. Yet, by the end of the crisis INPE was able to revert the situation to its benefit. By publishing PRODES directly online, INPE forced the central government to respond to deforestation figures with policy measures. This suggests that not only is blame passed around during blame games, but also accountors and accountees may change positions.

Second, the actors who generate transparency data may have a more active role in shaping transparency regimes than previously captured by the literature. In contrast to Hochstetler and Keck (2007) and more recent studies on the formation of environmental policies, the current transparency literature suggests that the scientific and bureaucratic actors generating the data are either invisible or portrayed as spin doctors. The case of INPE shows that scientists not only resented the instrumental use of their work, but also were ready to take action and subvert the status quo. The decision of the group of INPE scientists (with the support of the minister of environment) was bold and pioneering, a “guerrilla transparency” move of sorts, at a time when leaking events on the Internet was not as common

55. Rajão 2013; Hayes and Rajão 2011.

Table 1

Summary of the Blame Games Related to the Creation and Opening Up of PRODES

	<i>Creation of PRODES: Creating a Convenient Accountor</i>	<i>Opening up of PRODES: Neutralizing Blamers through Participation</i>
Accountor	Brazilian government (first) INPE (later)	INPE (first) Brazilian government (later)
Accountee	Heads of other states, multilateral banks Environmental non-governmental organizations Mass media Conservative sector of the Brazilian government	Scientific community, NGOs
Perceived harm/loss	Loss of sovereignty Hurt national pride Disbursement of loans halted Hard evidence of damage (Mahar) Incompetence of the state	Politicized science due to too much control by the state
Strategies	Hard power strategies: <i>Presentational</i> : Win the argument by providing a self-image as rational manager caring for the environment; appealing to scientific authority concerning deforestation data; framing and controlling of the timing of the debate concerning the Amazon	Soft power strategies: <i>Presentational</i> : "Sorry democracy" <i>Policy</i> : Herding strategy by involving other scientists in the constitution of its methodology and NGOs in policy-making
Transparency regime	Aggregated yearly deforestation rates by state (9 states) and for the whole Brazilian Amazon	Aggregated yearly deforestation rates by state (nine states) and for the whole Amazon Detailed deforestation maps, HR images and methodology enabled accountability relevant data and data "enrichment" by NGOs

as nowadays. Furthermore, it showed that, not unlike the cases of Edward Snowden and Julian Assange, some actors understand the transformative power of transparency and are willing to take high risks to use it to foster their political beliefs. Thus technical staff, especially when endowed with scientific credentials and political exposure, can shape transparency regimes.

Third, the longitudinal perspective of this study sheds light on the relationship between social context and transparency regimes over time. As mentioned above, the critical literature points to the cultural embeddedness of blame games and transparency regimes. Expanding on this assertion, our analysis suggests that transparency regimes do not adapt elastically to rapidly changing social contexts. Inelasticity was evident in the insistence of the central government to use PRODES in hard power strategies, almost a decade after the end of the military regime. But such discrepancies and related tensions can also have a generative effect. The history of PRODES suggests that changes in the social context over time may turn previous blame-avoidance strategies into the cause of a future crisis and trigger a new blame game. Thus, while the hard presentational strategies during the 1990s helped the government for many years, they engendered a crisis with INPE at its center that led to the opening up of PRODES later. This suggests that the careful examination of blame games and transparency regimes over time might unearth hidden causal relations and even anticipate new blame crises and blame-avoidance strategies.

Finally, we suggest paying more attention to an instrumental perspective of environmental transparency in practice as a productive complement to existing normative and substantive approaches. It is not enough to ask whether transparency politics live up to their normative and democratic promises (normative dimension) and whether disclosure of environmental information leads to a better environment (substantive dimension). Transparency politics needs an instrumental approach that is attentive to motivations shaping the behavior of scientific and political actors in environmental governance. Blame avoidance, the motivation considered here, may be a dominant force driving bureaucratic and political behavior but is certainly not the only one, especially in situations where more reflexive governance is possible. In Brazil, the blame-avoidance strategies deployed at key historical moments of crisis eventually gave rise to a transparency regime that has become the main “thermometer” in tackling deforestation in the Amazon rainforest. This article illustrates that blame avoidance, despite its negative connotations, can indeed increase transparency and heighten participation in policy debates.

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