

ORIGINAL ARTICLE

Global networks in national governance? Changes of professional expertise in Amazon environmental governance

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Abstract

In 2019, wildfires in the Amazon renewed international concern about Brazilian environmental policy, led by Jair Bolsonaro. As one of the biggest repositories of the world's biodiversity, the Amazon Rainforest has been a source of concern in global environmental governance. Given this salience, one would expect that domestic governance would be highly permeated by professionals with international circulation and that transnational ties would be a central target of Bolsonaro's populist nationalistic perspective. In this article, I seek to understand whether and how professionals involved in policymaking in the Brazilian Ministry of the Environment are connected to national and international organizations, by analyzing the networks of career paths of high-ranking staff in the Rousseff, Temer and Bolsonaro administrations. The data show a consistently low percentage of ties between professionals and international organizations. However, the types of international experience and knowledge that are deemed important shifted significantly under Bolsonaro.

KEYWORDS

Elite Networks, Environment, Expertise, Governance, Network Analysis

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INTRODUCTION

In 2019, wildfires in the Amazon renewed international concern about Brazilian environmental policy. Data released by the National Institute for Space Research (INPE) showed that deforestation in the Amazon increased by 34% between August 2019 and July 2020, compared with the previous year.¹ From August 2018 to July 2019, more than 9200 km² was deforested—an area six times the size of the city of São Paulo. The blame was centred on the environmental policies of the then–new Brazilian government, led by Jair Bolsonaro. This concern was met with repeated rebukes. Bolsonaro questioned the numbers,² harassed and dismissed the personnel that produce them,³ blamed Indigenous peoples⁴ for starting fires in the biomes of the Amazon, Pantanal and Cerrado, and allowed farmers and loggers that clear land to expand agribusiness areas.⁵ International actors were even directly targeted in two of his speeches at the United Nations General Assembly. In 2019, Bolsonaro attacked those that called for stronger action:

the sensationalist attacks we suffered from much of the international media following the outbreak of fires in Amazonia stirred our patriotic sentiment. It is a fallacy to say that the Amazon is the heritage of humankind, and a misconception, scientists confirm, to say that our Amazonian forests are the lungs of the world. In resorting to those fallacies, certain countries, instead of helping, have amplified media lies, behaved disrespectfully and shown their true colonialist colours. They have even called into questioned that which we hold most dear: our sovereignty.⁶

In 2020, Bolsonaro repeated his criticism toward international institutions and mentioned their ties with ‘unpatriotic’ Brazilian civil associations. He claimed they were promoting a disinformation campaign about the Amazon, ‘anchored on shady interests’ to undermine the government.

In fact, the Amazon has been a matter of international awareness since at least the multilateral development bank campaign in the 1980s (Keck & Sikkink, 1998). This campaign connected the local rubber tappers’ movement to national and international activists. Connections built there were crucial in providing content to the agenda of sustainable development at the Rio de Janeiro Earth Summit in 1992. In the national arena, this movement helped bringing together coordination among environmental civil associations and, ultimately, was at the core of the institutionalization of the environmental field in Brazil (Alonso et al., 2007; Hochstetler & Keck, 2007).

Considering these national–international ties between actors around the Amazon, one would expect that the environmental governance in Brazil would be highly permeated by professionals with international circulation. Transnational professionals are highly influential in the governance of multiple issues, privileging specific practices and techniques in the policymaking process (Haas, 1992; Keck & Sikkink, 1998; Sending, 2015; Sending & Neumann, 2006). Hence, there is an expectation that Bolsonaro’s populist nationalistic perspective on the governance of the Amazon and the environment would turn these global connections into a natural target. At the same time, shifts in the policy-making bureaucracy have become a way for elected populists to implement their political projects and bypass institutional resistance. These transformations can be a way to capture the long-term consequences of the election of populists on building or dismantling state capacity.⁷

In this article, I empirically assess transformations in professional networks associated with the governance of the Amazon. I seek to understand how these ties evolved at the highest level of environmental policy decision-making in Brazil. More specifically, I assess whether and how Bolsonaro’s administration changed the nature of those ties. The empirical focus here is the Ministry of the Environment (MMA). The MMA figures prominently in my analysis because of its central position as the arena where the struggle between groups disputing the framing of environmental policy unfolds, becoming a prism for studying which actors succeed in becoming dominant in the field. There, groups with distinct capitals jockey for influence over environmental governance in Brazil. These include state bureaucrats, large landowners, international and national non-governmental organizations (NGOs), intergovernmental organizations (IGOs) and private firms.

To capture the politics within the MMA as a power political field with diverse connections to national and international groups, I map the changes in the relations of those who occupy its key positions. In this sense, it is possible to reconstruct the institutional trajectory of the MMA through changes in its bureaucracy and structure during the last three presidencies in Brazil. I analyse changes in the relations between the government and the groups involved in environmental governance in Brazil using data on high-ranking personnel in the MMA. As these positions are totally discretionary, there is a wide margin for the government to employ anyone. The focus here is the professional experiences and affiliations in social groups of 212 politically appointed professionals in the MMA between 2013 and 2020, in the administrations of Dilma Rousseff, Michel Temer and Jair Bolsonaro. These ties allow to compare the professional profile of high-ranking personnel across administrations, consider their expertise, and plot social networks for each administration.

This comparison makes it possible to determine that there were profound changes under Bolsonaro's government. MMA professionals' international ties amount to a small proportion of total ties across the three administrations. However, the types of experience and knowledge from the international arena that are deemed important shift from administration to administration. Whereas experience in IGOs traditionally associated with global environmental governance was more frequent for high-ranking professionals during Rousseff's and Temer's administrations, they were much less so under Bolsonaro. Instead, his government brought in another varied set of professionals, whose international ties were mostly to private firms, most of which were not linked to environmental governance. Furthermore, among professionals who did have previous environmental experience, ties with private consultancy firms stand out. This suggests that Brazil has retreated from being more integrated into environmental transnational policy networks with a focus on public governance, to valuing experiences in the private sector such as finance. More importantly, the longitudinal analysis gives insight into how national contexts and political struggles shape the coupling of global networks into domestic policymaking. While the findings pertain to the Brazilian context, they may help us understand how populist leaders dismantle expertise and ability in issue areas they stand against and which ones they select to replace them.

After this introduction, the article is divided into seven sections. The second section discusses the literature on transnational professionals and their ability to influence national policy outcomes. In the third section, I present the dynamics of staff change in the Brazilian public administration. In the fourth section, I discuss the role of international ties associated with the Amazon in the institutionalization of environmental governance in Brazil. The fifth section is divided into three subsections, outlining data and method, and analyzing the changes in the networks of high-ranking professionals in the Brazilian Ministry of the Environment. Finally, in the synthesis and the conclusion, I discuss the implications of changes in the pattern of the appointment to the higher ranks of the ministry as a parallel to changes in the political approach to environmental issues and global framings around the Amazon.

TRANSNATIONAL POLICY NETWORKS AND BRAZILIAN PROFESSIONALS IN ENVIRONMENTAL INSTITUTIONS

As one of the biggest repositories of the world's biodiversity, the preservation of the Amazon Rainforest has progressively become a policy concern for multiple actors globally. This attention has been translated into attempts by international and transnational actors to influence local governance in Amazonian countries. Part of this influence was historically exerted from outside the Brazilian state, through pressures from foreign states, IGOs and NGOs (Keck, 1995; Keck & Sikkink, 1998). Another key influence lies within the national state, in the constitution of the institutional framework underpinning the governance of this ecosystem and environmental policymaking in general (Hochstetler, 2021; Viola & Franchini, 2017). Here, this article's argument follows a body of literature that suggests that this international influence over domestic governance can be understood in terms of transnational policy networks.

This scholarship claims that professionals—such as activists, scientists and experts—who circulate around international organizations, NGOs and firms, can better claim authority and shape policy outcomes (Harrington & Seabrooke,

2020; Henriksen & Seabrooke, 2016, 2021 ; Seabrooke & Henriksen, 2017). Henriksen and Seabrooke (2021, pp. 220, 221, 225) point to three perspectives on how and why the circulation of elites in transnational organizations enhances their abilities to influence policymaking in their home states. Field-theoretical perspectives tend to view international circulation as a source of capital, which can give professionals an advantageous position in power struggles in their domestic field of power (Bourdieu & Wacquant, 1992). Marxist- and Gramscian-inspired perspectives focus on internationalization as a means of capitalist hegemony, by tying domestic elites to similar world views and practices (Sklair, 2009; Van Apeldoorn & De Graaff, 2014, 2015). While the field-theoretical perspectives emphasize the role of the domestic struggle in defining how transnational policy networks shape domestic policy, the hegemony approach tends to stress the influence of capitalism and neoliberalism in these power dynamics (Gill, 1995; Levy & Newell, 2002; Van der Pijl, 2005). Seabrooke and Henriksen (2021, p. 225) point to a third approach, the institutional one, that views transnational policy networks as rooted in careers and clubs, mediated by community-based socialization, where actors are guided by their positions in both domestic and transnational organizations (Djelic & Quack, 2010). In this institutional/Weberian perspective, the ability of transnational professionals to influence domestic policy is more contingent on the strategies that these professionals may use to establish links via domestic and international networks (Abbott, 2005; Henriksen & Seabrooke, 2016). While all perspectives stress the ability of transnational professionals to influence domestic policy, the institutional approach not only points to the contingency of such influence but also indicates where to study the domestic-international linkage: the career paths of the professionals themselves.

Different strands of the literature on transnational policy networks also acknowledge that the influence of internationalized actors plays out differently for different countries. According to this perspective, wealthy countries have greater ability to shape the policy scripts, practices, norms and rules circulating in transnational networks, which then shape the policymaking of professionals from poorer countries when they return to their domestic governments (Dezalay & Garth, 2010). This asymmetry influences how actors can claim expertise and build authority to have such influence (Finnemore & Barnett, 2004; Seabrooke et al., 2020; Sending, 2015). Most importantly, limited budget and state capacity may lead poorer states to allow this influence of transnational actors over public policy and supplement their staff with professionals funded or provided by foreign or international organizations. Hence, even for poorer states, gains in state capacity enhance their ability to select inputs from transnational actors, making their level of domestic influence more contingent.

In Brazil, variation in wealth and resources for building state capacity process also shaped these dynamics. Since the redemocratization, pressure from international actors succeeded in reframing risks associated with the Amazon from a geopolitical issue to an environmental issue (Becker, 1988, 2016; Keck & Sikkink, 1998; Viola & Franchini, 2017). More importantly, networks surrounding environmental concerns about the Amazon were crucial to the development of environmental governance in Brazil (Hochstetler, 2021; Hochstetler & Keck, 2007; Zhouri, 2004). As discussed in the next section, a large number of the staff working on environmental policymaking in Brazil's federal government, from the 1990s to the early 2000s, were consultants funded by United Nations agencies. However, as the field matured around the MMA, the state became less dependent on these transnational networks (Abers & Oliveira, 2015). The greater ability of the Brazilian state to recruit and employ permanent staff allowed it to more selectively choose which kinds of professional experience would be valued when appointing key decision-making positions in the ministry.

This context makes Brazil a relevant case to understand the conditions under which transnational policy networks may influence domestic policymaking. While Brazil's lower state capacity, combined with greater international attention to the Amazon and strong international connections of its environmental activist, would make one expect strong linkages, the increasing state capacity building gives a greater leeway for shaping those linkages or even for a potential delinking. Therefore, the empirically driven focus of the institutional framework to discuss transnational policy networks becomes particularly relevant to study this case, by allowing for a closer dialogue with extant explanations on the composition of bureaucracies in Brazil. While the literature on transnational networks expects that bureaucratic composition and environmental policymaking would be influenced by international fields, the scholarship on environmental policymaking in Brazil can give more detailed insight into the conditions that shape the linking or de-linking of these networks.

The literature on environmental politics in Brazil is rich and offers several explanations for policy and institutional change. In a recent work, focusing on the evolution of climate institutions in Brazil, Hochstetler (2021, p. 51) points to three drivers of institutionalization: 'broader political institutions, bureaucratic configurations and international influences', which reflect three main accounts of the puzzle. The first builds on the perspective that extant political institutions offer a set of opportunities and constraints for any policy or institutional change such as staff changes. As discussed below, the rules for recruiting tenured officials limit the ability of elected officials to select staff for several technical positions, while the rules for recruiting most high-rank decision-making positions (such as those under study in this work) give the executive branch greater discretion. In fact, Rodrigues-Filho and colleagues (2015) evidence how government change results in a power vacuum, because of staff turnover, with relevant impacts over policy outcomes. Aamodt (2018) shows that these government changes work as policy windows in which different pressure groups and coalitions concentrate efforts on affecting institutional, bureaucratic and policy change.

The second set of explanations concentrates on bureaucratic configurations, which are here the object of analysis more directly. These configurations tend to reflect the political struggle between distinct institutions of the state, but also between them and civil society. Viola and Franchini (2014) argue that the success and pitfalls of Brazilian environmental policy during the last decades are the result of a struggle between progressive and conservative coalitions, and their ability to influence power struggle within the state. Hochstetler (2021) demonstrates how even successful policies can spur the formation of coalitions to counter them. Hochstetler and Viola (2012) also find that even international commitments in Brazil are mostly shaped by domestic interest group pressures. In this sense, one can expect that coalitions and pressure groups will strive to influence government policy and shape which professionals and expertise will be placed at high-rank policymaking positions.

Finally, international influences tend to work as external shocks. This can occur through responses to international negotiations that set commitments and raise the salience of certain issues (Hochstetler, 2021; Hochstetler & Viola, 2012). They can also occur through framings, resources, and expertise such as highlighted by the literature on transnational policy networks. The role of IGOs in staffing early environmental institutions in Brazil is a key example (Abers & Oliveira, 2015; Losekann, 2012).

Altogether, these explanations provide some expectations about the conditions for the linking or de-linking of transnational professional networks into policymaking. First, one can expect changes in high-rank policy-making staff to occur between governments. Second, one can also expect the intensity and composition of these changes to be shaped by the struggle among coalitions and pressure groups attempting to influence environmental policy within Brazil. Third, international fields work as a latent influence that needs to be channeled into policymaking through its influence on domestic coalitions. Government changes work like switches that connect networks into the policy-making bureaucracy. These networks can be from within domestic civil society, the state bureaucracy itself and may have also been circulating in transnational networks.

Against this backdrop, this article investigates the presence of transnational professionals in three presidential administrations after MMA's consolidation, from 2013 to 2018. I follow an institutional approach that conceives the interplay between domestic and transnational networks as dependent on the linkages that the professionals themselves create across these realms. Thus, the trajectories of politically appointed high-rankings staff in the ministry become lenses for revealing not only the level of linkage between transnational and domestic policy networks, but also which types of international and domestic expertise each administration values for its policymaking.

DYNAMICS OF STAFF CHANGE IN BRAZIL'S PUBLIC ADMINISTRATION AND MMA

This short section presents the dynamics of personnel composition in the Brazilian public administration and the MMA as background for the empirical analysis. Currently, the Brazilian federal government employs approximately 600,000 people. The most significant proportion of staff is composed by civil servants, recruited through public competitive examination for tenure positions. Another proportion of staff is politically appointed, being hired and fired at the

discretion of the executive branch. Brazil has one of the highest numbers of discretionary staff in the world (Praça et al., 2012), around 22,000. Those posts—called Management and Advisory Staff (DAS)—are classified into six levels both in the ministries and their subordinated agencies. Level 6 corresponds to the secretaries, the highest level of appointed staff. Level 5 corresponds to the position immediately below, that of department director within the secretaries. Level 4 positions are comprised of general coordinators and program managers. Until 2016, the federal government had around 5000 appointed staff at levels 4, 5 and 6. The appointees can be seconded from other public organizations, at the federal, state or municipal levels or recruited externally.

This kind of political positioning system brings flexibility to the administration, enabling the recruitment of professionals with external competencies and also providing opportunities for public servants to apply their expertise regardless of their statutory category. While this instrument can lack coherence and transparency, in Brazilian presidentialism, these positions have proven essential for coalition building (Abranches, 1988; Raile et al., 2011). Individuals in higher ranks of the administration can be appointed because of their technical expertise, experience and specific attributes but also due to political connections, negotiations and bargaining between parties and political interests (D'Araújo & Lameirão, 2011). These positions, given their role in decision-making and public policy implementation, are part of a crucial space where the government can mediate its interaction with other social and political actors.

Approximately 20% of the 986 employees of the MMA and its administrative arms, the Brazilian Institute of Environment and Renewable Natural Resources (Ibama), the Chico Mendes Institute of Biodiversity and Forests (ICMbio), and the Rio de Janeiro Botanical Garden (JBRJ), are politically appointed. In all government transitions since redemocratization, there has been a substantive degree of turnover between administrations, with new staff being recruited. This tends to be more expressive across presidencies of different parties (see Figure A1 in Appendix). This resonates with Rodrigues-Filho and colleagues' (2015) findings that staff turnover tends to be intense after elections, creating a managerial instability with implications for policy outcomes. In the remainder of this work, I analyse the dynamics of filling this power vacuum, the networks and forms of expertise it links and de-links to environmental policymaking in Brazil.

MMA AND THE INSTITUTIONALIZATION OF ENVIRONMENTAL GOVERNANCE IN BRAZIL

This section presents the evolution of the environmental policy field in Brazil in perspective. The origins and evolution of the MMA are closely linked to the growing international attention on the Amazon. At first, this linkage came in the form of pressure: in the 1970s, international concern around the military regime's projects on infrastructure and colonization in the Amazon resulted in the first nation-wide institutional bodies (Keck & Sikkink, 1998). With the redemocratization process, Brazil would create its Ministry of Environment in 1985. In the international arena, the idea of 'sustainable development'—aligning nature conservation, economic growth and social justice—gained strength via the voices of diplomats from third world countries (Keck, 1995). In the late 1980s, the rubber tappers' extractivist movement based in the state of Acre, in the Amazon, and its leader, Chico Mendes, won international acclaim for their struggle to preserve traditional livelihoods against the encroachment of ranchers. By offering a 'concrete picture of how local populations lived in the forest, environmentalists were able to make the tropical forest issue real to an international public' (Keck & Sikkink, 1998, p. 141). In 1988, Mendes was murdered in an ambush by a rancher. His assassination brought greater attention to the struggle of the rubber-tappers' movement and the socio-environmental tensions growing in Amazonia.

A few years later, the Rio-92 United Nations Conference on Environment and Development, and especially, the preparation for the summit, were crucial in promoting the professionalization, coordination and internationalization of environmental NGOs in Brazil (Hochstetler & Keck, 2007). The NGOs overcame the shutting of official participatory channels by coordinating among themselves their participation in the conference and, consequently, strengthening their footprint in civil society and with international organizations (Alonso et al., 2007). Rio-92 brought important insti-

tutions to Brazil, such as Greenpeace, WWF and the Nature Conservancy, that opened offices in Manaus and Brasília (Oliveira, 2016).

This national–international mobilization around Brazilian environmental politics helped environmental policy to re-elevate its place in Brasília. The MMA, turned into a Secretary by President Collor, recovered its ministerial status as the Ministry of the Environment and Legal Amazon in 1993, in José Sarney presidency. Important projects - such as the Pilot Program for Tropical Forest Protection in Brazil (PPG-7) - were created and the awareness around Amazon was consolidated in the national and international debate. However, budgetary and human resources were still scarce. During Fernando Henrique Cardoso's government and most of the 1990s, the solution entailed relying largely on international assistance. According to Losekann (2012), up until 2003, 95% of the ministry's workforce were on short-term contracts or were political appointments. Most of the personnel were hired as "consultants" via multilateral technical cooperation agreements to work on specific projects, especially through the United Nations Development Programme (UNDP), but also through the UN Environment Programme (UNEP), the World Bank, the Inter-American Development Bank (IADB) and the Organization of American States (OAS). These arrangements were a common practice to overcome the shortage of career civil servants in the federal administration (Galvani & Morse, 2004). Most of this project-specific personnel at MMA had expertise acquired in other environmental organizations, such as NGOs, making the ministry historically dependent on the knowledge and skills developed in civil society (Abers & Oliveira, 2015; Zhou, 2004). The transnational networks that had influenced the environmental agenda through external pressure from the outside, were then involved in shaping policy from within the Brazilian state.

With the election of Luis Inácio Lula da Silva and the appointment of Marina Silva⁸ as minister, environmentalists and the social movement gained political influence over the administration (Viola & Franchini, 2014). This further opened space for civil society to occupy key positions in the MMA. In 2007, for instance, four out of the six MMA secretaries were headed by people who came from national and international NGOs.⁹ Another important characteristic of Silva's ministry was the institutional expansion of the MMA, with the creation of the ICMBio, to manage conservation units, and the Brazilian Forest Service (SFB), which focused on deforestation. This institutional strengthening of the ministry was undertaken through the recruitment of tenured public servants via public competitive examination, incorporating civil society into the bureaucracy (Abers & Oliveira, 2015). Marina Silva resigned from the cabinet in 2008, due to tensions within Lula's administration stemming from pressures to approve controversial projects (Hochstetler & Montero, 2013). After Silva's resignation, Carlos Minc was appointed as minister. His perspective was more aligned with the executive, while maintaining connections with the environmental coalition (Aamodt, 2018).

Dilma Rousseff's administration (2011–2016) was marked by the appointment of a new technical bureaucracy to key positions in the MMA. The main example was minister Izabella Teixeira, herself a career staff. This privileging of career bureaucrats was meant to make the government less dependent on the capacities of civil society actors and establish a more robust permanent technical staff (Abers & Oliveira, 2015). As a consequence, the influence of environmentalist groups diminished in comparison with other pressure groups. For instance, groups connected to agribusiness, mostly in the Ministry of Agriculture, and also those connected to the energy sector, amidst the expansion of the oil sector, gained sway in the government (Viola & Franchini, 2014). According to Pereira and Viola (2021, p. 20), 'the MMA (...) resigned itself to the vision and orientation followed by the new administration'. Teixeira received much criticism from environmentalists for her alignment with the big infrastructure projects carried out by Rousseff's administration (Hochstetler, 2017). The approval of a new Forestry Regulation (Sauer & França, 2012) and the construction of Belo Monte Dam are symbolic, having caused a rupture between the environmental movement and the Worker's Party (*Partido dos Trabalhadores*–PT).

Dilma Rousseff was deposed by a very controversial impeachment in 2016, during her second term. Her vice-president, Michel Temer, was elevated as president thereafter. Temer's administration was characterized by the consolidation of the anti-environmentalist forces that were already growing in strength during Rousseff's term (Pereira & Viola, 2019, 2021). On one hand, the ministry was then headed by politicians with environmental roots. Sarney Filho had been minister in 1999 and, in 2016, was an established figure in the federal legislative environmental debate, in his eight term as a representative elected for the Green Party (*Partido Verde*, PV). Edson Duarte, also a PV

congressman, succeeded him and stayed in the post for 8 months. On the other hand, the influence of representatives connected to large landholders and agribusiness, the so-called *ruralistas*, expanded (Rochedo et al., 2018).

It is important to note that the status of Brazil as a provider of commodities and primary resources persisted and expanded throughout these decades. The expansion was always in tension with environmental policy. Parallel to the institutionalization of environmental governance, there was the institutionalization of the *ruralista* lobby in Congress, via the Parliamentary Agricultural Front (FPA). The sustained revenues to agribusiness following the commodities boom in the 2000s further strengthened their power base. With that, their points of conflict with environmental policy also grew, since cattle raising and soy cultivation tend to find their main frontiers in the Amazon.

The election of Bolsonaro and the appointment of Ricardo Salles as minister would allow for a representative of the *ruralistas* themselves to lead environmental policy. In an event with representatives of the FPA, Bolsonaro even said to the *ruralistas*: ‘my government is yours’.¹⁰ The explicit objective of Bolsonaro’s project is the flexibilization of environmental regulation including opening conservation units and Indigenous areas to mining, agriculture and ranching (Ferrante & Fearnside, 2019). During his presidential campaign, Bolsonaro stated his intention to abolish the MMA.¹¹ While the ministry was maintained—following pressure from multiple actors, including *ruralistas* worried about repercussions for Brazilian exports (Ferrante & Fearnside, 2019)—its institutional structure was dismantled. Bolsonaro and Salles moved the SFB to the Ministry of Agriculture (also headed by a *ruralista*, Tereza Cristina) and abolished the Secretary of Climate Change and Forests, where policies on the Amazon were concentrated. The institutional weakening also reached Ibama, the most important administrative arm of MMA. During Bolsonaro’s first 2 years of administration, Ibama issued the lowest number of fines in 24 years¹² while forest fires and deforestation grew to record levels in the Amazon.

The remainder of this article examines whether and how the changes to the environmental policy were manifested in high-ranking staff changes. This analysis gives perspective into the social groups, at the national and international level, striving for power in the policy field structured in the MMA, comparing Rousseff’s, Temer’s and Bolsonaro’s administrations.

Analyzing the professionals comparatively in these three administrations, I focus on the period after the expansion and consolidation of the MMA under Lula. This comparison gives us some level of variation in the domestic landscape to contrast patterns of linkages established with transnational policy networks. It can give us insight into whether the types of domestic and international expertise informing environmental policymaking reflect changes in government and coalitions. The first administration analysed, Dilma Rousseff (from 2011 to 2016), represented a continuity with the left-wing coalition that led the institutionalization of MMA. The second one, commanded by Michel Temer (from 2016 to 2018), brought to power an opposing coalition of established centre-right-wing parties and politicians. And finally, Jair Bolsonaro (since 2019) represents a different ideological rupture, with his strong anti-establishment populist rhetoric. Furthermore, his public remarks denouncing globalism and environment activism would make one expect a rupture with international expertise and with forms of expertise dominant in previous administrations. At the same time, Bolsonaro’s disregard for the environment raises doubts as to which kind of expertise may be chosen to replace the expertise informing prior policymaking.

ANALYSES

Data and methods

This study focuses on understanding the nature of staff changes through the profile of the high-ranking environmental policy personnel in Brazil. It makes it possible to access which kind of professional persist across administrations and which new ones are introduced as a reflection of the struggle between distinct social groups. To that end, I collected publicly available data on people in key policymaking positions within the MMA—DAS levels 5 and 6 and the ministers. The open-access data of the Federal Government Transparency website used to collect the names of the

civil servants have been available from 2013. Therefore, it allowed for collecting information about 212 professionals in senior management positions in the MMA and its autarchies Ibama, ICMBio and JBRJ between 2013 and 2020.

I then collected data on the professional experiences of each individual before joining the MMA including their previous positions, organizational affiliations and employers. The data were collected through four steps. The first one was to map the trajectory of each individual on the Federal Government Transparency website: their recruitment, appointment and dismissal dates from 2013. The second step was to collect the *curricula vitae* (CVs) available on the MMA website (only available for Bolsonaro's staff). The third step was to search CVs on the Lattes Platform—a system of the Brazilian Ministry of Science and Technology. Most Brazilian researchers have a CV there with both their education and professional experience (97 out of the 212 individuals had this CV). The fourth step was to search more broadly online to retrieve publicly available information. Through Google, there was CVs in different branches of the government such as in the Legislative power or in local government. Google was also used to search for information conveyed in the media. In some cases, I used the Official Journal of the Union (DOU)—a diary of all appointments and dismissals of personnel appointed by the administration—to confirm and supplement information. In total, I analysed the careers of 212 employees, of which 172 had publicly available CVs, and 40 had only partial data retrieved from public administration records and media.

This data-gathering strategy resulted in a database of individuals with professional experiences in decision-making positions at the MMA from 2013 to 2020. With that at hand, I investigated the patterns emerging from their affiliations to multiple organizations they have been part of, as a two-mode network linking individuals and organizations. In the remainder of this article, I used network analysis to unveil the topography of relations between professionals and organizations and, with that, shed light on groups that have had stronger ties with decision-making personnel inside the administration.

Musical chairs: Changes in the networks of MMA professionals

To assess changes in the profile of high-ranking personnel in the MMA, I analysed comparatively the networks formed with the organizations they had professional experience with before joining the ministry. This two-mode network of professionals and organizations allowed us to gather connections between social and political groups based on these individuals' career paths. This allowed mapping the changing networks formed by activists, interest groups, international organizations, party leaders, technical bureaucrats and any other actors informing environmental policy in the Brazilian state. These networks are represented in Figures 1–3. Blue circles correspond to professionals and red squares to the organizations they worked for before being appointed to DAS level 5 and 6 positions. The squares' size reflects centrality degrees or the number of individuals affiliated to them. The graph only shows the labels of organizations having connections with more than one high-ranking staff member per administration. Nodes with a black frame refer to international organizations or professionals with international experience.

The first network presents the previous professional experience of MMA employees appointed to DAS level 5 and 6 positions between 2013 and 2016, during Rousseff's tenure. The most central organization is the ministry itself: 44 professionals out of 93 DAS 5 and 6 employees during Rousseff's years in the database had already worked in the MMA in previous administrations, in different positions or in their tenured careers. Ibama has the second-highest degree of centrality in this network, with edges with 32 professionals. It is a denser network, with several public federal agencies as central nodes. Besides MMA and Ibama, ICMBio and the National Agency of Water (ANA)—part of the ministry until 2018—also appear as nodes with high centrality. The Ministries of Planning (MPOG), Science and Technology (MCTI), Embrapa (Brazilian Public Agricultural Research Corporation, an agency of the Ministry of Agriculture), Mines and Energy (MME) and the presidency are also important nodes. Those are important ties to highlight: the MCTI, together with the Ministry of the Foreign Affairs (MRE), used to be the core of the bureaucratic decision-making on climate change policies in Brazil (Aamodt, 2018; Kasa, 2013; Zhouri, 2004). This may be residual to the process of linking environmental policy to climate change, but can also reflect the weakening of the MMA in influencing policy outcomes

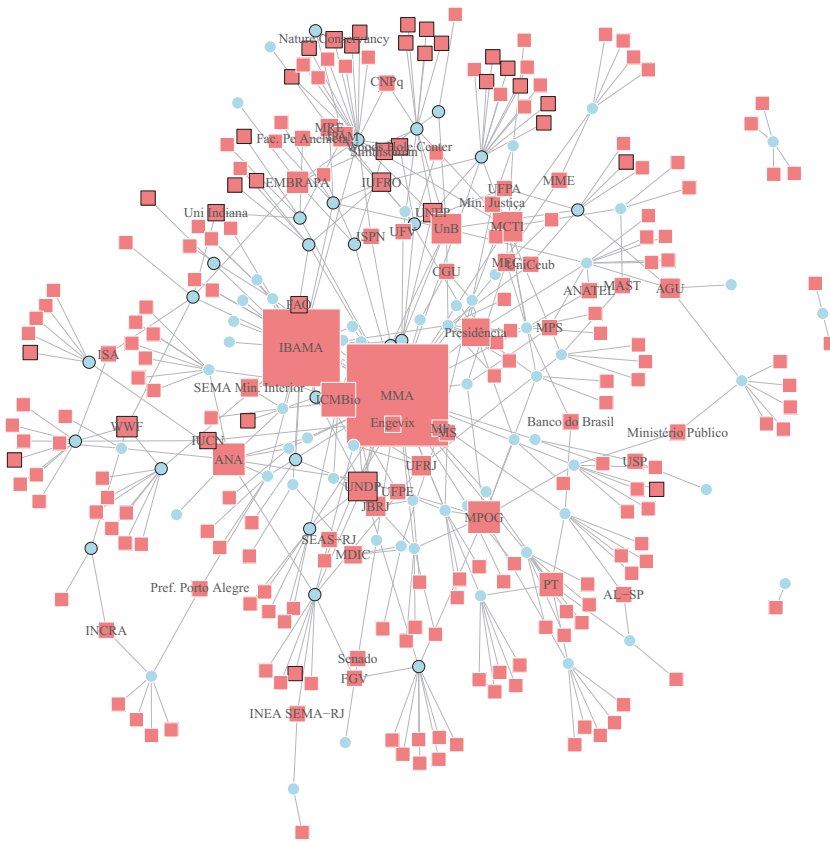


FIGURE 1 MMA employees during Rousseff's Administration (2013–2016)–previous professional experience. †
 Note: Number of vertexes: 330 (93 professionals and 237 organizations); Number of edges: 438

(Hochstetler, 2021). In this context, the MME had also been acquiring a role in environmental policy, with its ambiguity between a 'pro-climate influence coming from hydropower and ethanol interests and a pro-fossil fuel lobby coming from the powerful state oil company, Petrobras,' the latter vision which gained space under Rousseff (Viola & Franchini, 2014, p. 680). In addition to those organizations in the federal administration, the graph shows the University of Brasília and the Federal University of Rio de Janeiro, which indicate the research experience of individuals appointed to these positions in the MMA at that time. The Worker's Party (PT) figures as the most important political movement, which is expected since it was the incumbent party.

A crucial node in this network is the UNDP, highly connected to professionals that also worked at MMA and Ibama. Its centrality reflects the professional experience of employees that had temporary contracts as consultants until the 2000s, when this was a common way of recruitment, and were then absorbed by the permanent bureaucracy. Other examples of IGOs in this first network are the UNEP, the Food and Agriculture Organization (FAO), the UN Educational, Scientific and Cultural Organization (UNESCO), the UN Conference on Trade and Development (UNCTAD), the International Bank for Reconstruction and Development (IBRD) and the World Bank.

The Figure 1 also shows several INGOs, such as WWF, the International Union of Forest Research Organizations (IUFRO), the Nature Conservancy and the International Union for Conservation of Nature (IUCN). In addition, there are 19 national NGOs appearing in the graph. The ones with the highest degree of centrality are the Amazon Environmental Research Institute (IPAM) and the Instituto Socioambiental (ISA), both with operations in the Amazon. In total, 25 professionals had international experience in organizations, advocacy groups, universities, IGOs and NGOs.

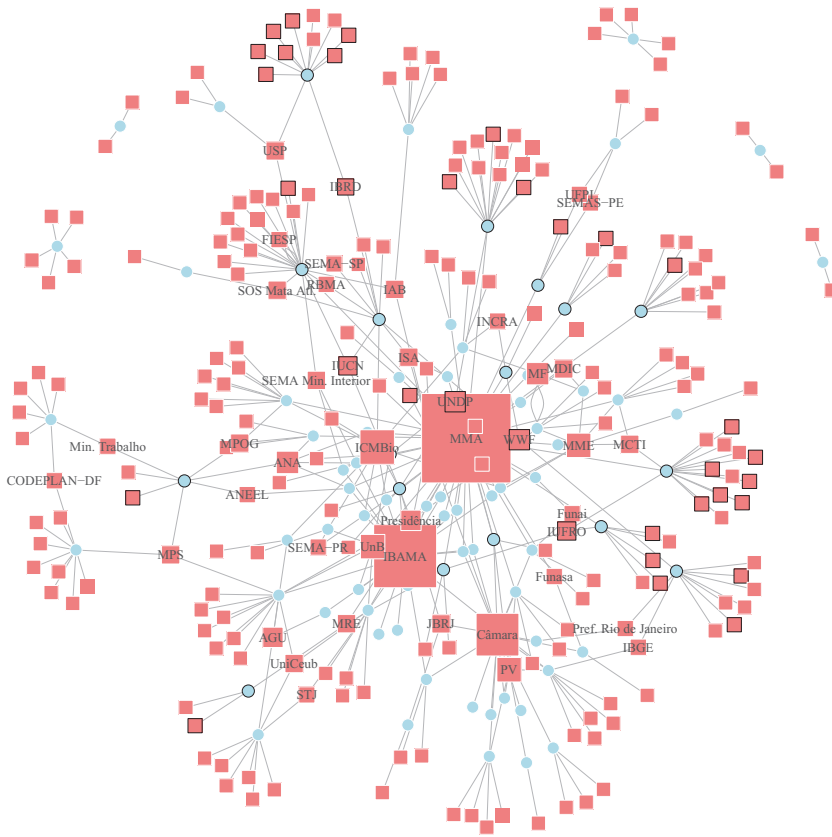


FIGURE 2 MMA employees during Temer's Administration (2016–2018)–previous professional experience.
 Note: Number of vertices: 324 (83 professionals and 241 organizations); Number of edges: 405

The second network (Figure 2) corresponds to the network of professional experiences of MMA employees appointed to high-ranking positions from 2016 to 2018, during Temer's administration. The most noticeable pattern in this network shows continuity: MMA and Ibama remain as the most central nodes, and other federal administrative agencies also persist as prominent centres. A contrast, in turn, is the higher centrality of the lower chamber of Congress (Câmara) and the Green Party (PV). This suggests that one place of recruitment was the professional and personal network formed by the two ministers appointed at that time, Sarney Filho and Edson Duarte, both congressmen elected by PV, but whose networks are not necessarily deeply connected with environmental activist groups.

The network also shows staff with experiences in IGOs, such as UNDP, mostly employees remaining from previous administrations. Although other international organizations appear too, such as the OAS, the IADB and UN Sustainable Development Solutions Network, the total number of edges connecting individuals and IGOs dropped in this administration. The number of employees with international connections also dropped to 18.

The networks in Figures 1 and 2 are similar mostly in terms of the evident prominence of the federal government ministries, agencies and autarchies. International NGOs, such as WWF, IUCN and IUFRO, remain in the graph in the second administration, even though the overall number of NGOs has dropped. The national NGO SOS Mata Atlântica figures as a relevant node, replacing IPAM. This may indicate that as the Brazilian government increased its capacity to build a permanent staff, it gained discretion over the national and international ties it brought to the higher ranks of its environmental policy administration. Still, even with the ideological turn brought by Temer presidency, the

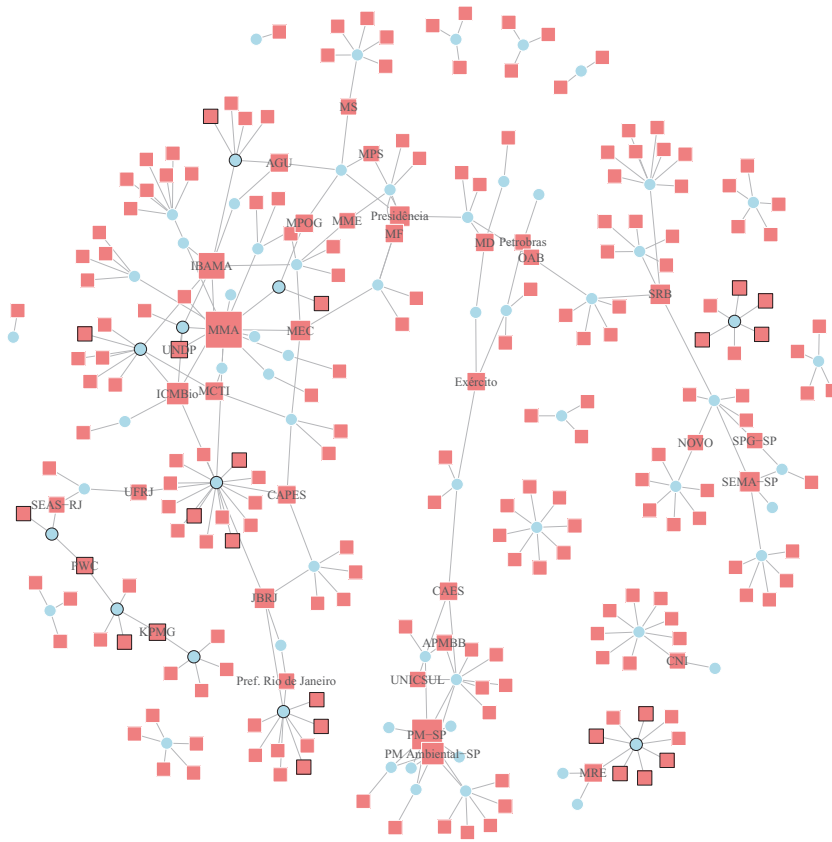


FIGURE 3 Bolsonaro's administration MMA employees (2019–2020)–previous professional experiences. †
 Note: Number of vertexes: 294 (70 professionals and 224 organizations); Number of edges: 306

structure of the network of professionals has not changed profoundly. Government agencies, UN organizations and NGOs maintain their centrality.

The shift is more profound during the Bolsonaro administration. Figure 3 presents the network of previous professional experience of the employees appointed during Bolsonaro's administration. Compared to the previous networks, the number of tenured public servants has dropped. The MMA itself remains as the most central node in this network, but to a lesser degree. Whereas during Rousseff's administration, the number of edges connecting professionals and the ministry was 44, there are 12 in Bolsonaro's. This number had already dropped during Temer's administration to 38, but here the drop is greater. Another significant change is the much smaller proportion of professionals with international experience. While 27.1% of analysed professionals had international ties in Rousseff's administration and 21.6% in Temer's, in Bolsonaro's this number is 17% (12 out of 70). Related to this, one group that appears in the network is composed by international consultancy firms including PWC and KPMG.

This network is also sparser, with fewer organizations having connections with more than one high-ranking staff member, which reveals how Bolsonaro's environmental policymaking was not backed in a previously established community of experts. In this more fragmented network,¹³ some new nodes have emerged, such as the Military Police of São Paulo. This reflects the restructuring of Ibama, where Salles appointed policemen to four out of five director positions. It is important to emphasize that Salles was the environment secretary of the state of São Paulo, working closely with the Environmental Military Police there. Relatedly, the Ministry of Defense and the Army (Exército) appear as other relevant nodes. In combination, this may be revealing of the proximity between the issues

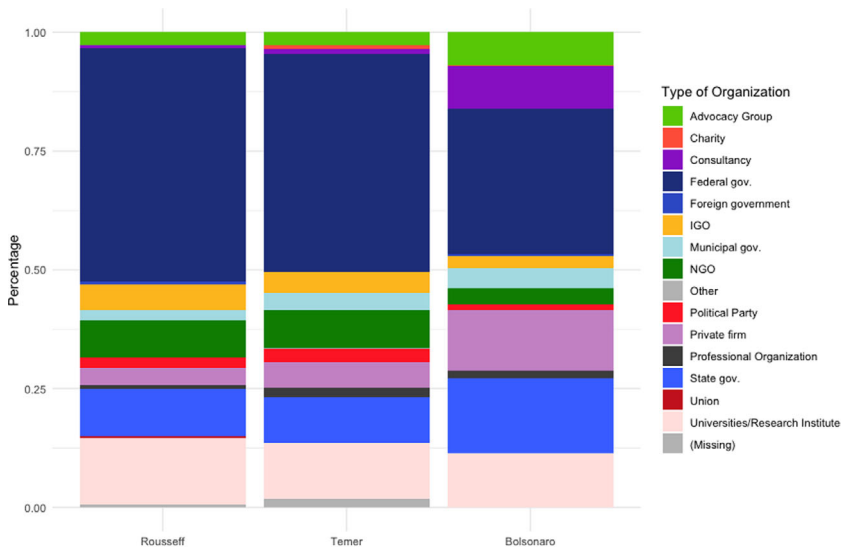


FIGURE 4 Previous professional experiences of MMA Employees (2013-2020) –type of organization

of environment and security for the Bolsonaro administration, or at least reflect the overall presence of security forces across the government.

Besides this security bloc, Figure 3 presents another well-defined cluster, centered on the Brazilian Rural Society (SRB), an important advocacy group connected to the *ruralistas* and their members in Parliament in FPA. This is an example of how other dynamics that are at play at the national level also influence the environmental political field and can re-shape international connections. This cluster includes the minister Salles himself and helps to reveal the new sets of social groups that gained prominence in policymaking within the MMA in this administration. Salles appointment as minister was a result of the connections between Bolsonaro and the *ruralistas*. This stands in contrast with patterns of previous administrations that left the MMA under the rule of professions more closely associated with environmental policy. Hence, as the networks show for each administration analysed here, the national context is central to understanding the actors involved in environmental policy and their international ties.

Dancing to their tune: New expertise in Bolsonaro’s MMA

The network visualizations allow for grasping some relevant patterns of continuity and rupture across administrations. Still, to make better sense of these, I now move to a more systematic comparison of the most central organization in each government. To that end, I focus on descriptive statistics in three dimensions: the general type of organization, whether it is national or international, and its area of expertise. Table 1 presents the number of ties in each organization grouped by type of organization across these dimensions.

As shown at the bottom of Table 1, there is an important difference in the number of total edges in each of those networks. This reflects the drop in the number of employees of the MMA and the smaller number of ties between professionals and organizations in Bolsonaro’s administration.¹⁵ This shift, however, is more significant in terms of the types of organization that employees had been affiliated with. This becomes clearer when we look at the proportions of types of organization present in each administration (Figure 4). It is then possible to see that state government, private firm, consultancy and advocacy group ties gain relevance in Bolsonaro’s administration, while other types of organizations lose prominence. NGOs in particular comprized over 7.5% of the ties in the Rousseff and Temer networks, while only 3.2% in Bolsonaro’s.

TABLE 1 Frequency of types of organization in each administration¹⁴

Types of organization	International/National	Rousseff	Temer	Bolsonaro	Total
Advocacy Group	International	4	7		11
	National	8	4	21	33
Consultancy	International		1	6	7
	National	3	3	21	27
Federal gov.	National	215	186	94	495
State gov.	National	43	39	48	130
Municipal gov.	National	10	15	13	38
Foreign government	International	2		1	3
IGO	International	24	18	8	50
NGO	International	12	14	2	28
	National	22	18	8	48
Universities/Research Inst.	International	12	3	4	19
	National	49	45	31	125
Private firm	International			6	6
	National	16	22	33	71
Professional Org.	International	1	1		2
	National	3	7	5	15
Political Party	National	9	11	4	24
Union	National	2			2
Charity	National		3	1	4
Other	International		1		1
	NA	3	7		10
	Total	438	405	306	1149
	Number employees	93	83	70	212

International experience was limited in all administrations. Still, the number of employees with international experience differed from administration to administration. During Rousseff's administration, 27.1% of the staff (25 people) had some professional experience in international organizations. This number dropped to 21.6% during Temer's tenure (17 people) and to 17% in the Bolsonaro government (12 people). The difference is more relevant when these international ties are filtered by the types of organizations, as Figure 5 shows. Rousseff had a ministry with employees that had experiences in international universities and research institutes, as well as IGOs and NGOs, and this profile remained during Temer's administration, albeit with the addition of professionals with experience in advocacy groups and consultancies. During Bolsonaro's administration, these changes are more marked. Here, most international ties are with private and consultancy firms. In turn, international NGOs and Advocacy groups have less participation.

Additionally, one can analyse this network of professional experiences by area of expertise of these international organizations. As Figure 6 presents below, when the focus falls on the areas of interest of those international organizations, there are evident differences between administrations. During Rousseff's and Temer's administrations, most of the foreign organizations had expertise in environment, education/science and general foment. In Bolsonaro's tenure, in turn, organizations with expertise in trade, banking and finance and industry make up more than 30% of the ties. Perhaps more symbolic, whereas organizations with environmental expertise represented over 30% of international

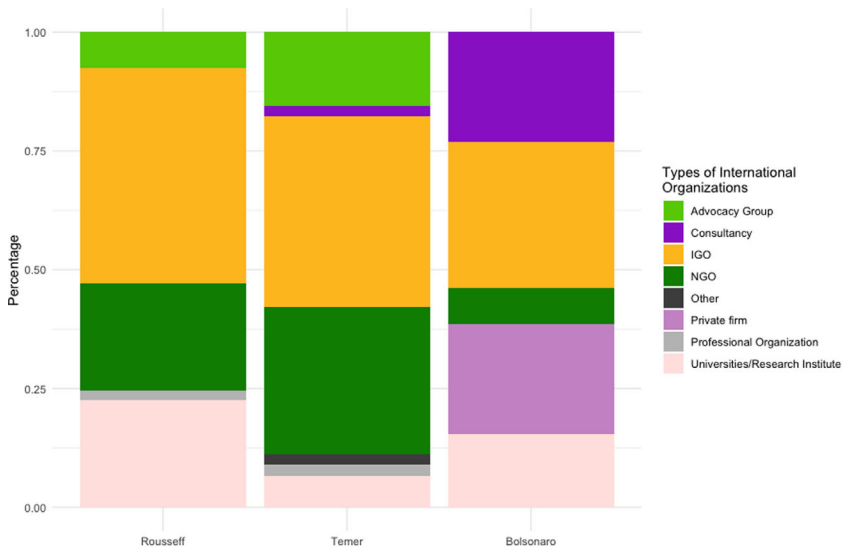


FIGURE 5 Previous professional experiences of MMA employees (2013–2020)–types of international organizations

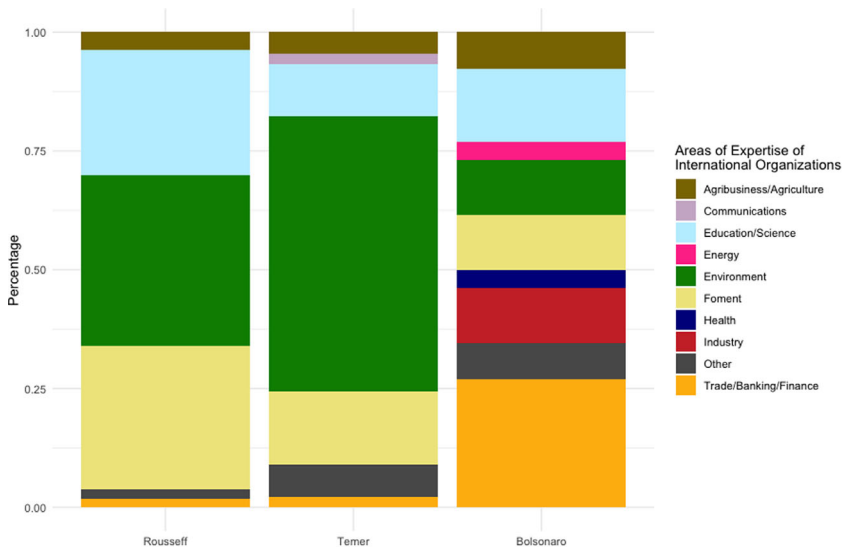


FIGURE 6 Previous professional experiences of MMA employees (2013–2020)–areas of expertise of international organizations

ties in Rousseff’s network and over 40% in Temer’s, they are only 11% in Bolsonaro’s. Besides potential links to policy change, this finding is representative of the perspective of Bolsonaro’s administration on the environment and the kinds of expertise it deems relevant for its governance.

Using data for the entire universe of professional experiences across governments, it is possible to visualize the differences in the types of organizations from which professionals in the environmental area are coming from (Figure 7 and Figure A2 in Appendix). The federal government maintains its status as the most significant arena of recruitment. However, whereas NGOs also had some prominence during Rousseff’s and Temer’s administrations, under Bolsonaro,

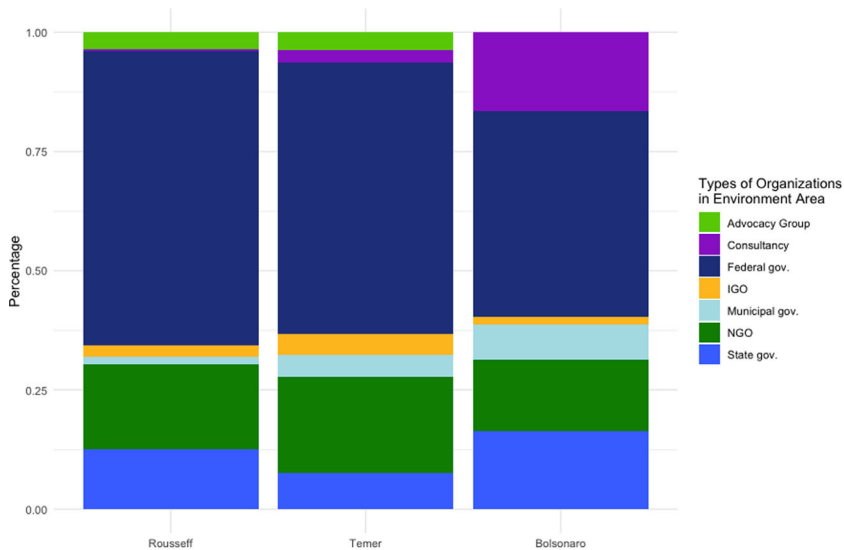


FIGURE 7 Previous professional experiences of MMA employees (2013–2020)–types of organizations in environment area

private environmental consultancies are the main source of non-state experience. The ties with environmental NGOs that helped build the MMA now seem partially severed.

SYNTHESIS AND DISCUSSION

The literature on transnational professional networks creates an expectation that, given the international relevance of the Amazon and the role of transnational movements in building the environmental field in Brazil, the MMA would be linked to the global network. However, Brazil expanding state capacity for most of the last decades makes it a relevant case to discuss the domestic conditions under which this linking and de-linking of transnational professional networks impact national environmental policymaking. Scholarship on environmental politics in Brazil points out that government changes open windows of opportunity for coalitions to reshape bureaucratic configuration and through them, influence policy. Connecting these bodies of literature, the analysis of the MMA professional networks can give us insights into these processes.

This study has shown how between Rousseff and Temer, despite the relatively high turnover and the acrimonious nature of their rupture following Rousseff's controversial impeachment, the forms of expertise remained similar, particularly regarding the extent and nature of international ties. This could be related to the similarity of coalitions influencing both governments, but also to the maintenance of the MMA as the place for environmental forces within their political coalitions. The central MMA hub in both governments had many ties to environmental NGOs and IGOs in their networks. Under Bolsonaro, there is a more substantial shift in the networks of professionals in the Ministry. Particularly salient is the de-linking of ties with IGOs, environmental NGOs and advocacy groups, replaced by those with consultancy firms, finance and agribusiness.

Further to the insights on the linking and de-linking of international networks into domestic policymaking, these findings can subside our understanding of how the networks composing state bureaucracy may be affected by coalitional struggles for influencing public administration. Both differences and continuities between Rousseff and Temer seem to represent these dynamics. Bolsonaro, in his turn, seemed to have channeled a strategy of weakening the MMA by severing ties with the networks that traditionally informed Brazilian environmental policy, replacing them

with a rather scattered professional network composed of loose linked hubs centered on some of his key groups of support.

These findings improve our understanding of how domestic contexts can link or de-link global networks into domestic policymaking. The process of institutional building, such as the role of environmental NGOs and IGOs in the construction of the MMA, may be at the root of links between these organizations that were maintained across Rousseff's and Temer's administrations. At the same time, the marked de-linking performed by Bolsonaro shows how—given the discretionary nature of hiring and firing mechanisms of these positions—this long-term process can be reversed quite swiftly and it can have important political consequences.

It is also worth discussing the limitations of this article. While I documented the changes in professional networks across administrations, the effects of these staff changes on policy outcomes need to be further investigated. Whereas the similarities between Rousseff and Temer networks echo the similarities found in policy outcomes between the two administrations, future research needs to unpack the ways in which specific network compositions may have affected policymaking itself. For Bolsonaro, it may be intuitive to assume that the de-linking of the MMA with environmental networks of expertise affected his very poor environmental policy results, but it is equally relevant to understand the causal link between these processes. I believe the empirical materials and analysis of this work can inform this agenda of research.

CONCLUSIONS

In this work, I analysed the networks of professionals in the Brazilian MMA. The analysis gave insight into the groups and forms of expertise valued across Rousseff, Temer and Bolsonaro administrations. It has shown how these networks seem to reflect coalitions influencing environmental policy in each administration. Under Bolsonaro, this meant severing ties with networks of professionals linked to national and international environmental fields such IGOs, NGOs and advocacy groups. This transition is parallel to profound changes in environmental policy and alarming policy outcomes. This de-linking from global environmental networks not only reflects Bolsonaro's anti-establishment and nationalistic rhetoric and policies on the area, but also reveals a crucial aspect of its implementation.

These empirical findings about Brazil illuminate a key dimension of Bolsonaro's populist project. As putative outsider and antagonist to an environmentalist agenda, one could expect he would challenge previous expertise governing the Amazon. However, this very position makes it hard to anticipate which kind of expertise would replace that of environmentally engaged professionals. Here, it was possible to demonstrate the scattered new sources of expertise chosen by Bolsonaro to implement his changes in environmental policy.

These findings shed some light on how changes in national context can affect the ability of global networks to influence internationalized issues such as the Amazon. In particular, it shows how changes in professional networks informing policymaking can be a way for populist governments to enact their anti-establishment projects. Although these dynamics are very much informed by Brazil's national context, they suggest the importance of further investigation on how anti-establishment populists replace the expertise they denounce.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

ENDNOTES

- ¹ Available at INPE website: http://terrabrasilis.dpi.inpe.br/app/dashboard/deforestation/biomes/legal_amazon/rates
- ² Amazon deforestation: Brazil's Bolsonaro dismisses data as 'lies'. 19/06/2019. Available at: <https://www.bbc.com/news/world-latin-america-49052360>
- ³ Brazil space institute director sacked in Amazon deforestation row. 02/08/2019. Available at: <https://www.theguardian.com/world/2019/aug/02/brazil-space-institute-director-sacked-in-amazon-deforestation-row>
- ⁴ Bolsonaro denies Brazil is burning, blames Indigenous People for fires in disturbing speech at UNGA. 22/09/2020. Available at: <https://www.greenpeace.org/usa/news/bolsonaro-denies-brazil-is-burning-blames-indigenous-people-for-fires-in-disturbing-speech-at-unga/>
- ⁵ Why Brazilian farmers are burning the rainforest — and why it's so hard for Bolsonaro to stop them. 08/09/2019. Available at: https://www.washingtonpost.com/world/the_americas/why-brazilian-farmers-are-burning-the-rainforest-and-why-its-difficult-for-bolsonaro-to-stop-them/2019/09/05/
- ⁶ Available at: <https://undocs.org/pdf?symbol=en/A/74/PV.3>
- ⁷ The growing trend of populist nationalists has captured a great deal of academic attention. However, the long-term effect of elected populists often slips under the radar of studies that focus on the causes of populism (Inglehart & Welzel, 2005; Mudde & Kaltwasser, 2018), its definition (Müller, 2016) and its effects on the quality of democracy (Norris & Inglehart, 2019).
- ⁸ Silva is a symbol of socio-environmentalism herself: a historical leader in the rubber tappers' movement, and then a senator elected for the Worker's Party in Acre. She had also been internationally recognized for her work in the Amazon, having received awards from the Goldman Environmental Foundation and the UNDP.
- ⁹ João Paulo Capobianco from Instituto Socioambiental (ISA), Marijane Lisboa from Greenpeace, Muriel Saragoussi from Amazon Victory Foundation (FVA) and Tasso de Azevedo from Imafloira (Abers & Oliveira, 2015; Losekann, 2012).
- ¹⁰ President's discourse. 04/07/2019. Available at: <https://www.gov.br/planalto/pt-br/acompanhe-o-planalto/discursos/2019/discurso-do-presidente-da-republica-jair-bolsonaro-durante-cafe-da-manha-com-ministros-e-parlamentares-palacio-do-planalto>
- ¹¹ Fears for Amazon as Bolsonaro plans to merge environment and agriculture ministries. 01/11/2018. Available at: <https://www.theguardian.com/world/2018/nov/01/bolsonaro-environment-agriculture-ministries-amazon>
- ¹² Brazil agency gives out fewest environmental fines in 24 years. 09/03/2020. Available at: <https://www.reuters.com/article/us-brazil-environment-idUSKBN20W2ZJ>
- ¹³ The modularity of this network is 0.868, whereas during Rousseff's administration it was 0.708, and Temer's, 0.742. The complete information on the network measures is available in Table A2, in the Appendix.
- ¹⁴ A complete version of Table 1 is available in Table A1, in the Appendix.
- ¹⁵ The mean degree of each administration is: Rousseff 2.65, Temer 2.5 and Bolsonaro 2.08. More information on the networks measures is in Table A2.

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APPENDIX

Figure A1 shows the continuity and turnover of personnel in DAS levels 4 to 6 in the MMA. It is a Sankey diagram describing the flow of staff in and out each administration. The flow incoming each administration shows the proportion of staff staying from a previous government (in yellow) and those recruited from outside the previous government (in blue). The flow outgoing each administration also contrasts the proportion of staff continuing in the next government (in blue) with those leaving the DAS positions (in red).

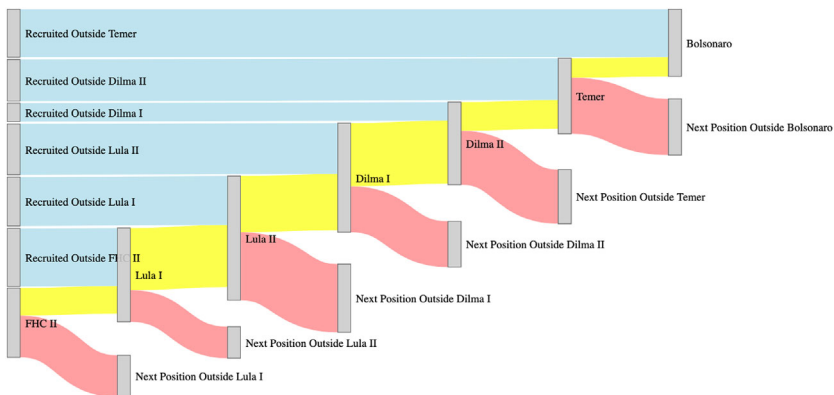


FIGURE A1 Continuity or turnover of professionals in senior management positions, DAS levels 4, 5 and 6 in the MMA (1999–2020). *Source:* Data provided by the Institute of Applied Economic Research (IPEA)

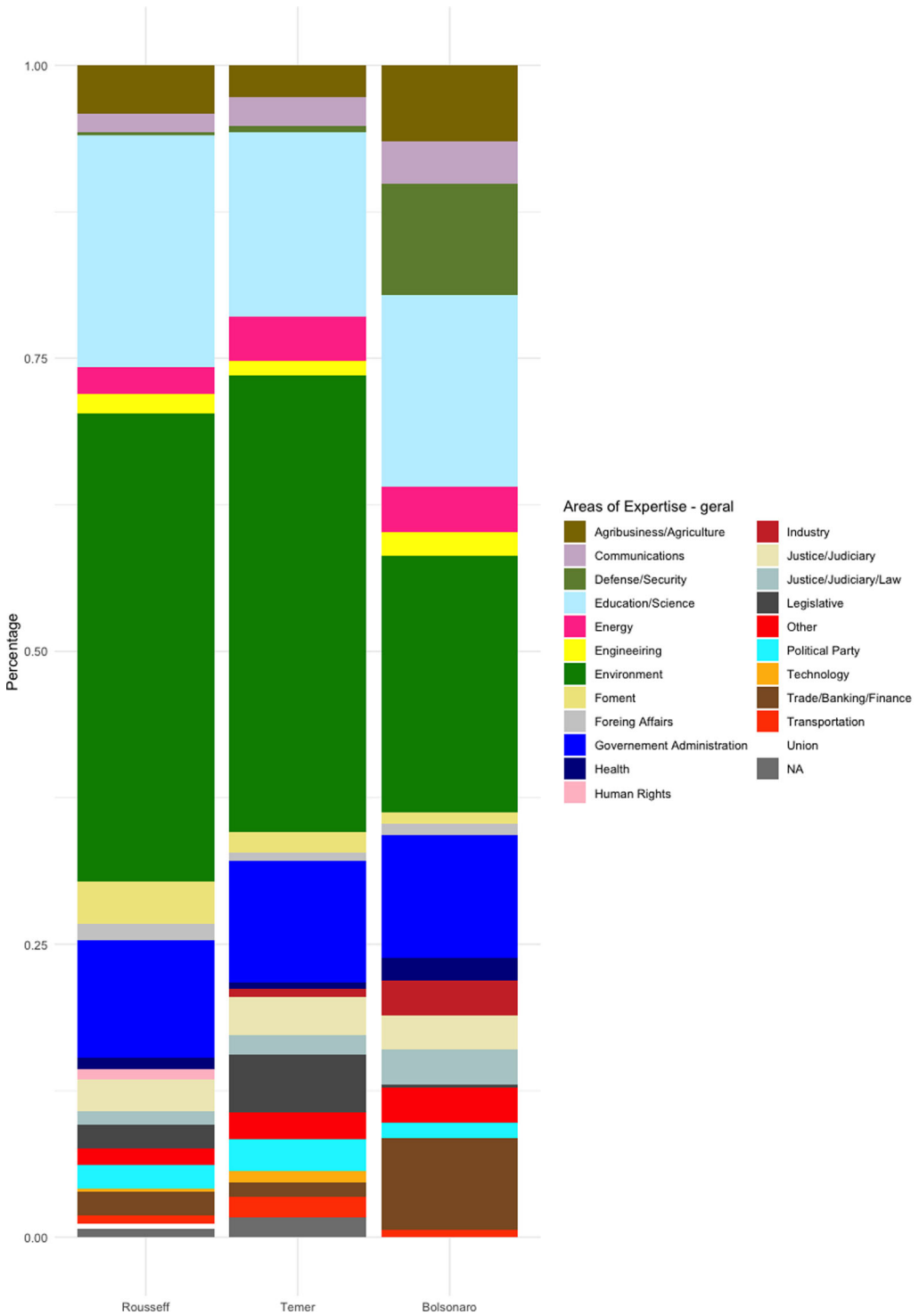


FIGURE A2 Previous professional experiences MMA employees (2013-2020)—areas of expertise

TABLE A1 Frequency of types of organization in each administration (complete version)

Types of organization	International/ National	Frequency of types of organization in each administration	Frequency of types of organization in each administration			Total
			Rousseff	Temer	Bolsonaro	
Advocacy Group	International	Agribusiness/Agriculture		1		1
		Environment	3	4		7
		Other	1	2		3
	National	Agribusiness/Agriculture	1		9	10
		Education/Science	1			1
		Environment	3	2		5
		Human Rights	1			1
		Industry		2	6	8
		Trade/Banking/Finance			3	3
Consultancy	International	Environment		1		1
		Trade/Banking/Finance			6	6
	National	Environment	1	3	11	15
		Trade/Banking/Finance	2		10	12
Federal gov.	National	Agribusiness/Agriculture	11	6	1	18
		Communications	4	3	2	9
		Defense/Security	1	1	8	10
		Education/Science	21	10	13	44
		Energy	9	12	5	26
		Environment	108	90	29	227
		Foreign Affairs	6	3	3	12
		Government Administration	31	26	19	76
		Health	4		2	6
		Justice/Judiciary	12	13	9	34
		Legislative	2	15	1	18
		Trade/Banking/Finance	4	2	2	8
		Transportation	2	5		7
		State gov.	National	Agribusiness/Agriculture	2	1
Communications					2	2
Defense/Security				1	21	22
Education/Science	2			3	1	6
Energy	1			3	3	7
Environment	22			12	11	45
Government Administration	8			13	9	30
Health				2	1	3
Justice/Judiciary/Law	2			1		3
Legislative	5			2		7

(Continues)

TABLE A1 (Continued)

Types of organization	International/ National	Frequency of types of organization in each administration	Frequency of types of organization in each administration			Total
			Rousseff	Temer	Bolsonaro	
Municipal gov.	National	Transportation	1	1		2
		Agribusiness/Agriculture		1		1
		Environment	3	7	5	15
		Government Administration	5	3	4	12
		Health			2	2
		Legislative	2	3		5
Foreign gov.	International	Transportation		1	2	3
		Other	2		1	3
IGO	International	Agribusiness/Agriculture	2	1	2	5
		Education/Science	1	1		2
		Environment	4	7	1	12
		Foment	16	7	3	26
		Health			1	1
		Trade/Banking/Finance	1	1		2
		Other		1	1	2
		Environment	12	14	2	28
NGO	National	Environment	19	18	8	45
		Human Rights	3			3
		Education/Science	12	3	4	19
Universities/ Research Inst.	International	Education/Science	12	3	4	19
	National	Education/Science	49	45	31	125
Party	National	Political Party	9	11	4	24
Union	National	Union	2			2
Private firm	International	Energy			1	1
		Industry			3	3
		Other			1	1
		Trade/Banking/Finance			1	1
		Agribusiness/Agriculture	2	1	8	11
		Communications	3	6	7	16
	National	Energy			3	3
		Engineering	7	5	6	18
		Industry		1		1
		Justice/Judiciary/Law	1	3	6	10
		Technology	1	4		5
		Trade/Banking/Finance	2	2	2	6
		Other			1	1

(Continues)

TABLE A1 (Continued)

Types of organization	International/ National	Frequency of types of organization in each administration	Frequency of types of organization in each administration			Total
			Rousseff	Temer	Bolsonaro	
Profess. Organiz.	International	Education/Science	1	1		2
	National	Education/ Science		1	1	2
		Justice/ Judiciary/ Law	2	3	3	8
		Other	1	3	1	5
Charity	National	Other		3	1	4
Other	International	Communications		1		1
NA	NA	NA	3	7		10
Total			438	405	306	1149

TABLE A2 Networks' measures

Measures	Rousseff	Gov. Temer	Bolsonaro
Mean Degree	2.654545	2.500000	2.081633
Mean Betweenness	555.7242	540.3395	645.6837
Mean Closeness	2.043002e-04	1.139474e-04	3.221103e-05
Graph Density	0.008068527	0.007739938	0.007104548
Modularity (Cluster Louvain)	0.7083385	0.7415059	0.8681276
Mean Eccentricity	7.59697	7.669753	13.62585
Diameter	10	10	24
Mean Distance	4.592059	4.823157	9.164072