

Flavia Donadelli

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Environmental policy integration in Brazil: an analysis of climate and biodiversity policies

Flavia Donadelli

London School of Economics and Political Science / Department of Government
London — UK

This article debates the importance and the current state of environmental policy integration among the areas of climate change and biodiversity in Brazil. It presents and critically evaluates the theoretical assumption that differences in bureaucratic cultures will necessarily result in policy integration difficulties. Based on the theoretical framework of grid-group cultural theory, it argues that the dominant egalitarian style developed within the context of biodiversity policies diverges, and sometimes hampers integration with climate change policies, which were found to present a predominantly hierarchical approach. Finally, the role of political leadership in overcoming the institutional barriers represented by bureaucratic cultures is also presented as an important factor relativizing and qualifying the predictions of cultural theory.

Keywords: cultural theory; policy integration; climate change; biodiversity.

Integração de políticas ambientais no Brasil: uma análise de políticas de mudanças climáticas e biodiversidade

Este trabalho discute a importância e o estado atual da integração de políticas ambientais das áreas de mudança do clima e da biodiversidade no Brasil. Ele apresenta e avalia criticamente o pressuposto teórico de que diferenças em termos de culturas burocráticas resultarão em dificuldades de integração de políticas. Com base no arcabouço teórico da teoria cultural (*grid-group*), argumenta-se que a tendência igualitária desenvolvida na implementação de políticas de biodiversidade diverge e potencialmente prejudica a integração dessa área com a de mudanças climáticas, cuja tendência cultural predominante observada foi hierárquica. Por fim o papel das lideranças políticas em superar barreiras institucionais representadas por culturas burocráticas é também apresentado como um fator importante, relativizando e qualificando as previsões da teoria cultural.

Palavras-chave: teoria cultural; integração de políticas; mudanças climáticas; biodiversidade.

Integración de políticas ambientales en Brasil: un análisis de políticas sobre el clima y la biodiversidad

Este artículo discute la importancia y el estado actual de la integración de las políticas ambientales de las áreas de cambio climático y biodiversidad en Brasil. En este sentido, se presenta y se evalúa críticamente el supuesto teórico según el cual diferencias en culturas burocráticas darán lugar a dificultades de integración política. Con base en el marco teórico de la teoría cultural (*grid-group*), se plantea que la tendencia igualitaria verificada en la implementación de políticas de biodiversidad diverge de la tendencia cultural predominantemente jerárquica de las políticas del sector de cambio climático, debilitando el potencial de integración de las políticas de estas áreas. Por último, el rol de los liderazgos políticos para superar las barreras institucionales representadas por las culturas burocráticas también se presenta como un factor importante, relativizando y calificando las predicciones de la teoría cultural.

Palabras clave: teoría cultural; integración de políticas; cambios climáticos; biodiversidad.

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1. INTRODUCTION

Policy integration has increasingly been recognised as a critical issue in public policy administration. The recognition that policies elaborated by different bureaucratic structures may overlap, constrain or even disrupt each other has given rise to a growing corpus of literature on policy integration, coordination and interplay (Gregory, 2003; Christensen and Lægheid, 2008; Young, 2002). Within the field of environmental politics, the concept of Environmental Policy Integration (EPI) has been largely debated and has played a crucial role in European Union regulations.¹ The principle is defined as an ‘early coordination between a sector and environmental objectives, in order to find synergies between the two or to set priorities for the environment, where necessary’ (Hey, 2002:127).² Although this principle has gained popularity and been widely used in the mainstreaming of environmental concerns in other policy areas such as agriculture, energy or transportation (Jordan and Lenschow, 2008, 2010; Urwin and Jordan, 2008; Lafferty and Hovden, 2003; Söderberg, 2011), it has seldom been used to refer to the integration between different environmental policies. This article aims at filling this gap by assessing EPI among two environmental areas in Brazil: climate change and biodiversity.

The article will analyse policy integration between these two areas through the theoretical and methodological lenses of Cultural Theory (Douglas, 1982; Thompson, Ellis and Wildavsky 1990; Hood 1998a). Inspired by the seminal anthropological work of Mary Douglas (1982), this approach sustains the idea that four different rationales, cultures or “ways of life” often prevail in different policy sectors, which results in different, and often incompatible approaches to policy formulation and implementation. This perspective has long been adopted in studies of public administration, particularly in the environmental sector (Hood, 1998; Thompson, Ellis and Wildavsky, 1990; Hoppe, 2002; Schwarz and Thompson, 1990; Forsyth, 2003). Each of the four cultures identified by Douglas (1982) emerges from the combination between two key variables: “grid”, which refers to the levels to which an individual’s life is circumscribed by externally imposed rules, and “group” which is associated with the strength of allegiance or loyalty to the group. Scholars using this perspective assume that the plurality of strategies used by policy makers are ultimately based on their perceptions about these two essential dimensions of human organisation. Based on the levels of these two variables, four mutually exclusive and jointly exhaustive cultural types are identified (see figure 1), which imply different administrative styles: (1) *hierarchists*, high grid and high group, (2) *individualists*, low grid and low group, (3) *egalitarians*, low grid and high group; and, (4) *fatalists*, who are high in grid and low in group. Cultural theory, when applied to public policies’ studies, captures much of the different views and traditions about how to organise governments and public services and may shed light on debates about the difficulties of environmental policy integration.

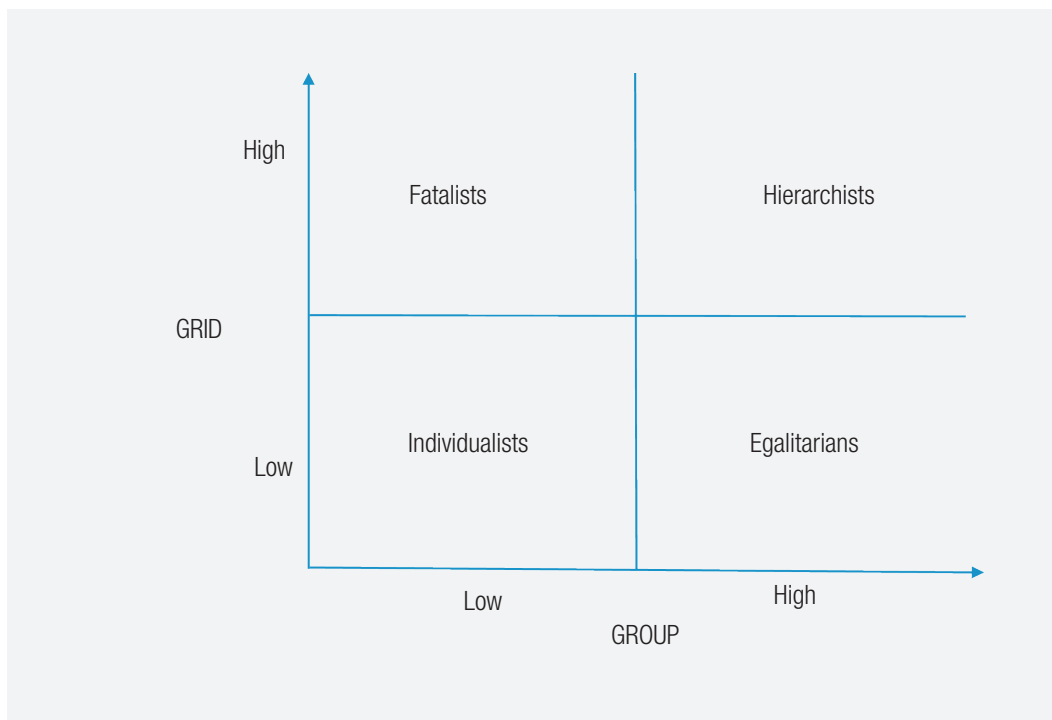
The central hypothesis of this article is that differences in the bureaucratic cultures of different environmental institutions might contribute to difficulties of environmental policy integration.

¹ Included in Article 6.1 of the Lisbon Treaty.

² Although this concept has been created in the context of European Union, the author strongly believes on its world-wide relevance for the implementation of environmental policies. No particular institutional characteristics of the Brazilian or any other non-European country are perceived to undermine or minimise the potential benefits of policy integration and coordination. The institutional particularities of the Brazilian case will not, however, be ignored and will constitute an important part of this article.

Following from this hypothesis, the main purposes of the article are to investigate whether cultural differences prevail in the bureaucratic structures in charge of biodiversity and climate change policies in Brazil and assess the impacts of these differences to policy integration. The main results of this analysis provide partial support to this hypothesis, at least in what concerns to the administration of biodiversity and climate change policies in Brazil. While the analysis revealed a predominantly egalitarian approach to biodiversity policies, it has demonstrated a prevalent hierarchical orientation among climate change institutions. Moreover, the analysis qualifies the predictions of cultural theory and points to the importance of ‘political *técnicos*’ who ‘combine characteristics and preferences of both politicians and *técnicos*’ (Schneider, 1991:8) as leaders capable of integrating culturally distant agencies, promoting policy integration even in a culturally diversified institutional environment. Therefore, although recognising and providing support to the theoretical prediction which emphasises the deleterious effects of cultural institutional differences for environmental policy integration, the empirical findings of this article equally provide support to Schneider’s (1991:35) claim about the possibility of ‘personalism to cut through fragmentation’, allowing bureaucratic coordination and policy integration to take place.

FIGURE 1 CULTURAL TYPES



Source: Elaborated by the author based on Hood (1998a).

This article will be organised as follows: section 2 presents the theoretical framework on which the analysis is based. Section 3 presents the methodology used for the collection and analysis of

the data. Section 4 justifies the selection of Brazilian Biodiversity and Climate Change policies as the focus of this analysis and provides an overview of the importance of policy integration among these two areas. Section 5 presents the empirical analysis, applying the theoretical framework to thirty-six different policies from the Brazilian regimes of biodiversity and climate change. Section 6 discusses and qualifies the results of the empirical analysis in order to critically assess the contributions of this study to theoretical debates and practical efforts of policy integration. Section 7 concludes the study.

2. THEORETICAL CONSIDERATIONS

The need for integration between climate change and biodiversity policies and the importance of applying innovative theoretical frameworks to investigate this theme has been increasingly recognised. It has, for example, been strongly emphasised by the Intergovernmental Panel on Climate Change (IPCC, 2014:24) report, which remarked that “increasing efforts to mitigate and adapt to climate change imply an increasing complexity of interactions, particularly at the intersections among water, energy, land use, and biodiversity, but tools to understand and manage these interactions remain limited.” Among the theoretical lenses that have been applied in the study of policy integration, institutional analysis has been the most frequent. With an approach focused on institutional design, Söderberg (2011), for instance, analysed multi-sector EPI within the Swedish bioenergy sector and assessed the impacts of open actor access and the use of monitoring and coordination mechanisms. Vasileiadou and Tuinsdra (2013), following a similar line of inquiry, assessed and confirmed the importance of institutionalised mechanisms of stakeholder consultation for the integration of climate change concerns in European Union energy policies.

Taking a more sociological approach but also with a focus on institutions, authors such as Jordan and Lenschow (2010) have observed that different administrative cultures and routines developed within the bureaucratic segments of different sectors may lead actors to protect their “competences, resources and ways of doing things from the intervention of other parts” (Jordan and Lenschow 2010:153), potentially undermining attempts of policy integration or coordination. This analysis advances this latter perspective systematising its assumptions through the application of Cultural Theory. Although Cultural Theory has not been commonly applied to analysis of environmental policy integration it is supported here that its potential contributions to a more precise understanding of bureaucratic cultures and of its interactions might contribute profusely to the emerging field of policy integration analysis. This is the main theoretical innovation and contribution advanced by this article.

Cultural theory, when applied to public policies, captures much of the different views and traditions about how to organise governments and public services (Thompson, Ellis and Wildavsky, 1990; Hood, 1998a). The four cultures or administrative styles depicted by the theory, based on the different perceptions over levels of grid and group, result in different assumptions, emphasis and styles of public administration. *Hierarchists* tend to value highly cohesive and hierarchical types of institutions. Because they are high on ‘grid’ and ‘group’, their perceptions are based on a strong observance of rules and social roles. As a consequence, the ‘hierarchist’ management style is often associated with

a centralist, top-down and expertise-based approach to public management in which policies are formulated by a central authority based on the authoritative advice of experts, which are intended to benefit the entire group in which they are situated. *Egalitarians*, on the other hand, tend to be highly critical of hierarchical/authority-based organisations and value a ‘management without managers’ approach to public administration. For egalitarians, policies should be based on extensive dialogue and consensus; community actors and those less able to participate should be given priority both in the process of formulation and in the benefits accrued from the implementation of these policies. Fairness, consensus and communication are, thus, the keynotes of this management style. The *individualist* style or administrative culture, in its turn, is usually associated with market mechanisms. This kind of administrative perspective demonstrates antipathy to either collectivism or hierarchically imposed rules, and focuses mainly on the use of market-based/competitive controls, on the self-interested behaviour of actors and on how market actors, such as consumers and firms, are benefited (Hood, 1998a; Hoppe, 2002). Lastly, the *fatalist* administrative orientation departs from a view of the world which sees every regulatee as a possible gambler of the system. It, therefore, suggests a public management style based on ‘contrived randomness’ or the ‘use of planned chance’ (Hood, 1998a).³ For the followers of this management style, therefore, the efficiency of the system itself should be the central concern of public administrators, in order for gambling by regulatees to be avoided. The methodological strategies developed for the identification of cultural styles in the cases analysed in this article are described in the following section.

3. METHODOLOGY

This section presents the methods of data collection, the analytical framework developed for the analysis of administrative cultures within bureaucracies, and the strategies and stages of analysis. The study is based on a comparative analysis of two case studies composed by a group of Brazilian biodiversity and climate change policies. The empirical analysis is theoretically grounded on an analytical framework inspired by previous applications of cultural theory in public administration (Hood, 1998b; Thompson, Ellis and Wildavsky 1990; Hoppe 2002; Schwarz and Thompson, 1990; Forsyth, 2003) but developed specifically for this analysis.

The methodologies used for gathering the data were document analysis and semi-structured interviews. Twenty three documents were used for the analysis. They were mainly official documents describing the implementation of main public policies in the areas of Biodiversity and Climate Change. Laws and policy analysis published by NGOs and consultants were also used to complement the analysis of governmental policy documents. All documents were collected from official government or third parties websites. The selection of documents aimed at providing an analysis as comprehensive as possible of all biodiversity and climate change policies which have been or are in the process of being implemented in Brazil. A complete list of the 23 documents used

³ Although several discussions exist on the passivity of this forth cultural type and, as a consequence, on its incapacity to motivate any specific kind of management style (Verweij et al., 2006), Hood (1998a) argues against this view, claiming that ‘the use of planned chance for control is a recipe that is seldom completely absent from public management’.

in the analysis is presented in appendix I. In order to complement the documentary analysis, five semi-structured interviews with public servants were conducted in Brasília between September and October of 2014 — two from the Ministry of Environment, one from the Ministry of Science, Technology and Innovation and one from the Ministry of International Relations. These five interviews were selected according to their relevance for this analysis from a larger set of fifty-four interviews conducted between September 2014 and January 2015 for the execution of a related research project. The selection of interviews was based on snow-ball sampling, according to which each interviewee was asked to refer to others who could provide further information on specific matters which emerged during their interviews. All interviews were anonymised due to their current public positions and the importance of avoiding any possible impacts of the publication of this article for their careers.

The data analysis was based on textual analysis, which consisted in the codification of documents and interviews according to an analytical framework based on cultural theory and specifically developed for this analysis. The documents were read and coded by the author, and results from the two different policy areas compared and debated with interviewees. Relevant parts of the interviews were transcribed and also coded according to the same analytical framework. A few excerpts from the interviews were translated to English by the author when necessary for citations.

Although the analytical framework developed for this analysis was based on an extensive literature review of previous strategies utilised in the identification of cultures, it was developed specifically for this analysis, consisting therefore in an innovative contribution to the literature. Literature review has revealed that although the proxies used in previous research for the identification of cultural styles have been extremely varied, their abstract character has often resulted in difficulties of systematic empirical operationalisation. Cultural styles have been identified, for example, through the level of consensus in terms of values and knowledge (Hoppe, 2002), through the identification of the visions of human nature depicted by actors involved in policy problems (Bevan and Hood, 2006; Lodge and Wegrich, 2012; Verweij et al., 2006), or even by the vision of environmental stability or fragility held by policy makers (Thompson, Ellis and Wildavsky, 1990; Forsyth, 2003). This study, on the other hand, proposes to contribute to this methodological debate by developing and applying three more easily observable proxies of cultural styles, which were generated based on extensive literature review and on the perceptions of the difficulties that the current literature entails in terms of empirical operationalisation. These three proxies utilised by this study are: *how* policies are formulated and implemented; *who* are the actors involved in this process; and *for whose benefit* policies actually work. Additionally, and also in order to facilitate empirical operationalisation, the analysis has been divided among the three main functions commonly attributed to regulatory regimes: standard setting, behaviour modification and information gathering (Hood, Rothstein and Baldwin, 2001; Black, 2002; Lodge and Stirton, 2010).

The analytical categories used and the coding framework developed are presented in Chart 1 and 2, followed by the analysis of the policies of the biodiversity and climate change regimes. The predominance of each of these characteristics in the way policies are formulated and implemented in different areas shall point, based on cultural theory and the coding framework here developed,

to the predominant cultural style of each policy sector. The expected answers relative to each culture are developed according to the descriptions of each cultural perspective presented by the literature. For instance, a focus on governmental decision makers and in the opinion of experts in the processes of standard-setting, behaviour modification and information gathering indicates a predominance of a hierarchist style in the policy area. Specific policy programmes were analysed in each policy area and their predominant style was synthesised and used for comparison. The following section exposes and further explains the application of the coding framework in relation to the empirical cases.

CHART 1 ANALYTICAL CATEGORIES (QUESTIONS ASKED WHEN CODING THE DATA)

Standard-setting	Who?	<i>Who is involved in the definition of standards?</i>
	How?	<i>How are standards defined?</i>
	Form whom?	<i>For whose benefit are standards set?</i>
Behaviour modification	Who?	<i>Who enforces behaviour modification?</i>
	How?	<i>How is behaviour is modified?</i>
	Form whom?	<i>For whose benefit is behaviour modified?</i>
Information-gathering	Who?	<i>Who obtains information?</i>
	How?	<i>How is information is obtained?</i>
	Form whom?	<i>For whose benefit is information obtained?</i>

Source: Elaborated by the author.

CHART 2 CODING FRAME (ATTRIBUTION OF CULTURAL STYLES ACCORDING TO THE ANSWERS OBTAINED)

		Standard-Setting	Behavior-modification	Information-gathering
Fatalists	Who?	<i>Bureaucrats and politicians</i>	<i>Bureaucrats</i>	<i>Bureaucrats</i>
	How?	<i>By evaluating the functioning of the system</i>	<i>Through randomness and surprise</i>	<i>Through random and surprise monitoring</i>
	For whom?	<i>Allegedly for the public good</i>	<i>Allegedly for the public good</i>	<i>For the system to work properly</i>
Individualists	Who?	<i>Market actors and politicians</i>	<i>Market actors</i>	<i>Administrative bureaucrats and market actors</i>
	How?	<i>By considering private interests</i>	<i>Through competition</i>	<i>Through the use of market incentives</i>
	For whom?	<i>For the self-benefit of market actors but allegedly also for the public good</i>	<i>For the self-benefit of market actors but allegedly also for the public good</i>	<i>For market actors</i>
Hierarchists	Who?	<i>Politicians (decision makers)</i>	<i>Technicians</i>	<i>Experts and technicians</i>
	How?	<i>By considering formal rules and procedures</i>	<i>Through legal punishment</i>	<i>Through expert advice and obligatory information reporting</i>
	For whom?	<i>For politicians but allegedly also for public good</i>	<i>For politicians but allegedly also for public good</i>	<i>For politicians (to inform decision-making)</i>
Egalitarians	Who?	<i>Community groups and politicians</i>	<i>Community groups</i>	<i>Community groups</i>
	How?	<i>Through dialogue and consensus</i>	<i>Through dialogue and persuasion based on communitarian bonds</i>	<i>Through dialogue, mutual learning and trust</i>
	For whom?	<i>For the community but allegedly also for the public good</i>	<i>For the community but allegedly also for the public good</i>	<i>For the community</i>

Source: Elaborated by the author.

4. CASE SELECTION

In addition to the reduced attention which has been dedicated to the analysis of the interactions between climate change and biodiversity policies, several other reasons can be identified for the selection of these two areas. First, since the spread of inter-disciplinary research on ‘ecosystem services’, scientific evidence about the impact of biodiversity degradation on climate regulation emerged, making the

interactions and potential negative side effects among policies developed in both areas a clear policy problem in need of more careful consideration (Cardinale et al., 2012). Second, debates over climate change adaptation have also included the crucial role of biodiversity conservation, in what has been referred to as ‘Ecosystem Based Adaptation’ – an approach focused on the use of biodiversity and ecosystem functions as a tool for the adaptation to a changing climate (Unep, 2010).

Particularly in the case of Brazil, the natural interdependencies among both policy areas make integration perhaps even more important. Brazil holds some of the richest ecosystems in the world (such as the Amazon forest and the *Cerrados*). Their degradation, although dramatically reduced in the past 10 years (particularly in the case of the Amazon forest),⁴ is still the second leading cause of the country’s high contribution to climate change (Matthews, 2014:5). Moreover, it has a great impact on biodiversity loss due to the close connection of forest/natural ecosystems and biodiversity conservation. Thus, there are few other places in the world where the overlaps among protecting biodiversity and tackling climate change are so explicit and policy integration so potentially important.

Climate change policies stimulating the use of biofuels are another critical issue which could extensively benefit from more policy integration and coordination. Decree 7.390 of 2010, which regulates the National Policy of Climate Change, for example, prescribes that the availability of biofuels shall be increased in the country (Art. 6º, §1º — III). The Decennial Plan of Energy Expansion (one of the Sectorial Plans for the Mitigation and Adaptation to Climate Change), as a consequence, has been designed to increase the production and use of biofuels. The plan involves the provision of credit for the production of sugar cane and the increase in the national mandatory percentage of biodiesel in diesel. The risk of conversion of areas previously occupied by highly biodiverse native or non-native vegetation to sugar cane monocultures or the impacts of monoculture expansion to surrounding ecosystems is not, however, being addressed by this plan (Tolmasquim and Guerrero 2010), even though extensively acknowledged by the literature on the topic (Sawyer, 2008; Rodrigues and Ortiz, 2006; Honty and Gudynas, 2007).

Although current Brazilian legislation forbids the cultivation of sugar cane in the Amazon, Pantanal and Upper Paraguay River Basin biomes (Decree 6.961 — for the agro-ecological zoning of sugar cane), it does not forbid its cultivation in areas of *Cerrado* — a biome recognised as one of the most biodiverse in the world. Additionally, data from Conab (*Companhia Nacional de Abastecimento*, or the National Supply Company), 2014, demonstrates that the production of sugar cane in the northern region of Brazil (which is largely covered by the Amazon forest) has increased from 46.38 thousand hectares in 2013 to 50.01 thousand in 2014, a total yearly increase of 7.8%, as opposed to the overall national increase of 3.6%. It is not in vain, therefore, to stress the importance of integrating climate change and biodiversity conservation goals in biofuel production policies.

Another huge area of overlap and desirable synergies between both policy areas in Brazil relates to the implementation of the National System of Conservation Units, which is pursued by the Secretariat of Biodiversity and Forests. As observed by Carvalho (2014), satellite data clearly demonstrates that deforestation rates are lower within conservation units than around it, which implies benefits not only for biodiversity conservation but also for climate change mitigation. However, even though a

⁴ According to Imazon (2014:9) the deforestation rate of Amazon forest in 2012 was 76,7% lower than the average of the period between 1996-2005.

few private initiatives do associate the provision of carbon-related economic benefits with activities pursued within conservation units,⁵ the draft of the Brazilian National Strategy for the implementation of the REDD+ (‘Reducing Emissions from Deforestation and Forest Degradation in Developing Countries’) mechanism does not incorporate in its policy coordination section any reference to the National System of Conservation Units or any potential synergies. It clearly demonstrates, as strongly emphasised by Carvalho (2014:463), the “lack of coordination between both agendas and the need to strengthen synergies among them”.

CHART 3 POTENTIAL AREAS FOR POLICY INTEGRATION BETWEEN BIODIVERSITY AND CLIMATE CHANGE POLICIES

Policy problem/area	Overlap
Ecosystem Services	Impacts of biodiversity degradation on climate regulation. E.g. ocean algae degradation
Ecosystem Based Adaptation	Use of biodiversity as a tool for the adaptation to a changing climate
Ecosystem Degradation	Crucial cause of both biodiversity loss and carbon emissions in Brazil
Biofuel Production	The risk of conversion of areas previously occupied by highly biodiverse native or non-native vegetation to sugar cane monocultures or the impacts of monoculture expansion to surrounding ecosystems.
Creation of conservation areas	Potential for the attainment of carbon-related economic benefits and biodiversity conservation goals within the same areas

Source: Elaborated by the author.

5. EMPIRICAL ANALYSIS

Although the analysis of the data obtained revealed an increasing recognition of the importance of policy integration between both areas by the Brazilian bureaucracy, it has also shown that the conditions for this integration to occur have not yet been fully materialised. Institutionally, two distinct departments are in charge of the Biodiversity and Climate Change policies within the Brazilian Environmental Ministry: the secretariat of Biodiversity and Forests and the secretariat of Climate Change and Environmental Quality. Data suggests that policies in the areas mentioned in the previous section are developed independently by each of the departments, and little efforts for integration have actually taken place so far. In addition to the example of biofuel policies, another case which exemplifies the lack of integration refers to the case of the Brazilian anti-deforestation plan — ‘Action Plan for the Prevention and Control

⁵ See, for example, the Bolsa Floresta programme created in the Amazonas federal state in 2007, which provides payment for environmental services and products produced by families within conservation units (Börner et al., 2013), or the case of the Juma Sustainable Development Reserve, also in the Amazon state, through which credits are provided to the management of the reserve as a way to offset the carbon emissions of a large hotel chain (Viana et al., 2008)

of Deforestation in the Amazon Forest' (PPCDAm in the Portuguese acronym). This plan has been implemented by the secretariat of Climate Change and Environmental Quality, and an external evaluation by Ipea-GIZ-Cepal (2011) has emphasised that although extremely efficient in terms of reducing overall levels of deforestation in the country, the plan presented limited success in its goal of promoting the conservation of biodiversity. When questioned about the reasons behind this result, an official from the Ministry of Environment involved in the implementation of the plan stressed the importance but limitations in terms of policy integration with other areas with different administrative capabilities for the achievement of this goal (Interview 1 MMA, 16th October 2014, MMA, Brasília). As the interviewee explained, while command and control and land title regularisation activities (those responsible for the direct avoidance of deforestation which were successfully implemented by the Plan) mainly require capabilities which can be centralised by the government, biodiversity conservation requires direct contact with local people and is commonly accomplished through programmes of behavioural change which were not mastered, in his opinion, by the Secretariat of Climate Change and Environmental Quality (Interview 1 MMA, 16th October 2014, MMA, Brasília). The reasons for these types of difficulties will now be explored through a detailed analysis of the policies historically developed in each area and their predominant cultural styles. The analysis will test the hypothesis drawn from Cultural Theory and from debates on policy integration, which implies that differences in cultural perspectives in each sector are among the underlying reasons of limited integration and coordination among both policy areas.

A. THE BIODIVERSITY REGIME

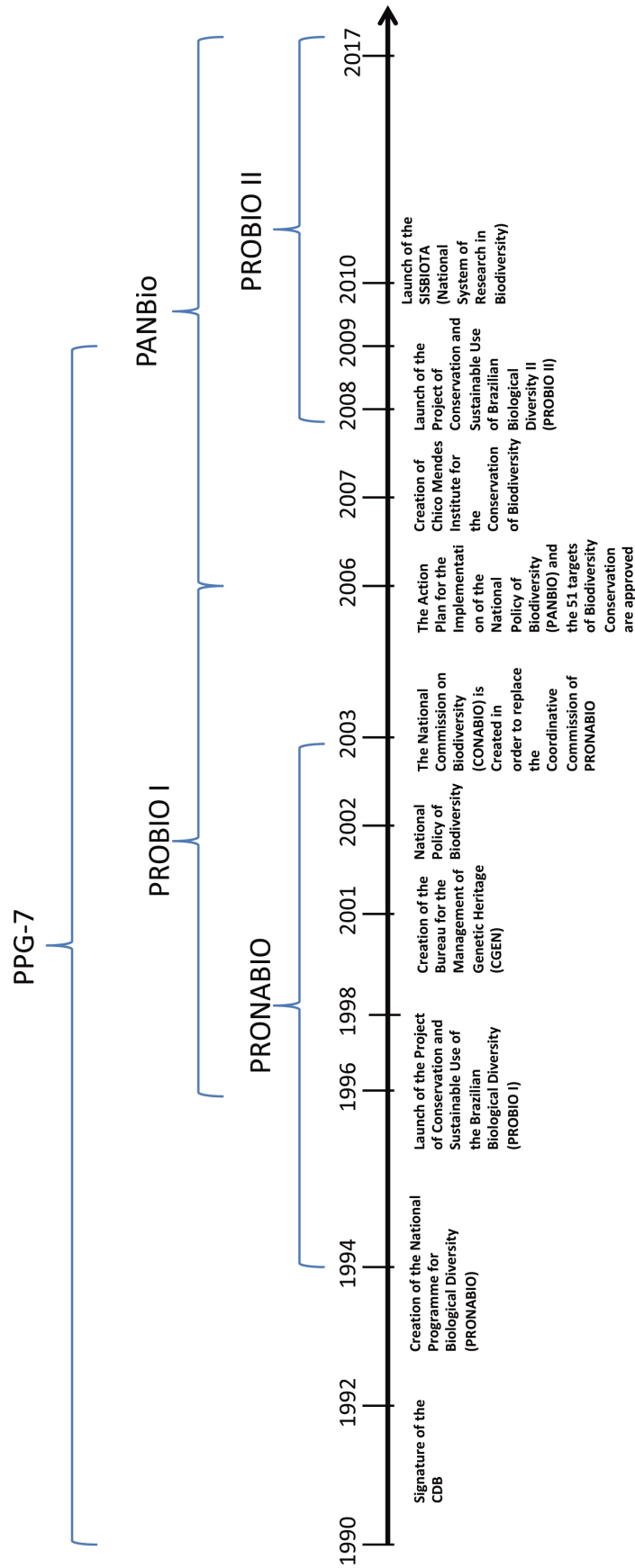
The issue of biodiversity conservation started to be addressed in Brazil in the 1930s with the creation of two national parks. Later, Rio-92 UN Conference and the signing of the Convention of Biological Diversity by Brazil (in 1992) provided a new impetus to the topic, which became one of the central agendas of the Ministry of Environment. In the recent past, several biodiversity programmes have been implemented in Brazil, of which three were chosen to be analysed here due to their central role in structuring biodiversity conservation efforts in the country.⁶ The first is the Pilot Programme for the Protection of Brazilian Tropical Forests (PPG-7), which, although not exclusively focused on the preservation of biodiversity, has deliberately and strongly promoted this goal. The second is the National Programme of Biological Diversity (Pronabio), which consisted of two phases (Probio I and Probio II). The third programme analysed is the Action Plan for the Implementation of the National Biodiversity Policy (PANBio), which was designed in order to implement the National Policy of Biodiversity (Interview 3 MMA, 31/10/2014). A historical overview of these three programmes is presented in figure 2. Within these three programmes, 18 specific policies were analysed,⁷ which were divided, in order to allow for comparability, among standard-setting, information-gathering and behaviour-modification types of policies. Chart 3, 4 and 5 present a list of these 18 policies and their corresponding analysis. A selection of the analysis pursued in relation to some of these policies is presented in sequence.⁸

⁶ Their relevance as the 'backbone' of biodiversity policies in Brazil was stressed by interviewee 3 (MMA). The emphasis placed by the interviewee on these three specific policies has guided the selection pursued here.

⁷ The selection of policies within these three programmes was determined by the availability of documents mentioning and describing them on the Ministry of Environment and other official websites.

⁸ A full description of the analysis of the 18 policies is not provided due to space limitations, but is summarised in the charts.

FIGURE 2 HISTORICAL OVERVIEW OF THE BIODIVERSITY REGIME IN BRAZIL



Source: Elaborated by the author.

CHART 4 STANDARD-SETTING PROCESSES IN BIODIVERSITY

Years	Programme	Standards	Who are the actors involved in the definition of the standard?	How were standards defined?	For whose benefit are standards set?	Predominant cultural orientation
2003-2004	PRONABIO (Introductory phase)	Creation of the CONABIO – the National Commission on Biodiversity (Decree N° 4.703, of 21/05/2003 and Decree N° 5.312 of 15/12/2004)	Initially restricted to the politicians but have progressively expanded to include the community.	Initially through formal procedures, but changed to allow for dialogue and consensus.	For the public good.	Initially hierarchical but adjusted to an egalitarian approach, so considered as egalitarian.
2004	PRONABIO (PRONABIO I)	Definition of the standards for the identification of priority areas for conservation (Decree N° 5.092 of 21/05/2004 and Ministerial Decree N° 26 of 27/05/2004)	Actors from the government, civil society and private sector	Through dialogue and consensus (workshops)	For the public good	Egalitarian
2006	PANBio	Establishment of the directives and priorities for the Action Plan for the Implementation of the National Policy of Biodiversity (PANBio)	Actors from the government, civil society and private sector	Through dialogue (deliberation of CONABIO)	For the public good	Egalitarian

Source: Elaborated by the author.

CHART 5 INFORMATION-GATHERING POLICIES IN BIODIVERSITY

Year	Programme	Project	Who obtains information?	How is information obtained?	For whose benefit is information obtained?	Predominant Cultural Orientation
1992 - 1998	PPG-7	Testing of social, environmental and economic co-management models in four extractive reserves.	Community and decision makers	Through dialogue and mutual learning	For the community	Egalitarian
		Project of Protection to the Indigenous Population and Lands of the Legal Amazon (PPTAL)	Community and decision makers	Through dialogue and mutual learning	For the community	Egalitarian
		97 Demonstration Projects" The majority aims to stimulate the production and commercialisation of forest products in a sustainable manner.	Community, decision makers and academics.	Through dialogue and mutual learning	For the community	Egalitarian
1994 - 1998	PRONABIO (introductory phase)	Workshops	Community (mainly NGO's and academic groups)	Through dialogue and mutual learning	For the community	Egalitarian
		Elaboration of the "Manual of Economic Valuation of Environmental Resources"	Experts and technicians	Through expert advice	For politicians (to inform decision making)	Hierarchic
1996 - 2001	PRONABIO (PROBIO I)	Brazilian Network of Information about Biodiversity	Experts	Compilation of existing information	For scientists, the communities where species occur and school children.	Hybrid – egalitarian/hierarchic
		Conservation and Sustainable Use of Pollinators in the Agriculture, with emphasis on bees	Experts	Scientific research	By the NGO Instituto de Estudos Ambientais do Sul da Bahia	Hybrid – egalitarian/hierarchic
		Project of Special Studies about Biodiversity and Traditional Communities in Brazil	Experts	Compilation of existing information	For the community (the database was purposefully organised in an accessible way to facilitate its use by the general public and the goal of the project itself was to value the knowledge of traditional communities)	Hybrid – egalitarian/hierarchic

Source: Elaborated by the author.

CHART 6 BEHAVIOUR MODIFICATION IN BIODIVERSITY

Year	Programme	Project	Who enforces behaviour modification?	How is the new behaviour enforced?	For whose benefit is behaviour modified?	Predominant Cultural Orientation
1999 - 2006	PPG 7	<i>Promanejo</i> – Project of Support to Forest Management	The community (volunteers)	Communitarian bonds, persuasion (training) but also financial incentives	Community	Egalitarian with an individualist component (Hybrid)
		<i>Proteger II</i> – Project of Mobilization and capacitation of small farmers, extrativists and indigenous for the prevention of forest fires in the Amazon	The community (volunteers)	Persuasion (educational projects) and communitarian bounds	Community	Egalitarian
		<i>Pro-varzea</i> - Project of Management of Natural Resources in River Low-Lands	The community (volunteers)	Communitarian bounds (Fishermen agreements are designed and is enforced through trust)	Community	Egalitarian
1997 - 2000	PRONABIO (PROBIO I)	Demonstrative Projects	Groups of NGO's, members of the government and research organisations	Persuasion (Information provision) and debate	Community	Egalitarian
2006	PANBio	Directives	It was not enforced due to staff discontinuity in the process of structuration of the Environmental Ministry	It was not enforced	I was originally designed for the benefit of the community	Egalitarian
2008 - 2014	PRONABIO (PROBIO II)	Consideration of Biodiversity by other Governmental Sectors -Promotion of organic agriculture	Communitarian enforcers and private certification	Mainly through communitarian systems of evaluation to conformity and through private certification.	The community	Egalitarian-individualist (Hybrid)
		Prioritization of Biodiversity by the Private Sector - Funding private projects that take biodiversity in consideration.	Market actors	Through financial incentives	Private actors and also for the public good	Individualist

Source: Elaborated by the author.

The first of the three programmes analysed was PPG-7. It started to be planned in 1990 but was officially launched in 1992, during the UN-Rio Conference. It was financed by the G-7 (Germany, the US, France, Italy, the UK, Japan, Canada and Russia), in addition to Brazil, and was administrated by the World Bank. Although its main goal was to tackle deforestation in the Amazon, biodiversity conservation projects were central to the programme. ProManejo, ProVarzea and Proteger II, for example, were crucial behaviour-modification projects within PPG-7 which aimed at the promotion of biodiversity conservation (see chart 5). As the document analysis and an interview with a former leader of the project revealed, a common feature of these three projects in terms of behaviour modification was a strong reliance on communitarian bounds (social trust), consultation and dialogue as their main enforcement mechanisms (Santos, 2005; Verissimo, 2005; Sauer, 2005, Interview, MCTI official — 18th September 2014, MCTI, Brasília.). In ProVarzea, a project aiming at the sustainable management of natural resources in the Amazon and Solimões Rivers' Low-Lands, for example, fishermen's informal agreements were the only mechanism protecting fish stocks and there was no other type of enforcement in place. Similarly, in Proteger II — a project aimed at preventing fires in the Amazon region — small farmers, extractive workers and indigenous communities were those trained and put in charge of reducing fires. Their implementation, moreover, followed a local traditional type of organisation called '*puxiruns ambientais*,'⁹ a traditional work organisation strategy adopted by traditional communities in the region (Sauer, 2005). ProManejo — which was mainly intended at promoting the sustainable management of the Amazon forest — established a consultation council for the conservation of the Tapajos area in 2001, which involved members of the community, the rural workers' union, universities, governmental agencies and NGOs. It has even been described in its evaluation document as a 'laboratory of participatory management' which could contribute to the management of other conservation units in the country (Verissimo, 2005). In these three examples, communities are the main actors in charge of enforcing the policies, and behaviour modification is strongly based on communitarian bonds of trust, dialogue and persuasion, pointing to the predominance of an egalitarian administrative culture.

Moreover, the main beneficiaries of all these three strategies can be clearly identified as the communities themselves, which were encouraged to solve local problems through their own methods and intense participation (Related to the question *for whose benefit* of our coding frame). When interviewed about these projects, a former leader and formulator of PPG-7 confirmed local people's empowerment as one of their central goals (see chart 5 for a summary of the analysis of these projects) (Interview, MCTI official — 18th September 2014, MCTI, Brasília).

Many other PPG-7 projects also had strong egalitarian features, such as the 'demonstration projects', which specifically required the engagement and participation of local communities in their development, and the co-management of four extractive reserves, which, as the name suggests, was designed to develop co-management between local communities and government authorities. Additionally, the Integrated Project of Protection to the Indigenous Population and Lands of the Legal Amazon was designed specifically to tackle the needs of a traditionally less-favoured community (see chart 4). Its aims were to preserve natural resources in indigenous lands and to promote the well-being of

⁹ This is a way in which farmers of the Amazon region traditionally organise a working day — involving all the community in different roles and followed by a party. It is based, therefore, on local traditions.

indigenous populations (Viergever, 2005). Because indigenous communities were included in the gathering of information and in the behaviour-modification strategies of this project, and because the processes of implementation were centred on education and the involvement of these communities, this project was also found during the data coding to demonstrate strong egalitarian features.

The National Programme for Biological Diversity (Pronabio), the second of the three biodiversity projects analysed, was established in 1994 as a direct response to the negotiations around the Convention on Biological Diversity (CBD). The actions of Pronabio, in its introductory stage, were intended primarily at information-gathering and consisted in the design of ten workshops chiefly organised by NGOs and academic groups (Brazilian Ministry of Environment, 1998). The workshops had varied purposes: to catalogue information already available about aspects of ecosystem conservation, to build networks among different groups working with biodiversity conservation, to create new monitoring systems for specific biomes, and to discuss the implementation of biodiversity conservation in Brazil in general terms. They were always, however, strongly driven by the general goal of promoting dialogue and exchange of information among different sectors of society. Thus, the process through which information was obtained in almost all of these workshops (apart from one, which was coordinated by Embrapa, a state research organisation, and had a more technical orientation), was mutual learning and dialogue among several social sectors. The very fact that they were commonly organised by NGOs and academia points to this kind of orientation, which is characteristic on an egalitarian administrative approach. Additionally, the information produced has been made available to the public and could be used by any organisation interested in using it, indicating that the information gathered could be used for the benefit of the general public and not only for the government or specific groups of experts, as it would be implied by a more hierarchical cultural orientation (coded in relation to the criteria *for whose benefit* — see chart 4). Therefore, the analysis of the process of information collection, of the actors involved, and of the actors allowed to use the information collected, pointed to a predominantly egalitarian approach to information-gathering in the initial stages of the implementation of Pronabio.

Still in the context of Pronabio, the Brazilian government and the GEF (Global Environmental Facility) signed, in 1996, an agreement for the launch of Probio I — the Project of Conservation and Sustainable Use of the Brazilian Biological Diversity — the first structured phase of Pronabio. The demonstrative projects designed within the context of this programme to deal with the evaluation of genetic resources and ecosystem management (described as ‘demonstrative projects’ in chart 5), for example, were developed and implemented by NGOs and research institutions, and all but one of them had a strong focus on engaging and informing local communities as part of a strategy of behaviour-modification. The MMA report of activities of Probio I between 1996 and 2002 show, in addition, that the main beneficiaries of the projects were the communities in charge of the execution of the demonstrative projects, directly benefiting from the resources dedicated to the project and from the sustainable ecosystem management techniques experimentally adopted (Brazilian Ministry of Environment, 2002). Thus, also in the case of Probio I, the analysis of *how* behaviour modification was promoted, *who* promoted it, and *for whose benefit* it was promoted, point to a predominantly egalitarian bias, which according to the expectations of Cultural Theory, includes and directly benefits from the participation of the entire community.

In terms of standard-setting, during the implementation of Probio I, the government promoted a one-year consultation period (2000-01) during which NGOs, academics, indigenous communities, the private sector and the government itself were asked to provide input for the formulation of the National Biodiversity Policy (*Política Nacional de Biodiversidade* — PNB). In March 2002, based on this consultation period and on the other information-gathering projects developed up to that time, the government launched the first draft of the PNB, which was further discussed in four meetings with varied members of the society in different state capitals of the country (Ministry of Environment Website, 2015). This open and long consultation period was remarkable, and did not so explicitly happen, as will be shown in the next section, in the case of the elaboration of the National Policy of Climate Change. In terms of the actors involved and the procedures for the definition of the PNB, therefore, the approach adopted was, once again, predominantly egalitarian, with a consistent and strong focus on social participation and inclusive dialogue as the other biodiversity policies presented so far.

Regarding the standard-setting process leading to PANBio — the third biodiversity programme investigated in this analysis — a predominant egalitarian bias was also identified, further confirming the predominance of this administrative style in this policy area. The formulation of PANBio involved an online public consultation during 2005 and a face-to-face debate, which included members of NGOs, academia, private sector and government. After a new round of online consultations and the consolidation of the proposed actions by the Environmental Ministry (in order to eliminate redundant suggestions, non-specific actions and actions which had no operational and financial viability), a resulting document was submitted for approval to the Conabio (the National Commission of Biodiversity, in which different social sectors all equally represented). In 2006, 142 actions were approved and a technical chamber composed of civil society, government and private actors was established by Conabio to monitor the implementation of the actions. Once again, both the actors involved and the process itself were markedly egalitarian, following broadly participatory procedures. Additionally, the actions proposed created obligations to many different social actors (communities, government, researchers and NGOs) and were intended to directly benefit society as a whole (Brazilian Ministry of Environment, 2006).

Lastly, although little data exists on the implementation of Probio II due to its more recent launch (in 2008),¹⁰ the analysis of some of its projects reveals the intention to use market incentives (such as the concession of credit to private actors working for the conservation of biodiversity), pointing to a more individualist approach in Cultural Theory terms. Yet, other projects that are part of this programme still seem to strongly rely on egalitarian strategies. The use of communitarian monitoring system for the promotion of organic agriculture (see chart 5), for example, is a clear indication of the maintenance of egalitarian strategies of information-gathering. Therefore, although individualist elements are identified in this second phase of Pronabio, this fact does not invalidate the predominantly egalitarian bias observed in the overall historical analysis of policies of this area, which, as discussed in the next section, clearly diverges from the predominant hierarchical features identified in the climate change regime. Thus, the overall analysis of the programmes described in this section

¹⁰ See figure 2 for a comprehensive historical overview of the biodiversity regime in Brazil.

and on chart 4, 5 and 6 indicate that although the administrative culture of the biodiversity regime has been slightly changed in more recent programmes (such as Probio I and II) towards a more hierarchic and individualist approach, biodiversity policies tend to embody some crucial egalitarian features throughout history, which are not so clearly present (as will be demonstrated in the next section) in the majority of policies related to climate change.

B. THE CLIMATE CHANGE REGIME

In terms of climate change policies, in addition to the standard-setting process leading to the approval of the National Policy of Climate Change, nine sectorial policies of climate change were analysed, both in relation to their information-gathering aspect and to their behaviour-modification components, totalling 19 observations. A summary of the analysis is presented in chart 6, 7 and 8 and described subsequently.

CHART 7 STANDARD-SETTING PROCESSES IN CLIMATE CHANGE

Year	Standard	Who is involved in the definition of standards?	How are standards defined?	For whom are standards set?	Predominant cultural orientation
2009	Elaboration of the National Policy of Climate Change	Politicians	Formal rules and procedures (Initial bill produced by the Executive Group of Climate Change - mainly composed by the executive power; voted by the Congress with insignificant changes and partially vetoed by the president through a “presidential message”. Some of the vetoed clauses were suggested by the civil society.	Apparently to benefit politicians in international negotiations (strategic – policies are not an end in itself)	Hierarchical

Source: Elaborated by the author.

In relation to the standard-setting process of the National Policy of Climate Change, the United Nations Framework Convention on Climate Change (UNFCCC) was signed by the Brazilian government in 1992, but the first law internalising the Convention was only enacted in 2007. Law n. 12.187 (2009), which instituted the National Policy, was preceded by Decree n. 6.263 (2007) intended to guide its development. The decree stipulated that the Executive Group of Climate Change, put in charge of developing the national policy, should count with the participation of both the executive power and civil society. The analysis of documents pointing to the events that preceded the elaboration of the policy demonstrates, however, that the executive power seemed to be the only or at least the main actor in the meetings of the group. The attendance lists from the meetings between November 2007, when the group was established, and December 2009, when the National Policy of Climate Change was published, are not available online; however, more recent lists (from 22 January 2014, 5 December 2013 and 6 November 2013) indicate that no representative from the Brazilian Forum of Climate Change (composed of the civil society and described by Decree n. 6.263 as one of the members of the Executive Group) were present (Website of the Brazilian Ministry of Environment,

2015).¹¹ Therefore, in the attendance lists of more recent meetings of the Executive Group of Climate Change, there is a clear predominance of governmental actors from the executive power. This fact is in contrast with the inclusive procedures that preceded the elaboration of the National Policy of Biodiversity described in the previous section.

CHART 8 INFORMATION-GATHERING IN CLIMATE CHANGE

Year	Project	Who obtains information?	How is information obtained?	For whom is information obtained?	Prevalent Cultural Type
2012 - now	Plan of Low Carbon Agriculture – ABC Plan	Technicians (“Virtual Multi-Institutional Laboratory of Climate Change and Agriculture” composed by the Climate Network -a group of research institutions)	Obligatory information reporting (Satellite information, information from the banking system, from the Brazilian Institute of Geography and Statistic -IBGE and from the National Company of Supply – CONAB)	Decision makers (Ministry of Agriculture and Ministry of Agrarian Development)	Hierarchical
2013 - now	Mining Plan of Low Carbon Emission	Ministry of Mining and Energy	Not specified	Decision makers (Ministry of Mining and Energy)	Impossible to determine with the available data
2010 - now	Plan for the reduction of emissions in the steel industry	Mixed actors (Steel Industry Competition Forum and Brazilian Forum of Climate Change)	Not specified	Decision makers (Ministry of Development, Industry and Commerce)	Impossible to determine with the available data
2013 - now	Sectorial plan for an Economy of Low Carbon Emission in the Transformation Industry - Industry Plan	Technicians (Technical Commission of the Industrial Plan)	Obligatory information reporting by large firms (through annual reports of emissions)	Decision makers (in this case the Technical Commission of the Industrial Plan)	Hierarchical
2010 - now	Decennial Plan of Energy Expansion	Technicians (Energetic Research Company and National Operator of the Electrical System)	Obligatory information reporting (by energy production companies)	Decision makers (Ministry of Mining and Energy)	Hierarchical
2013 - now	Sectorial Plan of Health for the Mitigation and Adaptation to Climate Change	Technicians (Health professionals)	Obligatory information reporting (from health professionals of the public sector)	Decision makers (Ministry of Environment)	Hierarchical
2013 - now	Sectorial Plan of the Transportation and Urban Mobility for Climate Change Mitigation	Technicians (Technical Group of Mitigation and Adaptation to Climate Change in Public Urban Transportation and Ministry of Transportation)	Obligatory information reporting (Technical visits to the building sites, document analysis)	Decision makers (Ministry of Cities and Ministry of Transportation)	Hierarchical

Continue

¹¹ Available at: <www.mma.gov.br/clima/grupo-executivo-sobre-mudanca-do-clima/grupo-executivo-sobre-mudancas-climaticas/item/326>.

Year	Project	Who obtains information?	How is information obtained?	For whom is information obtained?	Prevalent Cultural Type
2010 - now	Action Plan for the Prevention and Control of Deforestation and Fires in the <i>Cerrado</i>	Technicians and bureaucrats	Obligatory information reporting (satellite information, land tenure regularisation requirements and direct monitoring by public agents)	Decision makers (IBAMA, Ministry of Environment, Federal State Environmental Agencies, ICMBio) and community (Public consultation of the national database of fires is allowed by the IBAMA).	Predominantly Hierarchical (elements of fatalism and egalitarianism) - hybrid
2004 - now	Action Plan for the Prevention and Control of Deforestation in the Amazon	Technicians (National Institute of Spatial Researches - INPE)	Obligatory information reporting (Satellites, radars and external evaluators)	Decision makers and community (Ministry of Environment, Ministry of Planning, Budget and Management, Brazilian Intelligence System - SISBIN; Inter-ministerial Commission against Criminal and Unlawful Environmental Acts, the Brazilian Institute of Environmental and Natural Resources - IBAMA, representatives of the Brazilian Forum of Climate Change)	Predominantly hierarchical (with elements of egalitarianism) - hybrid

Source: Elaborated by the author.

Moreover, as observed by Pietrafesa (2013), during the development of the National Policy of Climate Change, centralisation by the executive power was so high that even members of the Congress were given little space in the negotiations. Although the former Secretary of Climate Change, Thelma Krug, affirmed in an interview conceded to Pietrafesa (2013) that the executive power considered all the opinions received from civil society in the elaboration of the law, comparative textual analysis of inputs provided by civil society with the final law demonstrates that many crucial suggestions¹² — such as those related to the progressive use of renewable energy and the gradual substitution of fossil fuels by renewable energy — were vetoed by the executive power.¹³ It is also particularly interesting for this research that a document produced by the Climate Observatory — a group of civil society organisations — had a passage that explicitly mentioned the need for conciliation between the climate change and the biodiversity agendas, which was similarly not included by the executive government in the final draft of the bill (Observatório do Clima, 2008). It is important to note, therefore, that these findings markedly diverge from the inclusive process that characterised the formulation and implementation of the National Policy of Biodiversity. The evidence on the standard-setting process of the climate change regime points, as a consequence, to a predominantly hierarchical style in which decisions are restricted to members of the government or experts consulted by them.

¹² Which were present in a document organised by the civil society group *Observatório do Clima* called 'Elements for the formulation of Climate Change Regulations in Brazil: Contributions from the Civil Society'.

¹³ The executive power justification for these vetoes was provided in a presidential message which argued that they were vetoed due to 'energy security' reasons.

CHART 9 BEHAVIOUR MODIFICATION IN THE CLIMATE CHANGE

Years	Programme	Standards	Who are the actors involved in the definition of the standard?	How were standards defined?	For whose benefit are standards set?	Predominant cultural orientation
2003-2004	PRONABIO (Introductory phase)	Creation of the CONABIO – the National Commission on Biodiversity (Decree N° 4.703, of 21/05/2003 and Decree N° 5.312 of 15/12/2004)	Initially restricted to the politicians but have progressively expanded to include the community.	Initially through formal procedures, but changed to allow for dialogue and consensus.	For the public good.	Initially hierarchical but adjusted to an egalitarian approach, so considered as egalitarian.
2004	PRONABIO (PRONABIO I)	Definition of the standards for the identification of priority areas for conservation (Decree N° 5.092 of 21/05/2004 and Ministerial Decree N° 26 of 27/05/2004)	Actors from the government, civil society and private sector	Through dialogue and consensus (workshops)	For the public good	Egalitarian
2006	PANBio	Establishment of the directives and priorities for the Action Plan for the Implementation of the National Policy of Biodiversity (PANBio)	Actors from the government, civil society and private sector	Through dialogue (deliberation of CONABIO)	For the public good	Egalitarian

Source: Elaborated by the author.

In terms of information-gathering, Decree n. 7.390, of 9th December 2010 (Brazil, 2010) determines that sectorial plans of mitigation and adaptation (which are being developed by each ministry in charge of the area of the plan) are to define their own information-gathering instruments. Therefore, the analysis of the regulation suggested that in order to observe how information is gathered, by whom and for whose benefit, the investigation should be focused on the composition and functioning of the each of the nine sectorial plans.

The examination of each of the sectorial plans demonstrates that six out of the nine plans of mitigation and adaption implemented up to the end of 2016 are completely or predominantly hierarchical, two have their cultural styles still underspecified at this initial point of implementation, and one mixes both hierarchical and individualist tendencies. As shown in chart 8, all of these sectorial plans which had available data about their systems of information-gathering make use of some sort of obligatory information reporting system, (which is typical of hierarchical

information-gathering mechanisms). The Plan of Low Carbon Agriculture, for example, is based on information collected by satellite monitoring, banking systems and commercial transactions, all of which are centralised, mandatory and technical means of obtaining information. Moreover, technicians from the ‘Virtual Multi-Institutional Laboratory of Climate Change and Agriculture’ are in charge of consolidating information to be used by the Ministry of Agriculture and Ministry of Agrarian Development in the formulation of new policies (*who* and *for whose benefit*). This process, therefore, although promoting the public good, has the primary and explicit goal of informing the decision-makers within these two ministries and not to diffuse information to the society as a whole (which would be characterised as a more egalitarian goal). It adopts, then, a predominantly hierarchical approach to information-gathering.

The analysis of the planned behaviour-modification strategies of the Sectorial Plans reveals, on the other hand, a more nuanced picture in which individualist intentions predominate (see chart 9). The analysis of the actual implementation processes of the plans, however, points to a marked hierarchical bias in relation to the only two plans which have already been implemented and had data available online by the end of 2016 (the Energy and PPCDam plans). PPCDam. Although displaying both egalitarian and hierarchical intentions, it has faced difficulties in promoting the conservation of biodiversity through local coordination with communities, which formed part of its more egalitarian component. At least until its third phase, which finished in 2016, it has been strongly based on the success of strategies of command and control (police forces) to reduce deforestation, and not so much on egalitarian strategies of information sharing and communitarian persuasion (Interview 1 MMA official, 16th October 2014, MMA, Brasília).¹⁴

Similarly, the Decennial Plan of Energy Expansion has implemented its objectives of GHGs emissions reductions mainly through the legal requirement to increase the percentage of biodiesel in the diesel (from 3% to 5% in 2010) — which is a clear hierarchical due to the legalist and top-down characteristics of this method. Governmental provision of credit for sugar cane production (which is related to the use of market mechanisms and, thus, to an individualist administrative cultural style) have, however, also been utilised. This plan was, consequently, coded as a hybrid of individualist and hierarchical administrative styles.

As demonstrated in charts 7, 8 and 9, despite the more frequent occurrence of hybrid administrative styles in climate change policies than in biodiversity ones, the end result of the analysis of all the 19 climate change programmes has consistently pointed towards the predominance of a hierarchical style in terms of actual implementation, which contrasts with the tendency towards egalitarian choices observed in the biodiversity regime and described in the previous section. Table 1 compares these results. In this way, it provides support to the hypothesis that different cultural styles actually

¹⁴ This approach has been debated and reviewed during the elaboration of the strategic plan of the fourth phase of the programme, launched in 2016 and planned to happen until 2020. This new phase counts with a reviewed governance structure, which deliberately intends to include more social actors in the administration of the Programme and also to have its actions integrated by other projects already being executed by the Ministry of Environment such as those of biodiversity use and conservation (Ministry of Environment, 2016:5-6).

predominate in each policy area — biodiversity being consistently egalitarian and climate change tending towards a hierarchical administrative culture either in terms of standard setting, information gathering or implemented behaviour modification policies.

Finally, it is important to stress that the process of creation of the ‘National Plan of Adaptation’ seems to be diverging from this path of hierarchical centralisation which predominates in Climate Change policies. Although it is still being elaborated, and for this reason, it is not being systematically analysed here in terms of cultural style, the lists of participants in the meetings of the Adaptation Working Group reveal the inclusion of members of civil society, and of several governmental areas in the debate, as well as the promotion of public consultations, suggesting a more egalitarian approach. The consequences of these cultural differences for policy integration with biodiversity do not seem to be negligible at first sight and point towards increasing policy integration between both areas. A clear evidence of this tendency of more policy integration refers to the National Plan of Adaptation to Climate Change, a plan designed by the Adaptation Working Group, which counts with a full chapter on Biodiversity. As it is further discussed, personal efforts of specific leaders seem to provide an important stimulus for cultural barriers to be cut through and policy integration to effectively occur.

TABLE 1 SUMMARY OF THE ANALYSIS

Predominant cultural type	Climate Change	Biodiversity
Egalitarian	0	<u>10</u>
Hierarchical	<u>8</u>	2
Individualist	2	1
Fatalist	0	0
Hybrid	5	5
Insufficient data	4	0
Total of observations	19	18

Source: Elaborated by the author.

6. DISCUSSION

The analysis revealed the predominance of a hierarchical administrative logic in the climate change regime, while the biodiversity regime was found to be mainly egalitarian. Although several cases of

hybrids and of insufficient data occurred (especially in the analysis of the climate change policies, due to their ongoing and more recent implementation), the complete absence of egalitarian cases among the analysed policies of the climate change regime is indicative of its clear divergence of cultural style in relation to biodiversity policies. As a consequence, the expectation that differences in administrative cultures is among the factors that has been hampering policy integration among both areas cannot be discarded, and is, therefore, worthy of consideration in future efforts of policy integration.

The main contribution arising from this empirical analysis of the administrative cultures predominant in each of these two environmental policy sectors, points, as a consequence, not only to cultural differences that will have to be tackled in future integration attempts but also to a potential reason for the lack of integration exhibited so far among these two environmental areas. The analysis provides support to the theoretical predictions of Jordan and Lenschow (2010), according to whom different administrative cultures and routines developed within the bureaucratic segments of different sectors may lead actors to protect their “competences, resources and ways of doing things from the intervention of other parts” (Jordan and Lenschow 2010:153), potentially undermining attempts of policy integration or coordination.

A second contribution of this research to theoretical debates on environmental policy integration refers to the role of ‘political *técnicos*’, who “combine characteristics and preferences of both politicians and *técnicos*” (Schneider, 1991:8), as potential sources of policy integration even in situations characterised by different administrative cultures (in which integration is more unlikely to occur) among bureaucracies (Schneider, 1991:8). Largely acknowledged by the literature on Brazilian bureaucracy (see for example Schneider, 1991; Hochstetler and Keck, 2007), the role of personal leaders as brokers and intermediaries among agencies, capable of promoting policy integration even in highly fragmented institutional environments is suggested in the case of the elaboration of the National Plan of Adaptation, opening an important area for further scrutiny. This case, was found to be particularly illustrative of the role of leadership in promoting policy integration, standing out as an interesting exception to the findings presented so far in relation to the lack of policy integration between both areas and the impacts of cultural differences.

Although an initiative of the Climate Change department, the analysis of the participants of the elaboration of the National Plan of Adaptation points to a strong participation of organised civil society, of several different areas of the government, and of society as a whole through the promotion of online public consultations. The preliminary version of the Plan counts, moreover, with a full chapter on the role of biodiversity in adaptation to climate change and concerns about policy synergy (or policy ‘transversality’) are also included in the text (Memory of the meeting of the adaptation Working Group available online, 22/6/2015). Finally, the very coordination of the chapter about Biodiversity is being pursued by someone from the Secretariat of Biodiversity and Forests, pointing to a considerable level of coordination and integration among both areas.

Attempts to explain this exceptional level of policy integration during the empirical analysis pointed to the leadership role and personal efforts of very specific actors. The coordinator of the biodiversity chapter of the Adaptation Plan (Interview MMA 2), when inquired about the reasons

for this remarkable and unusual concern about policy integration, provided the following response, which exemplifies the importance of personal leadership:

We are coordinating the chapter on Biodiversity of the National Plan of Adaptation, so this is going forward. *I would not say this is already in the level I would like, but having a biodiversity chapter in the National Plan of Adaptation is, if I may have some vanity, one of the opportunities which I grabbed when I arrived here.* We need to improve the connection between biodiversity and climate change and *I saw in this chapter a huge opportunity to advance this agenda.* Both in terms of focusing a little more in what climate change is causing in terms of risks to biodiversity, which is important but much more obvious, but also in the strategic component of demonstrating the value of conserving biodiversity to adaptation and mitigation. So, we are now creating studies and critical mass for the time when risks are larger, this will appear in the political agenda in a more effective way. For you to have policies which better incorporate this matter. [Interview, MMA 2, Brasília 24/10/2014]

From his response one can infer that institutionalised mechanisms for policy integration had little interference in this specific case of successful environmental policy integration. Therefore, although the predictions of policy integration and cultural theory might have had some influence in the examples of failed integration the predictive capacity of such a theory shall be relativized, at least in the Brazilian context, by the potential role of political leaders. However, although these signals bring a somehow reassuring possibility of ‘personalism’ to win over the institutional and cultural fragmentation they do not undermine, however, the desirability of deliberately promoting more cultural institutional coherence and integration among both secretariats and their respective policies in the future.

7. CONCLUSION

This paper provided an analysis of the integration of policies of climate change and biodiversity in Brazil and investigated potential cultural barriers to environmental policy integration between these areas through the lens of Cultural Theory. The analysis of 37 policies (18 in biodiversity and 19 in climate change) have underscored the occurrence of different cultural administrative styles in these two areas in what refers to standard-setting, information-gathering and behaviour modification, but it has also advanced the possibility of political actors in leadership positions to overcome cultural impediments and individually promote policy integration as occurred in the example of the National Plan of Adaptation to Climate Change. The hypothesis drawn from cultural theory and from debates about environmental policy integration about the potential difficulties of policy integration generated by different cultural styles was, therefore, found to be a potential impediment to the integration of these two areas of environmental policies in Brazil, what may provide subsidies to guide future attempts of integration.

In a nutshell, this paper, aimed at providing a theoretically grounded empirical contribution to the issue of policy integration and environmental governance in Brazil, has shown the need and potential difficulties for the integration of both issue areas, as well as discussed a potentially effective strategy of overcoming them through the direct intervention of leaders. It remains to be investigated, however, to what extent discussing and unveiling potential impediments to policy integration can actually contribute to their future avoidance.

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Interview MCTI (Ministry of Science and Technology and Innovation) High rank official previously involved in the implementation of PPG-7. 18th September 2014, MCTI, Brasília.

□

Flavia Donadelli

PhD in Political Science and Teaching Fellow in Public Policy and Administration at London School of Economics and Political Science. E-mail: f.m.donadelli@lse.ac.uk.

APPENDIX I

LIST OF DOCUMENTS ANALYSED

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