

UNIVERSIDADE FEDERAL DE MINAS GERAIS
Departamento da Engenharia de Produção
Programa de Pós-Graduação em Engenharia de Produção



sob acordo de cotutela com

RADBOUD UNIVERSITEIT NIJMEGEN
Departamento de Geografia, Planejamento e Meio Ambiente



THE CONTESTED ROLE OF FINANCIAL INSTRUMENTS IN BRAZILIAN FOREST GOVERNANCE

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Belo Horizonte

2019

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The Contested Role of Financial Instruments in Brazilian Forest Governance

Tese apresentada ao Programa de Pós-Graduação em Engenharia de Produção da Universidade Federal de Minas Gerais, sob acordo de cotutela com a Radboud Universiteit Nijmegen, como requisito parcial à obtenção do título de Doutor em Engenharia de Produção.

Linha de pesquisa: Estudos Sociais da Tecnologia e Expertise

Orientadores: Prof. Dr. Raoni Rajão e Prof. Dr. Pieter Leroy

Belo Horizonte

2019

H698c Hoff, Richard Jan Arie van der.
The contested of financial instruments in Brazilian forest governance
[recurso eletrônico] / Richard Jan Arie van der Hoff. – 2019.
1 recurso online (165 f. : il., color.) : pdf.

Orientadores: Raoni Guerra Rajão, Pieter Leroy.

Tese (doutorado) - Universidade Federal de Minas Gerais,
Escola de Engenharia.

Anexos: f. 163-165.

Bibliografia: f.142-162.
Exigências do sistema: Adobe Acrobat Reader.

1. Engenharia de produção - Teses. 2. Instrumentos financeiros -
Teses. 3. Análise do discurso - Teses. 4. Política ambiental - Teses.
5. Desmatamento- Teses. 6. Política ambiental - Teses. I. Rajão, Raoni
Guerra Lucas. II. Pieter, Leroy. III. Universidade Federal de Minas Gerais.
Escola de Engenharia. IV. Título.

CDU: 658.5(043)



FOLHA DE APROVAÇÃO

The Contested Role of Financial Instruments in Brazilian Forest Governance


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Tese submetida à Banca Examinadora designada pelo Colegiado do Programa de Pós-Graduação em ENGENHARIA DE PRODUÇÃO, como requisito para obtenção do grau de Doutor em ENGENHARIA DE PRODUÇÃO, área de concentração PESQUISA OPERACIONAL E INTERVENÇÃO EM SISTEMAS SOCIOTÉCNICOS, linha de pesquisa Estudos Sociais da Tecnologia, Trabalho e Expertise.

Aprovada em 20 de fevereiro de 2019, pela banca constituída pelos membros:

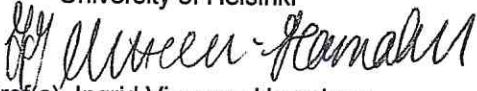

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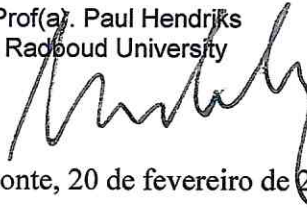
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Aprovada em 20 de fevereiro de 2019, pela banca constituída pelos membros:

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Belo Horizonte, 20 de fevereiro de 2019.

Acknowledgements

This is it. The end of the journey. What to do now? Where to go? I am eager to find out what lies ahead. But let me first reflect on the journey that I am about to conclude. And what a journey it has been! Of course, I could not have completed this journey by myself. Throughout the process of developing and writing this dissertation, I have enjoyed the support and company of many people and institutions.

Starting with the latter, I thank the Coordenação de Aperfeiçoamento de Pessoal em Nível Superior (CAPES) for the financial support that I have received during the four years of my doctorate research. I am also grateful for the hospitality received from the employees, teachers and professor at the Programa de Pós-Graduação em Engenharia de Produção (PPGEP) at the Federal University of Minas Gerais.

I thank both of my supervisors, who each had an essential but different role in the adventure. Raoni, I am much indebted to you. You showed me all the doors, you guided me not only into academic life, but more importantly into the Brazilian culture. There were countless times when you gave me much needed support. You also kept pushing my limits into areas where I never thought I would be: presenting research, negotiating decrees and teaching classes in Portuguese. In addition to gratitude, I feel privileged to have witnessed your impressive journey in becoming a renowned professor over the years. Pieter, I thank you for your mentorship and guidance through the years. Although we have not had as much contact, you were certainly an invaluable beacon in the adventure. During our meetings, you always had the ability to turn my mind from uncertainty and confusion about the next steps in the research process into excitement about making these steps. When I arrived in puzzlement, you sent me off with renewed energy. For this, I am truly grateful.

I was also lucky to work with many wonderful people at both universities. Throughout the years, I worked closely with and alongside the team of Lagesa: Camilla, Juliano, Laura, Rayane, Elaine, Luciana, Maxwell and others. I also had the pleasure of working with the CSR team, especially Britaldo, Juliana, Ubirajara, Sônia, Felipe and Aline. Since 2018, I was lucky to be involved in establishing the Center for Territorial Intelligence (CIT). And, of course, the RU people always

awaited me during my stays in the Netherlands, especially Maria, Marieke and Henk-Jan. Special thanks goes out to Daan. Our conversations and collaboration have been inspirational.

Pedro and Rafael, you became excellent roommates and friends later on. I am also grateful for all the wonderful people at the Rokaz gym, with whom I could start my days by climbing hard routes. I also thank my friends in the Netherlands, especially Gert-Jan, Sebastiaan and Regina. Thank you all for accompanying and supporting me on parts of the journey.

There would not have been an adventure without the support of my family in the Netherlands. Mom, dad, thank you both for mustering the immeasurable understanding to support my life abroad and for receiving me with open arms each time I returned. I thank Marianne, Marc-Jan, Bente and Sander for the many happy moments when I was in the Netherlands. I am also happy to gain a new family in Brazil. Fábio and Silvana, thank you for the many happy moments we have shared in the past years and for allowing me to write parts of this thesis in the small house on the farm, amid the orange and lime trees. I also thank all others of the Xavier and Resende families. You made my life in Brazil very enjoyable.

Silvia, you conquered a special place in my heart. Thank you for the tremendous support you have given me in the past few years and for sharing many wonderful moments together. Our hikes in the rain have always fueled me with fresh energy. You have been a true companion during my journey. I am happy you are with me.

Richard van der Hoff, December 2018

Resumo

Florestas têm se tornado entidades geopolíticas cada vez mais importantes nas últimas duas décadas, devido especialmente a sua função como sumidouro de carbono no âmbito da mudança climática. Neste contexto se destaca o regime internacional de Redução das Emissões por Desmatamento e Degradação Florestal (REDD+), cujo cerne é o apoio financeiro a esforços bem-sucedidos que resultam em reduções de emissões no setor florestal. Nos debates gerais e no Brasil em particular, houve fortes controvérsias sobre a forma adequada para financiar atividades de REDD+, havendo resistência ao uso amplo de instrumentos de mercado em prol de um financiamento baseado em resultados. Ao mesmo tempo, ainda há evidências que instrumentos de mercado continuam relevantes para a governança florestal. Para compreender os fatores e mecanismos que regulam os processos de construir instrumentos financeiros para reduzir desmatamento no Brasil, esta tese adota uma abordagem discursiva que enfatiza o poder dos discursos e ideias nesses processos de construção. Por meio de análises da Estratégia Nacional de REDD+, do Fundo Amazônia e do mercado brasileiro de Cotas de Reserva Ambiental, esta tese identifica quatro conclusões sobre o uso de instrumentos financeiros no Brasil. Primeiramente, conclui-se que REDD+ articula um objetivo comum de redução de emissões que mobiliza recursos financeiros e outras formas de apoio por meio de vários canais públicos e privados. Ao invés de caracterizar o REDD+ como um mecanismo financeiro singular, esta caracterização abre possibilidades para considerar uma ampla variedade de instrumentos financeiros, inclusive financiamento baseado em resultados e compensação de emissões. A segunda conclusão é que a implementação do conceito de REDD+, entendido como objetivo comum de redução de emissões, transforma-se do nível internacional para nacional para subnacional e dissolve-se no nexo de política florestal. A preocupação com redução de emissões se encontra quase exclusivamente nas instituições nacionais e internacionais de governança. Todavia, a distribuição desses recursos financeiros entre os projetos individuais muitas vezes contribui indiretamente às reduções de emissões que, portanto, permite uma ampla diversidade de abordagens de conservação florestal e instrumentos financeiros. A terceira conclusão é que regras formais das instituições nacionais regulam os debates e conflitos políticos sobre instrumentos financeiros para governança florestal. Sendo assim, as argumentações se desenvolvem em referências a tais regras, como no caso do REDD+. Ademais, estas regras formais tanto apoiam quanto obstruem processos de operacionalização de mercado, como no caso das Cotas de Reserva Ambiental. A quarta e última conclusão é que a política dos instrumentos financeiros é fundada em uma 'dependência rompida' à natureza que enfatiza processos de singularização, valoração e apropriação. A análise demonstra que os componentes de singularização e valorização monetária foram fatores regulatórios constantes nos casos estudados, enquanto o componente de apropriação foi altamente suscetível à política de discurso. Baseado nessas conclusões, esta tese enfatiza o fortalecimento de processos de singularização para evitar conflitos políticos ou uma diversificação dos resultados que mobilizam recursos financeiros para reduzir desmatamento. No curto prazo pode ser necessário contornar integralmente as regras formais das instituições nacionais e, ao invés disso, direcionar o apoio financeiro à governança em níveis inferiores.

Summary

Forests have become increasingly important geopolitical entities in the past two decades, especially in light of their function as carbon sink in the context of climate change. This function has inspired an increasingly relevant policy regime known as Reducing Emissions from Deforestation and Forest Degradation (REDD+), which entails the financial support of successful efforts to reduce emissions. Political debates in general, and particularly in Brazil, have been very controversial on ideas about the adequate modality of this financial support, in which an initial emphasis on using market instruments has been resisted in favor of a results-based payment approach. At the same time, market instruments have not been excluded from forest governance debates altogether. In order to understand the factors and mechanisms that govern the construction of financial instruments for deforestation reduction in Brazil, this thesis adopts a discursive approach that emphasizes the power of discourses and ideas in these construction processes. Through analyses of the National REDD+ Strategy, the Amazon Fund and the Brazilian market for forest certificates, this thesis identifies four conclusions on the use of financial instruments in Brazil. The first conclusion is that REDD+ articulates the common objective of emissions reductions that mobilizes financial resources and other forms of support through various public and private channels. Rather than characterizing REDD+ as a singular financial mechanism, viewing REDD+ as a common objective is that it opens up possibilities for considering a wide variety of financial instruments, including results-based funding and offset-based markets. The second conclusion is that REDD+, understood as the common objective of emissions reductions, transforms through its operationalization from international via national to subnational levels and dissolves into a forest policy nexus. The concern with emissions reductions is almost exclusively found within national and international governance institutions, while the redistribution of these financial resources across individual projects often does not directly refer to emissions reductions. This understanding allows for a broader diversity of forest conservation approaches and financial instruments. The third conclusion is that formal rules of national institutions govern political debates on and conflicts over financial instruments for forest governance. As such, argumentations change into references to such rules, as the case of REDD+ suggests. In addition, these formal rules both support and obstruct the operationalization of financial instruments, as the case of forest certificate trading testifies. The fourth and final conclusion is that the politics of financial instruments are grounded within an episteme of 'ruptured dependence' that emphasizes processes of singularization, valuation and appropriation. The analysis shows that the singularization and monetary valuation components have been constant governing factors for both fund-based and market-based instruments, while appropriation elements have been highly susceptible to politics of discourse. Based on these conclusions, this thesis emphasizes the strengthening of singularization processes to avoid political conflict in existing instruments, or a diversification of results that mobilize financial resources for reducing deforestation. In the short term, one may also consider circumventing the formal rules of national institutions altogether and instead direct financial support to lower governance levels.

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1. INTRODUCTION

1.1. Forest conservation as cost-effective climate change mitigation strategy

Forests have become increasingly important geopolitical entities in the past two decades, especially in light of the 'ecosystem services' they provide (BAVEYE; BAVEYE; GOWDY, 2013). While these ecosystem services include biological diversity, water cycle regulation, and cultural and aesthetic benefits, among others (FOLEY; ASNER; COSTA; COE *et al.*, 2007), international climate negotiations tend to focus on the carbon dynamics of forests and their importance in climate change mitigation efforts. In its fifth assessment report, the Intergovernmental Panel on Climate Change (IPCC) estimated that between 1750 and 2011 deforestation and other land use changes induced 180 ± 85 GtC, accounting for about a third of the total anthropogenic emissions (555 ± 85 GtC) in the same period (IPCC, 2014). Conversely, Pan *et al.* (2011) estimate that the world's forests still harbor 861 ± 66 GtC in the soil, live biomass, deadwood and litter, but their function as carbon sink is declining from 2.5 GtC per year in the 1990s to 2.3 GtC per year in the early 2000s. Phillips and Brienen (2017) observe that the Amazon forest alone represents a significant but declining carbon sink, and estimate a change in annual uptake from 0.5 GtC in the 1990s to 0.3 GtC in the 2000s (see figure 1). More alarmingly, the consideration of carbon emissions from land use changes and fossil fuel consumption reveals a gradual shift from net carbon sink in the 1990s to net carbon source in the 2000s. This trend is illustrative for tropical forests in general (BACCINI; WALKER; CARVALHO; FARINA *et al.*, 2017). Other scholars have manifested their concern that excessive deforestation in some regions of the Amazon has induced a tipping point from a tropical forest to a non-forest ecosystem, which is aggravated by the rising deforestation rates since 2014 in spite of nearly a decade of substantial decline (LOVEJOY; NOBRE, 2018; NEPSTAD; SOARES-FILHO; MERRY; LIMA *et al.*, 2009; ROCHEDO; SOARES-FILHO; SCHAEFFER; VIOLA *et al.*, 2018). These negative trends signal the imperative challenge of reducing deforestation and conserving natural vegetation for addressing global climate change.

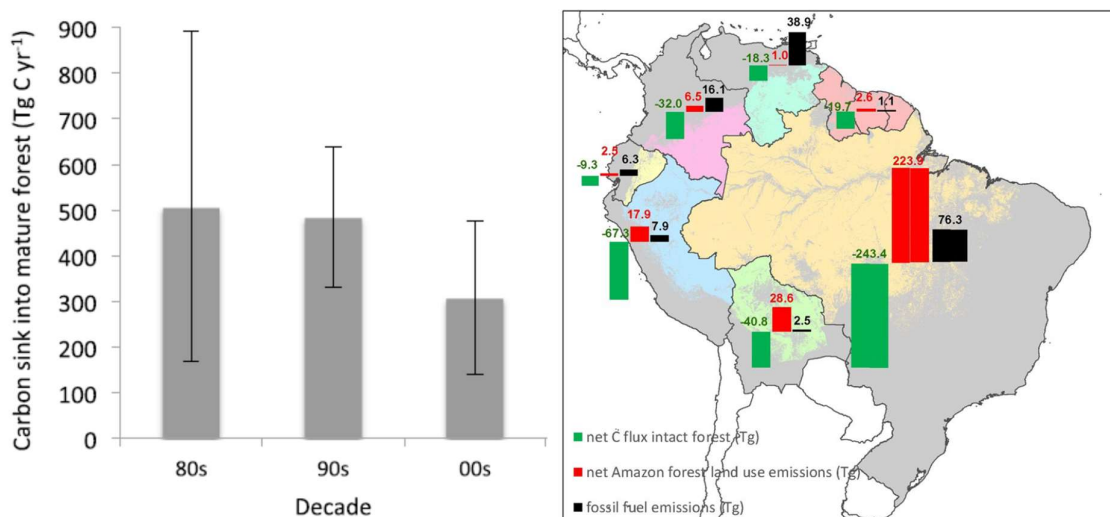


Figure 1: Estimated carbon sinks (left) and fluxes (right) in the Amazon basin. (Source: Phillips & Brienen, 2017, p. 4)

One of the premises for addressing these challenges is that climate change mitigation must be attained cost-effectively (MENDELSON, 2006). Following this premise, a widely known review by Stern (2006, p. 537) argued that “curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions”. Reducing global fossil fuel emissions from 24 GtCO₂ in 2002 to 18 GtCO₂ in 2050 would cost as much as USD 930 billion per year. The same review reported that ceasing deforestation in eight tropical countries, including Brazil, could abate 70% of all emissions related to land use change, thereby eliminating 3.5 GtCO₂ in 2050 under a business-as-usual scenario. Such an achievement would involve an opportunity cost, or forgone benefits from economic activity, of USD 5-10 billion per year, while transaction costs would amount to only USD 12-93 million per year. Although there is a high degree of variation in cost estimations for fully halting deforestation, ranging between USD 8.7 billion and USD 271 billion per year (ANGELSEN; BROWN; LOISEL; PESKETT *et al.*, 2009), scholars have remained confident that such reductions could be the most cost-effective mitigation strategy. At the height of Brazilian environmentalism in the late 2000s (AAMODT, 2018; VIOLA; FRANCHINI, 2014), for example, one study estimated that “the end of deforestation in the Brazilian Amazon” would have involved an opportunity cost of USD 14 billion as well as an additional investment of USD 6.5-8.1 billion between 2010 and 2020 (NEPSTAD; SOARES-FILHO; MERRY; LIMA *et al.*, 2009). As the political climate became increasingly hostile to environmental concerns in the 2010s, researchers warned in another study that a business-as-usual scenario will require high investments in alternative sectors (e.g. USD 2 trillion

for the energy sector) if Brazil is to maintain its commitments to the Paris agreement (ROCHEDO; SOARES-FILHO; SCHAEFFER; VIOLA *et al.*, 2018).

These perceptions on the importance of forests for climate change mitigation and the cost-effectiveness of reducing deforestation compared to emissions reductions in other sectors gave impetus to new approaches to forest governance. In many respects, environmental problems like climate change had become not only a political problem but also a financial one. Rather than constraining the economic activities that had become understood to be responsible for most environmental problems, as was emphasized in the 'limits-to-growth' perspective of the 1960s and 1970s (MEADOWS; RANDERS; MEADOWS, 2004), addressing these problems increasingly meant 'internalizing externalities' (TIETENBERG; LEWIS, 2012), 'economizing the ecology/ecologizing the economy' (MOL; SPAARGAREN, 1993) or valuing ecosystem functions (BAVEYE; BAVEYE; GOWDY, 2013; CHICHILNISKY; HEAL, 1998; COSTANZA; D'ARGE; DE GROOT; FARBER *et al.*, 1997; FEARNSIDE, 1997). In the context of international forest governance, these ideas are resonated in the emergence of financial approaches to forest conservation such as Payments for Ecosystem Services (PES) and Reducing Emissions from Deforestation and Forest Degradation (REDD+) in the context of international climate negotiations and international markets. In this context, scientific and political debates on forest governance need to provide answers for two important questions: how to attain deforestation reduction cost-effectively and which financial instruments are most appropriate for this purpose? The next two sections provide a literature review that explores these questions and indicate how this doctoral dissertation will contribute to the discussion.

1.2. Transformational change for deforestation reductions

Deforestation in tropical countries has been generally understood as a complex environmental problem, which is most clearly illustrated by the Brazilian Amazon. Deforestation dynamics in this region involves the consecutive processes of (1) penetration and land clearing for extractive activities, (2) land speculation for extensive and subsistence agriculture, and (3) intensive agriculture (CLEUREN, 2001). These dynamics were aggravated by insecure property rights (ARAUJO; BONJEAN; COMBES; COMBES MOTEL *et al.*, 2009; PUPPIM DE OLIVEIRA, 2008), weak law enforcement in the 1990s and unfavorable environmental politics in the 2010s (FEARNSIDE, 2016; LOVEJOY; NOBRE, 2018; ROCHEDO; SOARES-FILHO; SCHAEFFER; VIOLA *et al.*, 2018).

Moreover, governmental organizations have been incentivizing land clearing by land owners throughout the majority of the 20th century (HECHT; COCKBURN, 1990). Deforestation dynamics are not only challenging from the perspective of individual economic behavior, but is often ingrained within a complex institutional context.

In light of this complexity, much literature on forest governance argued that reducing deforestation requires nothing short of transformation change. Angelsen *et al.* (2012, p. 16-17) defined transformational change as “a shift in discourse, attitudes, power relations and deliberate policy and protest action that leads policy formulation and implementation away from business-as-usual policy approaches that directly or indirectly support deforestation and forest degradation”. A comprehensive forest policy design, according to some studies, addresses the direct and indirect drivers of deforestation, including land tenure and land use planning, economic activities (e.g. cattle ranching) and international demand for their products, road construction, and law enforcement, among others (BUSCH; FERRETTI-GALLON, 2017; DUNLOP; CORBERA, 2016; WEATHERLEY-SINGH; GUPTA, 2015). At the same time, forest governance debates have acknowledged that such changes are not easy to attain. International REDD+ debates have incorporated this acknowledgement by adopting a phased approach to the implementation of behavioral and institutional changes necessary to obtain deforestation reductions. This phased approach develops “from a readiness phase through policy design and implementation toward result-based payments for carbon and non-carbon benefits” (BROCKHAUS; KORHONEN-KURKI; SEHRING; DI GREGORIO *et al.*, 2017, p. 15; MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011). Only Brazil, Guyana and Indonesia have reached a more advanced albeit in complete stage of policy change for REDD+ (KORHONEN-KURKI; BROCKHAUS; SEHRING; DI GREGORIO *et al.*, 2018).

Debates on how to attain deforestation reductions extend far beyond the drivers of deforestation, especially in the context of REDD+. Contemporary REDD+ initiatives are evaluated based on their ability to provide effective, efficient and equitable (i.e. 3E) benefit-sharing mechanisms (e.g. LUTTRELL; LOFT; FERNANDA GEBARA; KWEKA *et al.*, 2013; WONG; LOFT; BROCKHAUS; YANG *et al.*, 2017). Although effectiveness and efficiency were recognized as important from the outset, many scholars find that “equity can have significant positive feedback on program outcomes and legitimacy over the longer term” (DUNLOP; CORBERA, 2016; PHAM; BROCKHAUS; WONG; LE *et al.*, 2013; WONG; LOFT; BROCKHAUS; YANG *et al.*, 2017, p. 439). Therefore, providing these 3E benefits comprehensively is an important component of the ‘theory of change’ of REDD+ projects,

which describes “who needs to be involved, whose interests are at stake, and the expected co-benefits and required safeguards” in order to attain REDD+ objectives (PUTZ; ROMERO, 2012, p. 670). Most literature on the design of benefit-sharing mechanisms discuss the individual or collective recipients of financial resources for attaining REDD+ objectives. Luttrell *et al.* (2013) distinguish six rationales for the distribution of REDD+ benefits, which emphasize (1) actors with legal rights, (2) actors achieving emissions reductions, (3) low-emitting forest stewards, (4) actors incurring the costs of REDD+ implementation, (5) effective facilitators of REDD+ implementation, and (6) the poorest groups in the region. In practice, however, incorporating all six rationales seems hard to accomplish. Indeed, the same study observed great variation in the application of these rationales, both between and within countries, noting that the prevalence of a particular rationale depends on contextual factors, design choices and stakeholders involved (see also PHAM; BROCKHAUS; WONG; LE *et al.*, 2013). For instance, (LUTTRELL; LOFT; FERNANDA GEBARA; KWEKA *et al.*, 2013) observed that initiatives in Brazil were applying a legal rights rationale (e.g. National REDD+ Strategy), a pro-poor rationale (e.g. the Bolsa Floresta Program) and an emissions reductions rational (e.g. Amazonian state governments), among others.

The spectrum of possible approaches to reducing deforestation was sufficiently vast to incite division among various actors with conflicting ideas. Particularly international REDD+ debates have been infested by discursive conflicts. Hiraldo and Tanner (2011), for example, have observed the advocacy for four narratives to REDD+ implementation, which distinctively advocated (1) economic growth and market liberalism, (2) strong forest governance and law enforcement, (3) environmental protection, and (4) socioenvironmental approaches. While some narratives became more dominant than others, the development process of REDD+ could be understood as an attempt to absorb this discursive plurality. This became clear, for example, in a study by Den Besten, Arts and Verkooijen (2014), which characterized REDD+ development as a discursive-institutional spiral in which discursive development alternates with phases of institutionalization. The first phase of discursive development involved a conceptual expansion from deforestation, as initially proposed in 2005, to the inclusion of forest degradation, conservation, sustainable management and enhancement of carbon stocks in order to conform to the diverse realities of participating countries, which was institutionalized in 2007 in the Bali Roadmap. After 2007, a new round of political debates incorporated social and environmental safeguards in concert with the advocacy of environmental and socioenvironmental narratives. These efforts were

institutionalized in the Warsaw Framework for REDD+ in 2013 and the Paris Agreement in 2015, also (TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016; VOIGT; FERREIRA, 2015).

The discussion so far has highlighted how forest governance debates in the past two decades have developed into a strong argument for transformational change in order to reduce deforestation. Within this broad context, REDD+ has been the main concept around which these arguments have been organized. In Brazil, REDD+ has symbolized both salvation and redemption. Shortly after the institutionalization of REDD+ in international negotiations, researchers were already heralding the possibility of ending deforestation in the Brazilian Amazon (NEPSTAD; SOARES-FILHO; MERRY; LIMA *et al.*, 2009). As the 2010s are closing, however, this outlook has become increasingly utopian and transformational change has never seemed more necessary (FEARNSIDE, 2016; LOVEJOY; NOBRE, 2018; ROCHEDO; SOARES-FILHO; SCHAEFFER; VIOLA *et al.*, 2018). Yet understanding REDD+ as a sophisticated strategy for transformational change misses a very important, characteristic and highly controversial question: which financial instruments are most appropriate for attaining these transformational changes? The next section turns to this discussion.

1.3. Political controversies over market instruments for forest governance

Despite the importance of transformational change for attaining deforestation reductions, this was hardly the central tenet of initial proposals for organizing international forest governance. The conviction had taken hold that environmental problems exist because “environmental goods and services, and the general functions which environments serve, are not invariably bought and sold in the marketplace”, proposing the construction of a ‘green economy’ (PEARCE; MARKANDYA; BARBIER, 1989, p. 51). Corresponding with this logic, market instruments became considered to be the most adequate approach to financing climate change mitigation in general (STERN, 2006) and reducing emissions from deforestation in particular (ELIASCH, 2008). In this context, some scholars had coined the concept of Payments for Ecosystem Services (PES), which was initially understood as “a voluntary transaction where a well-defined ES is being ‘bought’ by a ES buyer from a ES provider if and only if the provider secures ES provision” (WUNDER, 2005, p. 2). In this context, the Clean Development Mechanism (CDM), adopted by the Kyoto Protocol in 1997, had been one of the first market instruments that embodied these ideas, allowing developed countries to offset their domestic emissions by financing afforestation and

reforestation projects, among others, in developing countries (LEDERER, 2011). Similarly, a group of Brazilian scientists had proposed the new concept of Compensated Reduction of Deforestation during international climate debates in 2003. Although it was “initially viewed as an inadequate measure for mitigating climate change”, it would arguably become the seed from which the REDD+ concept sprouted (MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011, p. 39).

This advocacy of using market instruments for international forest governance, however, faced tremendous political challenges. Representatives of national governments, including Brazil, were critical of the earliest REDD+ versions, including Compensated Reductions of Deforestation, manifesting their concern that “the market risks being flooded with cheap carbon credits” and that “reductions might take place in developing countries but allow emissions to occur in developed countries” (CARVALHO, 2012; MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011, p. 41). After the formal adoption of REDD+ in 2007, new policy participants manifested similar concerns in a different tone. These manifestations came in the form of critiques on the perverse incentives of offset-based market instruments by international NGOs (e.g. GREENPEACE, 2012) as well as local communities and indigenous peoples (e.g. BOAS, 2011; CABELLO; GILBERTSON, 2011), condemning offset trading as “hot air” and “CO₂ colonialism”. Alternatively, some scholars also argued that the use of market instruments constitute the most problematic approach in comparison with separate national funds, funds in state administrations or budgetary support due to numerous challenges. Vatn and Vedeld (2013), for example, argued that market instruments for REDD+ may incentivize land grabbing, evoke social exclusion and inequity, reduce transparency, risk leakage and neglect social and environmental co-benefits, among others, thereby potentially harming the legitimacy of REDD+ (WONG; LOFT; BROCKHAUS; YANG *et al.*, 2017). The collective force of these different voices has steered political debates away from carbon offsetting. The development process of the REDD+ concept therefore illustrates that political interests, rather than cost-effectiveness, have been a guiding principle for preventing the use of market instruments.

Similar trends of non-use of market instruments have been observed in other nature conservation approaches. Many scholars have argued that existing PES schemes mostly recognized as forms of financial support other than market instruments (FLETCHER; BÜSCHER, 2017; MURADIAN; ARSEL; PELLEGRINI; ADAMAN *et al.*, 2013; VATN, 2015). These observations were acknowledged by Wunder (2015, p. 241) as he redefined PES as “voluntary transactions between service users

development, which respects the national sentiment that “economic development is still the first priority and the fundamental driving force to improve social welfare” (HÜBLER; VOIGT; LÖSCHEL, 2014; JIANG; YE; MA, 2014, p. 18; ZHANG; KARPLUS; CASSISA; ZHANG, 2014). These examples illustrate how the same conceptual ideas has strongly adapted to differing political and institutional contexts.

Comparing these political debates on market instruments, however, it becomes clear how considerations of their use for forest governance were quite different from considerations of their use for environmental governance in general. Broader debates on emissions trading, for example, seemed to have incorporated any critiques into the development process (e.g. businesses fearing growth-limits) without relinquishing the central tenets of emissions trading (LANE, 2012; VOß, 2007; WOERDMAN, 2004). By contrast, critiques on the use of market instruments for addressing deforestation were able to redirect political debates towards the consideration of establishing results-based funding instruments (ANGELSEN, 2017; BROCKHAUS; KORHONEN-KURKI; SEHRING; DI GREGORIO *et al.*, 2017; DEN BESTEN; ARTS; VERKOOIJEN, 2014). Yet this generalization still poses two inconsistencies that need to be resolved in order to understand forest finance. Firstly, it would contradict a central argument of the discussion so far, namely that deforestation dynamics, approaches to transformational change and preferences for financial instruments are highly dependent on their political and institutional context, accounting for at least some variation. Secondly, and closely related to the former, this generalization has been primarily based on a reading of mostly global developments, thereby ignoring that advocacies of using market instruments still linger at different levels of forest politics. The next section turns to these diversions from the mainstream discourse.

1.4. Lingering considerations of using market instruments

Although the general tendencies of political debates have given rise to new institutions like the Green Climate Fund and the Brazilian Amazon Fund, results-based funding is not the only finance modality that has been considered in international and national debates. International REDD+ negotiations have determined that results-based finance “may cover a wide variety, public and private, bilateral and multilateral, including alternative sources” (VOIGT; FERREIRA, 2015, p. 124). In addition, the Paris Agreement (art. 6) anticipated a ‘sustainable development mechanism’ that allows the trade of Internationally Transferred Mitigation Outcomes (ITMOs) for meeting

emissions reduction targets (TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016). While further specifications have not been provided and are therefore open to political debate, these dispositions grant some freedom to national governments (and other actors) to determine their preferred approach to financing deforestation reduction efforts, including the use of market instruments. Some countries, such as Costa Rica, have indeed incorporated market instruments as central component of their national REDD+ strategy (CORBERA; ESTRADA; MAY; NAVARRO *et al.*, 2011). These observations underscore that international forest governance has retained some degree of openness to different financing options, thereby sustaining both discursive and institutional variation between countries.

Discourses and institutions on forest finance have also varied within countries, particularly in Brazil. Brazil has often been presented as a country that has decisively criticized market instruments in international climate negotiations. Rather than an offset-based approach, Brazil established the Amazon Fund that adopted a results-based funding approach to enable payments to be transferred to the Brazilian Development Bank (BNDES) (KASA, 2013). However, this institutionalized resistance does not account for the full complexity of Brazilian forest governance. In the late 1990s and early 2000s, for example, the Cardoso administration (1995-2002) has been known to advocate the use of market instruments in general (VIOLA, 2004; ZHOURI, 2004), which included a poorly regulated market for forest certificates (BACHA, 2004). Filoche (2017) has pointed out that the use of market instruments in Brazil has become more common ever since. This is suggested, firstly, in the “large number of existing draft bills dealing with PES” as well as provisions (art. 41) in the Brazilian Forest Code, although this concept “is still in its infancy” (p. 23). A second example of lingering debates on market instruments was observed in the engagement of Amazonian state governments in a Californian REDD+ initiative for offsetting emissions (LUEDERS; HOROWITZ; CARLSON; HECHT *et al.*, 2014). A third and perhaps paradoxical example involves the development of a market instrument for allowing land owners to offset their legal obligations to conserve nature through acquisition of forest certificates (MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). This market for forest certificates is a flexibility instrument of the Brazilian Forest Code and, as the latter is a strategic component of the Brazilian REDD+ Strategy (ENREDD+), may provide an indirect contribution to REDD+ implementation (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016). These

observations signify a strange mélange of opposition to and proposition of market instruments for forest governance in Brazil.

There are no clear indications of why one financial instrument is chosen at the expense of the other. From the perspective of cost-effectiveness, with which the argument in this introductory chapter started, this choice seems rather arbitrary. In the 2000s, international climate negotiations have steered away from offset markets for REDD+ (DEN BESTEN; ARTS; VERKOOIJEN, 2014) in spite of strong arguments to the contrary (ELIASCH, 2008). By contrast, the substantial deforestation reductions in Brazil during the 2000s were the outcome of improvements in law enforcement, environmental policies and investments in nature conservation (CUNHA; BÖRNER; WUNDER; COSENZA *et al.*, 2016; MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011; VIOLA; FRANCHINI, 2014). As the Amazon Fund started to finance more projects, and as new market instruments (e.g. PES and forest certificate trading) had been adopted by the new Forest Code in 2012 (FILOCHE, 2017), the downward trend in deforestation rates was slowly reverting (LOVEJOY; NOBRE, 2018) and rendered their current and future effectiveness more uncertain (see figure 2). Another potential hypothesis is that the institutionalized resistance to market instruments, as embodied by the Amazon Fund, reflected historical concerns with defending the national sovereignty over natural resources (CARVALHO, 2012; HECHT; COCKBURN, 1990), while propositions for domestic market instruments would still be permitted (FILOCHE, 2017). This argument is flawed, however, as there is no evidence that market instruments proposed by the federal government have indeed been operationalized domestically. As mentioned above, PES is still in the early stages of development (FILOCHE, 2017), while trading forest certificates seems to require further specification and debate in order to become legitimately operational (MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). The non-operationalization of the latter is particularly notable as the conceptual inception of market instruments for forest governance could be traced back to the late 1990s (WEIGAND JR, 1998). In addition, some market instruments, most notably the offset market involving Amazonian state governments and California, among others, transcend the boundaries of national sovereignty, thereby contradicting the national standpoint (LUEDERS; HOROWITZ; CARLSON; HECHT *et al.*, 2014).

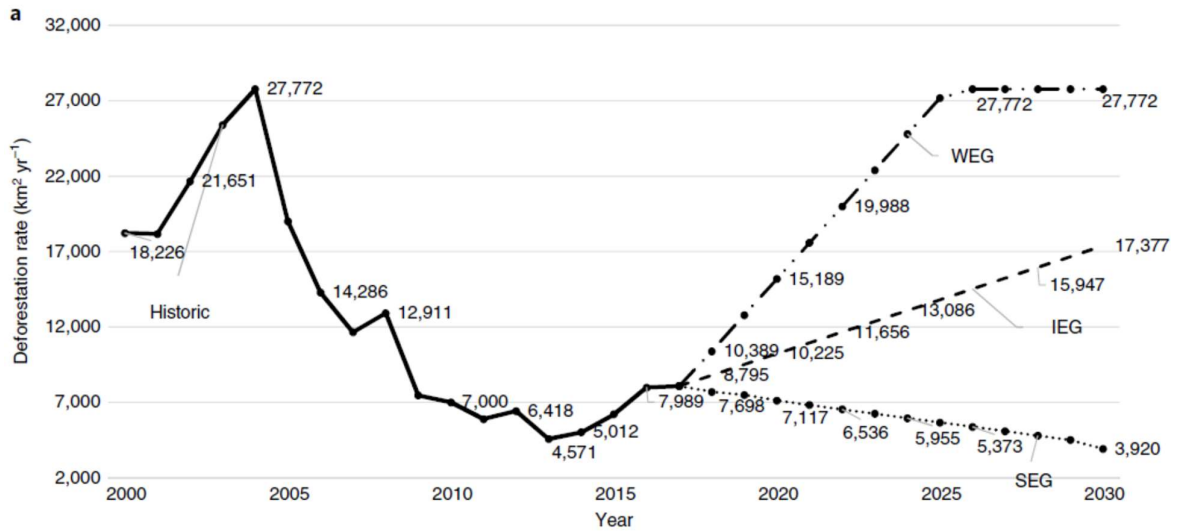


Figure 2: Historical deforestation rates for the Amazon biome and estimated deforestation rates in a weak (WEG), intermediate (IEG) and strong (SEG) environmental governance scenario (Source: ROCHEDO; SOARES-FILHO; SCHAEFFER; VIOLA et al., 2018, p. 696).

It has become clear that the emergence and operationalization of financial instruments is hardly determined by cost-effectiveness. One may argue that cost-effectiveness has evoked a general interest in establish financial instruments, but the outcome of development and operationalization processes is the product of essentially political factors. National sovereignty concerns represent only one political factor that has determined the course of REDD+ development in Brazil. As argued above, however, approaches to financial instruments vary greatly within Brazil's sovereign borders and there are many initiatives that propose offset-based market instruments for domestic forest governance, some of which transcend national borders. On the one hand, this may suggest that national sovereignty is not the dominant political factor as discourse is not constrained by it. On the other hand, few of these market instruments are apparently operational, which suggest that sovereignty concerns may have been a conditional principle within which discourses transform into institutions. Rather than answering the initial question of this chapter, these observations evoke more questions about the treatment of financial instruments in political discourse and the materialization in Brazilian institutions. Few studies have addressed the politics of financial instruments for reducing deforestation in a way that provides more nuanced answers to the issues raised here. This dissertation addresses this challenge.

1.5. Central problem and research questions

This chapter initially set out by asking the following questions: how to attain deforestation reduction and forest conservation cost-effectively and which financial instruments are most appropriate for such attainment? The literature has extensively debated the first question, but available assessments have emphasized effectiveness in general rather than considering the costs to attain transformational change. By contrast, debates on this cost component seems to implicitly underlie debates related to the second question on financial instruments, but the discussion in previous sections indicate that these debates have a strong and still understudied political character. The initial questions therefore remain only partially answered, leaving old questions and opening new questions about how financial instruments materialize in forest governance regimes.

In order to systematically study the use of financial instruments for forest governance in Brazil, it is useful to organize the research questions by following a number of central themes derived from the discussion above. Firstly, the majority of political debates on this issue have centered around the REDD+ concept. Although some market instruments emerged from the Brazilian Forest Code (e.g. PES, forest certificates trading), they still provide important building blocks for a REDD+ strategy (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016). A second theme is the observation that the paradoxes related to establishing and operationalizing financial instruments for reducing deforestation involve both discursive politics and institutional structures. This is evident in the institutionalization of sovereignty concerns in the Amazon Fund and other REDD+ institutions, the practices related to carbon offsetting by Amazonian state governments, and the lingering political debates on the operationalization of market instruments (particularly forest certificate trading). Finally, these paradoxes are characterized by a polarization between results-based funding (i.e. the Amazon Fund) and market instruments (e.g. forest certificate trading). These themes help to focus the theoretical framework (section 1.6) and methodological approach (section 1.7) of this dissertation in order to answer the following central research question:

How have the possibilities for using financial instruments for reducing deforestation in Brazil been shaped and reshaped in processes of political discourse and institutionalization, and what factors and mechanisms underlie these processes?

1.6. Theoretical framework for discursive politics and institutional structures

The centrality of REDD+ in forest governance as well as the polarization of financial instruments between funds and markets, defined as two of three central themes of this research, have been extensively discussed in the previous sections. Answering the research questions of this dissertation, however, still requires a theoretical framework for understanding the role of political discourse and institutional structures. This section elaborates this framework by discussing these components separately. The first step is to situate these two concepts into a coherent framework that clarifies their unique function. This is presented as a multilayered scaffolding that composes not only of discourses and institutions, but also includes epistemic structures and social practices (section 1.6.1). The discussion then turns to a discussion of institutional theory, particularly new institutionalism, in order to find a conceptualization that explains the structuring function of institutions without conflicting with the influences of discourse on institutionalization (section 1.6.2). The theoretical framework concludes with a discussion of discursive and political theories that acknowledge the multilayered structure of social structures and practices.

1.6.1. Understanding institutional stability and transformation

Institutional theory characterizes institutionalization as the consolidation of practices and ideas into routines and structures that are resilient to change. This is a very general definition, however, as there are several distinct approaches to understanding institutions and institutionalization. Hall and Taylor (1996), for example, described the distinct characteristics of historical institutionalism, rational choice institutionalism and sociological institutionalism, while others (e.g. SCHMIDT, 2008) have also distinguished discursive institutionalism.

Historical institutionalism, firstly, builds on the notion of “path dependency” for explaining institutionalization processes, which is predisposed towards maintaining institutional stability. This does not imply that institutions function to resist change altogether, but rather that institutional development is ingrained in historical paths that are hard to divert from (HALL; TAYLOR, 1996). North (1990), for example, follows this conceptualization in arguing that decisions made in the past, such as the adoption of a law or the establishment of an organization, influence the possibility of decisions in the present. Institutional transformation is therefore understood to be a moment of rupture or ‘critical junction’ in an otherwise incremental development process (HALL;

TAYLOR, 1996), which characterizes long-term institutional dynamics as a 'punctuated equilibrium' (TRUE; JONES; BAUMGARTNER, 2007). At the same time, however, some scholars have criticized historical institutionalism for overemphasizing institutional stability and providing few analytical tools for understanding institutional transformation (PETERS; PIERRE; KING, 2005; SCHMIDT, 2008). Applied to the discussion in this chapter, historical institutionalism would emphasize the predominance of sovereignty concerns for geopolitics in general (HECHT; COCKBURN, 1990) and forest governance in particular (CARVALHO, 2012), among other factors. The discussion in section 1.4, however, has pointed to a discursive and institutional variety both between and within sovereign countries, which opposes an emphasis on historical trends. Historical institutionalism therefore provides few analytical tools for addressing the central questions of this dissertation.

Rational choice institutionalism, secondly, argues that the core function of institutions is to minimize transaction costs for both individuals and society (HALL; TAYLOR, 1996). More specifically, institutions aim to structure the benefit-maximizing behavior of individuals, who are calculative and instrumental in their efforts to attain specific preferences, in order to prevent that this behavior does not come at the expense of collective benefits. In this respect, institutional stability or transformation is explained in terms of efforts to minimize costs. This understanding resonates with the general economic argument that deforestation reduction is one of the most cost-effective approaches to climate change mitigation (STERN, 2006), but there are several caveats that rational choice institutionalism does not account for. As has been pointed out in section 1.4, for example, an emphasis on cost-effectiveness is void of considerations for the variability of discourses and institutions observed with respect to Brazilian forest governance. This argument corresponds with similar findings by Weyland (2002, p. 62), who argued that rational choice institutionalism "is clearly less useful for analyzing the complicated, volatile and fluid politics" in Latin American countries like Brazil. In addition, emphasizing cost-effectiveness of reducing deforestation at the societal level would ignore the potential costliness of institutional transformation for organizations and individuals relying on the existing institutional order, as historical institutionalism would argue (NORTH, 1990). Rational choice institutionalism therefore has limited applications for the research of this dissertation.

Sociological institutionalism, thirdly, places much more emphasis on the normative and cognitive dimensions of institutions and institutionalization in asserting that explanations lie in cultural dynamics (HALL; TAYLOR, 1996). DiMaggio and Powell (1983) have defined three processes that

characterize the institutionalization process and account for much of the organizational homogeneity within a particular context. Firstly, social stability comes about through coercive isomorphism, which is warranted by “both formal and informal pressures exerted on organizations by other organizations upon which they are dependent and by cultural expectations in the society within which organizations function” (p. 150). In addition, social stability in the form of organizational homogeneity also comes about by professionalization of organizations through processes of education and networking (i.e. normative isomorphism) as well as imitation of best practices by other organizations (i.e. mimetic isomorphism). In an alternative conceptualization of institutions, Scott (1995) argues that institutions involve (1) formal and informal rules (regulative dimension) and the creation, monitoring and sanctioning thereof, (2) values and norms (normative dimension) that clarify what has value and what is appropriate behavior, and (3) a set of beliefs and worldviews (cognitive dimension) for making sense of the world. Rather than emphasizing a historical path dependence or a common rationality, sociological institutionalism aims to explain institutional stability and transformation by adhering to discursive formations (FOUCAULT, 1972), deep core beliefs (SABATIER; WEIBLE, 2007) or similar social structures. Some scholars have challenged the explanatory power of sociological institutionalism with respect to understanding institutional transformation as the social structures that it refers to are often presented as static entities on which new ideas have very little effect (SCHMIDT, 2008). Although not as problematic as historical or rational choice institutionalism, this static and unidirectional approach to institutional events poses some challenges for operationalizing sociological institutionalism in the research of this dissertation.

Since the 2000s, a new perspective on institutional stability and transformation has started to circulate in the literature and emphasizes the role of ideas, which Schmidt (2008) called discursive institutionalism (PHILLIPS; LAWRENCE; HARDY, 2004). There have already been attempts to include ideational factors more explicitly into discussions on historical institutionalism, but these still retained an emphasis on punctuated equilibrium in their acknowledgement of political conflict as instigating factor for critical junctions (PETERS; PIERRE; KING, 2005). Discursive institutionalism, by contrast, centralizes ideas and, more precisely, discourse in explaining how institutions are both constructed and constructive. Rather than static structures that influence actor behavior, actors possess both background ideational abilities to reflect about the social structures to which they adhere and foreground ideational abilities to communicate, deliberate and negotiate these

reflections with others (SCHMIDT, 2008). Carstensen and Schmidt (2016) describe three distinct ways in which actors use ideas and discourses to exert 'ideational power'. First, actors have the capacity "to persuade other actors to accept and adopt their views" (p. 323) about how to think and act (power through ideas). Second, actors aim "to control and dominate the meaning of ideas" (p. 326) by controlling knowledge production and distribution, resisting alternative ideas and applying shaming tactics (power over ideas). Finally, actors draw upon deeper-level ideational and institutional structures within which they ground their ideas in order to render these ideas more authoritative (power in ideas). The combination of these forms of ideational power underscore that institutions are both constructive and constructed rather than static entities.

Based on the theoretical discussion in the preceding paragraphs, this dissertation will mainly adhere to the insights from discursive institutionalism for analyzing the use of financial instruments for reducing deforestation in Brazil. Particularly the concepts of power through, over and in ideas correspond well with the malleability of these instruments. In other words, the institutions established in this context are still relatively novel (i.e. up to 20 years) and will therefore depend on existing institutional structures (i.e. power in ideas) and be susceptible to the political activity of stakeholders (i.e. power through and over ideas). Furthermore, discursive institutionalism avoids the problems identified for historical, rational choice and sociological institutionalism and acknowledges that institutions are social constructions.

1.6.2. Understanding policy processes and social structures

The understanding that institutions organize social activity and behavior into specific patterns corresponds with conceptualizations from discursive theory, albeit emphasizing social structures in general. In particular, the Foucauldian doctrine describes a multilayered scaffolding of social structures through which social and natural phenomena become sensible and which govern social activity and behavior (FOUCAULT, 1972). At the deepest layer of this scaffolding, Foucault (1970), discerns an *episteme* that governs the regularity of statements and practices across widely differing fields of knowledge like economics, linguistics and biological sciences. The regularity emanating from the *episteme* corresponds with the path dependency and isomorphism described in section 1.2, albeit they play a role at different analytical levels. The social structures referred to in the institutional literature tend to correspond more closely with 'deep core beliefs' (SABATIER; WEIBLE, 2007), 'discursive formations' (FOUCAULT, 1972) or, as discussed in the previous section, institutions. These second-layer structures involve collections of rules that underlie the possibility

of particular statements and practices (e.g. written texts and speech acts) and build on the regularities of the *episteme*.

A third layer hosts a diversity of discourses in what has been called the 'politics of discourse'. Hajer and Versteeg (2005, p. 175) define discourses as "ensembles of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which are produced and reproduced through an identifiable set of practices". There are different theoretical approaches for understanding the interaction between and functions of these discourses. According to critical discourse theorists, these structures embed power relations between discursive communities that are obscured from more superficial layers and therefore do not appear explicitly in daily practices and statements of actors (FAIRCLOUGH, 1985; VAN DIJK, 1993). Structuralist discourse theorists, by contrast, argue that these layers of *episteme*, discursive formations and power relations "create some sense of stability, order and predictability and thereby produce a sustainable, functioning and livable world [...that] acquires its apparent externality, objectivity and structure" (CHIA, 2000, p. 514; HAJER; VERSTEEG, 2005). Notwithstanding their differences, these interpretations explain how social structures govern the discursive competition (i.e. 'politics of discourse') for remaining or becoming institutions (FOUCAULT, 1970; 1972). In this sense, the extent to which these discourses are indeed produced and reproduced through practices corresponds with the extent to which they are institutionalized.

Discursive literature on forest governance is particularly rich on the materialization of REDD+ and offers diverging approaches to what determines the outcome of the politics of discourse. Some scholars argue that one particular discourse will eventually become dominant and determine the course of REDD+ development (BROCKHAUS; DI GREGORIO; MARDIAH, 2014; GEBARA; FATORELLI; MAY; ZHANG, 2014). Others have suggested that the different discursive perspectives will converge and reach an agreement on the general course of development (HIRALDO; TANNER, 2011; SKUTSCH; VAN LAAKE, 2008; THOMPSON; BARUAH; CARR, 2011). Den Besten, Arts and Verkooijen (2014) have described these REDD+ politics as a 'discursive-institutional spiral' that alternates discursive development with phases of institutionalization. Far less literature has explicitly addressed the impact of discursive formations on specific discourses that emerge therein. Some studies have come close to such work as they describe the economic foundations of concepts like payments for ecosystem services and nature valuation (BAVEYE; BAVEYE; GOWDY, 2013; GÓMEZ-BAGGETHUN; DE GROOT; LOMAS; MONTES, 2010; GÓMEZ-

BAGGETHUN; MURADIAN, 2015; GÓMEZ-BAGGETHUN; NAREDO, 2015). To date, however, no study has been able to describe how epistemic foundations have affected the materialization of REDD+.

The main strength of discursive approaches to policy analysis is to reveal the structural foundations of social behavior and activity that are not immediately apparent in day-to-day practices. Moreover, such an analysis could clarify why discourses are competing through a detailed description of conflicting ideas, concepts or categories. At the same time, however, discourse analysis does not necessarily shed light on the political strategies by individual policy participants. Other political theories are more adequate for such an analysis, most notably the Advocacy Coalition Framework. This framework specifically explains how political actors group together in advocacy coalitions, much like discourse communities, on the basis of shared *deep core beliefs* (i.e. general assumptions about reality), *policy core beliefs* (i.e. subsystem-wide applications of deep core beliefs) and *secondary beliefs* (i.e. detail applications of policy core beliefs) to advance specific political interests (SABATIER; WEIBLE, 2007). Furthermore, these advocacy coalitions may adjust these beliefs as a result of *policy learning* processes or, by contrast, defend their beliefs by applying *perpetual filters*. While these analytical concepts clarify how advocacy coalitions (or discursive communities) exert discursive power on others, the layered structure of these belief systems helps to understand the extent to which these changes are indeed transformational.

The discursive dimension of this theoretical framework primarily builds on discourse analysis. Corresponding with the arguments in section 1.6.1., discourse analysis can provide a valuable refinement of institutional theory as it provides analytical tools for analyzing the politics of discourse (Phillips et al., 2004). On the one hand, it exposes some of the social processes related to the establishment and retainment of institutions. On the other hand, it includes a consideration of the social structures that underlie institutionalization processes and explain why existing institutions may be sustained or challenged. As argued above, however, discourse theory does not offer many analytical tools for understanding some of the highly political processes of implementing and operationalizing financial instruments for forest governance. This may be expected, for example, for the political operationalization of trading forest certificates in Brazil, since this process has still not been institutionalized other than in the Brazilian Forest Code. For these purposes, this research also draws on the Advocacy Coalition Framework in order to provide

more detail on these political processes. The combination of these theoretical elements will help to understand the production and reproduction of forest governance institutions in Brazil.

The theoretical framework also provides some guidance on where to search for data material. Phillips *et al.* (2004), for example, have developed a model for studying institutional and discursive processes that emphasizes the production of texts as primary conductor. On the one hand, they argue that actions that demand institutional sensemaking (i.e. innovative ideas) or affect the legitimacy of institutions are most likely to produce texts that may influence these institutions. Furthermore, such influential texts tend to be produced by authoritative or central actors that draw upon commonly used textual genres as well as other texts or discourses. The literature on discourse analysis similarly directs attention the role of speech acts and written communications as principal conveyors of discourses and their underlying social structures (GEE, 2005). The use of language is organized through implicit application of coherence, sequence, rules of interaction and lexicon that give the actor “the feeling that things are as they should be” (FAIRCLOUGH, 1985: p.740). This orderliness of interaction and practice reflects the institutions and underlying social structures that govern their regularity. In this respect, the underlying social structures of forest governance in Brazil reside in, for example, official governmental documents, speech acts during meetings and interviews, and transactions to and from financial instruments. Especially the latter is a material indicator of discourses mostly valued by stakeholders in their daily involvement with financial instruments for forest governance. Taken together, these conveyors of discourse reveal the scaffolding of social structures that underpin their possibility and regularity that, subsequently, inspire my methodological approach as described in detail in section 1.3. Advocacy coalition framework

1.7. Research approach

In the years that this research was conducted and written down, from 2013 to 2018, forest governance in Brazil has been highly volatile as policy processes were rapidly developing. Already during COP19 in 2013 it became clear that REDD+ did not become the offset-based market instrument that many social groups feared would materialize, instead becoming a performance-based funding mechanism. While Brazil is already able to receive results-based payments, its progress still took some years before official documents materialized. The National Strategy for REDD+ (ENREDD+), for example, was only released during COP21 in 2015, while earlier versions

go as far back as February 2013. An important factor in this delay involves the adoption of a new Forest Code in 2012, especially governmental concerns with implementing some key monitoring and flexibility mechanisms. During 2014, when REDD+ debates were nearly stagnant, governmental efforts were primarily oriented towards the implementation of the Rural Environmental Registry (CAR) as well as the potential for trading Environmental Reserve Quota (CRA). Only from 2015 did REDD+ resurface through the establishment of the National Committee for REDD+ (CONAREDD+). These developments in the policy field under analysis has forced various adaptations to the original research project, changing the focus from criticism on an offset-based market instrument for REDD+ implementation to the role of these instruments in in Brazilian forest governance and the economic rationales upon which they build.

The changing research field has had significant consequences for the choice of research objects during the four-year period. One important case in researching the role of financial instruments for forest governance in Brazil concerns the performance-based payments related to the Amazon Fund, because this has been the central REDD+ institution in Brazil from 2008 to at least 2016 and continues to be an important cornerstone. While these payments do not build on the idea of an offset-based market instrument, they may still adhere to similar rationales to some extent due to their financial nature. In order to test this hypothesis, this dissertation offers an analysis of the foundations of performance-based payments related to the Amazon Fund in the context of emerging critiques. This is complemented by an analysis of the extent to which offset-based market instruments are a key component of these critiques. Another important case in relation to offset-based market instruments for Brazilian forest governance is the trade in forest certificates. In 2014 and 2015 the prospect of this market has been an important concern both for rural land owners and governmental organizations. Particularly the latter, in collaboration with academic researchers, invested much time and many resources in understanding the potential for this market (SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016) in order to elaborate a federal decree. The final contents of this decree would regulate a market that contributes to providing incentives for forest conservation on private lands. While this market is only indirectly connected to Brazilian REDD+ practices (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016), this provides an ideal opportunity for analyzing the operationalization of an offset-based market instrument within forest governance. Moreover, this case counterbalances the resistance to such instruments in the context of REDD+ development. A discussion that juxtaposes the performance-based payments

in the Amazon Fund and the offset-based CRA market could provide insight into the differences and similarities of their (de)construction.

Dealing with a highly volatile research field has also had significant consequences for data collection. Since this research involves discursive-institutional analysis that emphasizes speech acts and written communications, the primary data sources are semi structured interviews with key stakeholders, document analysis of laws, decrees, national strategies, minutes of meetings, annual reports and others, and participant and non-participant observations during meetings and presentations. As I entered a policy field that was unfamiliar to me, both substantially and culturally, the selection of these interviews, documents and observations necessarily occurred using the snowballing technique. In addition, the highly volatile policy field compelled me to retain a high degree of flexibility in the research approach in order to deal with unforeseen circumstances. For instance, policy development processes were delayed or stagnated due to changing priorities in policy-making, people changed jobs due to regime changes (e.g. impeachment in May 2016) or other reasons, key documents only emerged in later stages of the research, and key stakeholders involved in earlier stages of development were only identified after having interviewed their successors. By the end of the four-year period of this research, data analysis had built on collection and transcription of 47 interviews with key stakeholders. In addition to the interviews conducted specifically for this doctorate research, this research also benefited a lot from interviews, (participatory) observations and other knowledge and expertise shared by members of the research group on forest governance and ecosystem service management at the Federal University of Minas Gerais (UFMG).

1.8. Dissertation outline

The remainder of this dissertation presents four research papers that address the individual components of the research project. Chapter 2 provides an analysis of the research field related to REDD+ materialization in Brazil. This chapter identifies two REDD+ discourses that materialize in concrete practices, the most dominant of which emphasizes the performance-based payments of the Amazon Fund. The other discourse concerns the persisting elements of an offset-based market instrument. Chapter 3 further investigates the performance-based payments of the Amazon Fund by paying close attention to the basis of those payments. Guided by the recently emerging critiques on its performance, it reconstructs how the functioning of the Amazon Fund

contains contradictions that are open to contestation. Chapter 4 explains how REDD+ in Brazil still builds on the same theoretical building blocks as market instruments despite resistance to carbon offsetting. Moreover, it proposes that the epistemic structure of *ruptured dependence* as a useful concept for understanding why market instruments are still being discussed in political debates in Brazil. Chapter 5 turns to the construction of the Brazilian market for forest certificates as a flexibility mechanism of the Forest Code. Using the Advocacy Coalition Framework, this chapter analyzes the role of policy learning by policy participants during attempts to operationalize this market. Chapter 6 consolidates the findings of these cases and relates them to the extended theoretical discussion of chapter 4. The dissertation concludes with final considerations for future research and policy-making.

2. THE PARALLEL MATERIALIZATION OF REDD+ DISCOURSES IN BRAZIL¹

When this doctorate research started in October 2013, the political landscape for REDD+ development in Brazil was only cradling its first institutions. The Warsaw Framework for REDD+ would not be adopted until December (VOIGT; FERREIRA, 2015) and initial efforts to develop a national REDD+ strategy had only just begun. REDD+ in Brazil was still mostly associated with the Amazon Fund, which was already established in 2008 (HERMANSEN, 2015). As chapter 3 explains in more detail, however, the operationalization of the Amazon Fund in the first five years of development was still very slow and represent only a small portion of the fund's capacity in 2018. Despite the small scale of its materialization, the overall tendencies were already becoming clear: the parallel materialization of distinct discourses on REDD+ development. The findings in this chapter reflect this initial state of REDD+ development in Brazil.

The political landscape for REDD+ development in Brazil has changed a lot in the past few years. After the adoption of the Warsaw Framework for REDD+, Brazil subsequently established the Technical Working Group for REDD+ (GTT REDD) in 2014 as well as the National Commission on REDD+ (CONAREDD+) in 2015 and has officially published a National Strategy for REDD+ (ENREDD+) in 2016. Furthermore, the Ministry of Finance's Secretariat of International Affairs (SAIN-MF) has become the Nationally Designated Authority (NDA) and is in the process of accrediting eligible organizations to receive financial resources from the Green Climate Fund. These developments gradually diminish the centrality of the Amazon Fund among Brazilian REDD+ institutions, which is described in much more detail in chapter 4. Still, the Amazon Fund has retained great relevance in the new institutional structure. Indeed, it has been the only Brazilian institution to receive financial transactions from international or bilateral agreements and is widely renowned for its extensive experiences as well as the sheer magnitude of its contributions. In both operational and financial terms, therefore, the Amazon Fund still represented a central node in Brazilian REDD+ governance

¹ This chapter is published in *Forest Policy and Economics*:
Van der Hoff, R., Rajão, R., Leroy, P., & Boezeman, D. (2015). The parallel materialization of REDD+ implementation discourses in Brazil. *Forest Policy and Economics*, 55(0), 37-45. doi:<http://dx.doi.org/10.1016/j.forpol.2015.03.005>

until at least 2018. By contrast, other approaches to REDD+ have remained sporadic and uncoordinated, as this chapter will argue, although new organizations like Biofílica and Bolsa Verde do Rio de Janeiro (BVRio) have emerged on the radar. These considerations underscore that the core conclusions of this chapter, namely the parallel materialization of distinct discourses, have retained their validity.

2.1. Introduction

Since its emergence in the mid-2000s, the concept of Reducing Emissions from Deforestation and Forest Degradation and enhancement of carbon stocks (REDD+) as potentially a low-cost contribution to climate change mitigation has drawn considerable attention at local, national and international levels (ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012; FAO, 2011; UN, 2011; WORLD BANK, 2008). At present, the core purpose of REDD+ is to generate the financial resources necessary for reducing as well as avoiding carbon emissions in countries with tropical forests (AGRAWAL; NEPSTAD; CHHATRE, 2011; ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012). While political interest in the REDD+ concept abounded since its inception in 2003 (see MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011), the practical implementation of REDD+ proved more challenging than anticipated. Some of the main challenges persisting in contemporary debates involve the inclusion of REDD+ in carbon markets, the distribution of benefits (both financial and non-financial), the establishment of a monitoring, reporting and verification (MRV) framework, and the adoption of safeguards concerning social equity and ecological biodiversity (AGRAWAL; NEPSTAD; CHHATRE, 2011; FFPRI, 2012; VATN; VEDEL, 2013). Many scholars recognize this multiplicity of unresolved challenges in REDD+ implementation as directly resulting from its multi-actor (BROCKHAUS; DI GREGORIO; MARDIAH, 2014; GEBARA; FATORELLI; MAY; ZHANG, 2014; MCDERMOTT; COAD; HELFGOTT; SCHROEDER, 2012) and multi-level (ANGELSON; STRECK; PESKETT; BROWN *et al.*, 2008; SKUTSCH; VAN LAAKE, 2008) governance characteristics. Within this context, a growing body of scientific literature adheres to a discursive approach to understanding REDD+ implementation, expounding why some elements of REDD+ (e.g. finance) are largely elaborated while other elements (e.g. social safeguards) have remained contentious and only recently attract attention in negotiations (ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012; LUTTRELL; LOFT; FERNANDA GEBARA; KWEKA *et al.*, 2013; MAY; MILLIKAN, 2010; PETERSON ST-LAURENT; LINAS;

POTVIN, 2013). While many of these discursive studies illuminate the debates, none of these studies articulate how different discourses can result into concrete practices (LEIPOLD, 2014; SKUTSCH; VAN LAAKE, 2008; THOMPSON; BARUAH; CARR, 2011).

Such articulation of the materialization of discourse to practice becomes especially important in understanding the case of REDD+ implementation in Brazil, which has received widespread political attention due to the vast contributions to global deforestation (i.e. an average of 50%, or 2.6 million hectares, in the 2000s) as well as significant achievements in curbing deforestation in the Amazon region (i.e. from 2.8 million hectares in 2004 to 0.7 million hectares in 2010) (CARVALHO, 2012; FAO, 2011; SANTILLI; MOUTINHO; SCHWARTZMAN; NEPSTAD *et al.*, 2005). Brazil currently hosts one of the most elaborate networks of REDD+ stakeholders from a diversity of public and private sectors that currently implement over 36 REDD+ projects throughout the country (ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012; GEBARA; FATORELLI; MAY; ZHANG, 2014). Most of these projects in Brazil obtain financial support from the Amazon Fund, which, since its creation in 2008 until present, has received and distributed more than 800 million USD in donations from Norway and Germany² for deforestation reduction initiatives in the Brazilian Amazon. Moreover, Brazil currently works on a national REDD+ strategy, while many state governments in the Amazon region created institutional frameworks to trade avoided deforestation to voluntary markets and are negotiating an carbon offset agreement with the US state of California (GCF, 2012; NEPSTAD; BOYD; STICKLER; BEZERRA *et al.*). In addition, the country successfully obtained the certification of over 20 REDD+ projects which together represent several million tons in avoided CO₂ emissions that can be sold as carbon credits in voluntary markets. It is not surprising, therefore, that Brazil is currently the frontrunner in REDD+ implementation. These examples of widespread emergence of REDD+ initiatives involving multiple stakeholders in Brazil pose a rather sharp contrast with the slow pace of the UNFCCC negotiations at the international level. Most importantly, the case of Brazil suggests that REDD+ implementation takes place in spite of the absence of a coherent governance structure at the national and international levels. In light of these reflections, it becomes particularly interesting to articulate the

² http://www.fundoamazonia.gov.br/FundoAmazonia/fam/site_pt/Esquerdo/Doacoes/ accessed on 30/04/2014

materialization of REDD+ discourses in Brazil in order to understand the implementation of REDD+ practices in the Amazon region.

This research paper responds to this knowledge gap by articulating how discourses construct particular conceptualizations (i.e. visions of what REDD+ is), strategies (i.e. how REDD+ should be implemented) and practices (i.e. the concrete actions realize these visions and strategies). This articulation departs from a constructionist understanding of discourse, which is elaborated in section 2 and operationalized in section 3. Based on interviews, observations and documental analysis, section 4 presents the two main discourses concerning REDD+ in Brazil, paying particular attention to its conceptualizations, and implementation strategies and practices. We then discuss these two parallel discourses in light of the current scholarly literature, and conclude with some key remarks and recommendations for future research.

2.2. Discourse analysis and REDD+

Given the focus on the materialization of discourses into practices, this research paper defines discourses as “ensembles of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which are produced and reproduced through an identifiable set of practices” (HAJER; VERSTEEG, 2005: p.175). While other definitions are widely available, this definition particularly emphasizes the omnipresent link between discursive frameworks and concrete practices that sustain discourses. Within this broad conceptualization of discourses, it is possible to identify a critical realist and a constructivist tradition of discourse analysis (REED, 2000). The critical realist tradition, or critical discourse analysis, draws upon a Marxist theory to see discourses as mediators between practices and ideologies, namely, superstructures imposed by dominant groups in order to hide underlying power relations. In this context, one of the key aims of critical discourse analysis is to promote emancipation by exposing the content of ideological-discursive formations (FAIRCLOUGH, 1985; VAN DIJK, 1993). This approach has been adopted by some studies in exposing distinct and often conflicting discourses on the conceptual development of REDD+ at the international level (HIRALDO; TANNER, 2011), concrete implementation efforts at the national level (PETERSON ST-

LAURENT; LINAS; POTVIN, 2013; SOMORIN; BROWN; VISSEREN-HAMAKERS; SONWA *et al.*, 2012), and distribution mechanisms (ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012).

The constructivist tradition, in contrast, avoids the distinction between an ideological superstructure and an underlying reality. By drawing upon the work of Foucault (2002), Berger and Luckmann (1967), and others, this tradition proposes that discourses are involved in the social construction of reality by “creat[ing] some sense of stability, order and predictability and thereby produc[ing] a sustainable, functioning and livable world [...that] acquires its apparent externality, objectivity and structure” (CHIA, 2000: 514; FOUCAULT, 2002; HAJER; VERSTEEG, 2005; RAJÃO, 2013a). Den Besten, Arts and Verkooijen (2014), for example, argued that international REDD+ debates have developed in two successive waves, thereby moving away from an initial conceptualization based on Payments for Ecosystem Services (PES) towards a broader scope that includes social and environmental ‘safeguards’. In a similar tradition, Brockhaus, Di Gregorio and Mardiah (2014) argue that, despite the presence of conflicting discourses, the general process of REDD+ implementation at the national level is largely determined by the more influential (or dominant) stakeholders.

Despite the differences and quarrels between the critical realist and constructivist traditions of discourse analysis (FAIRCLOUGH, 2005; REED, 2000), both approaches agree that discourses shape and are shaped by concrete practices. Therefore, discursive formations inspire ‘case-specific’ discourses with respect to their contents, which subsequently materialize into practices. At the same time, distinct sets of practices are combined in ‘case-specific’ discourses that may transform these discursive formations over time. This dialectical relation implies that practices are always embedded in (pre-existing) discourses and that discourses always rely on practices for their existence and transformation (PHILLIPS; LAWRENCE; HARDY, 2004; VAN LEEUWEN, 2008). As such, discursive approaches tend to emphasize either the discursive struggles through which practices transform discourses, or the materialization of discourses into practices, the latter of which is the focus of this paper. By exposing this materialization, this approach is able to show how different groups mobilize contrasting discourses to shape the conceptualization of environmental problems (HAJER; VERSTEEG, 2005), and to define the strategies and practices to solve them (BACKSTRAND; LOVBRAND, 2006; DEN BESTEN; ARTS; VERKOOIJEN, 2014; RAJÃO, 2013a).

Despite emphasizing different elements of discourse materialization, the discursive literature from both traditions generally recognize the outcome of discursive conflicts as key determinant for the practical manifestation of REDD+ implementation. Some studies suggest that the discursive conflicts in REDD+ debates will culminate in a dominant position for some of the discourse communities, which will determine the characteristics of REDD+ implementation (e.g. BROCKHAUS; DI GREGORIO; MARDIAH, 2014). Gebara *et al.* (2014), for example, indicate that governmental organizations as well as NGOs exert the most influence in REDD+ policy-making in Brazil. As such, REDD+ discourses are directly linked to specific stakeholders of various degrees of dominance as well as the practices in which these stakeholders engage. Other studies either implicitly or explicitly suggest that REDD+ implementation processes can only be successful in case of convergence of discourses and their practices (e.g. HIRALDO; TANNER, 2011). This hypothesis implies that REDD requires an alignment of stakeholder interests (either through domination or negotiation) that consolidates all stakeholders into a specific conceptualization of REDD+ to allow for its implementation (see also SKUTSCH; VAN LAAKE, 2008; THOMPSON; BARUAH; CARR, 2011). Still other scholars argue that discursive multiplicity and related conflicts may even be desired at the international level in order to attract a wide diversity of stakeholders. Yet they recognize that this function as boundary object may disappear as soon as REDD+ implementation arrives at the national or subnational level (MCDERMOTT; COAD; HELFGOTT; SCHROEDER, 2012). As such, REDD+ implementation requires a web of multi-sector and multi-level stakeholders cooperating in a coherent governance structure that supports their interests, which they recognize as one of the greatest challenges the implementation of REDD+.

While these studies provide some key perspectives for understanding the implementation of REDD+, they leave some crucial details of this process unarticulated. In particular, the literature has so far not been able to account for the translation of REDD+ discourses in concrete and coherent practices, and most importantly, how REDD+ is achieving moderate success (in terms of initiatives implemented) in countries like Brazil despite the absence of a coherent discourse at national and international levels. In light of these shortcomings, this research paper questions the validity of the hypothesis advocated by most scholars discussed above that successful REDD+ implementation

would necessarily require convergence of discourses and their practices. This research aims to address this question by providing a detailed description of the construction of REDD+ in various discourses that are represented in implementation practices. This description in this research paper addresses three key dimensions: (1) conceptual, how actors understand the issue of deforestation and why it should be reduced through REDD+; (2) strategic, the principles that guide REDD+ implementations; and (3) practical, the concrete actions that make this strategy operational. This study intends to shed light on how the REDD+ concept is received in a particular institutional and political context (see also AQUINO; GUAY, 2013; KANOWSKI; MCDERMOTT; CASHORE, 2011) and materialized in specific practices in order to contribute to the understanding of the implementation process of REDD+ in Brazil and other tropical countries.

2.3. Research methodology

This research paper builds primarily on a combination of nine semi-structured interviews, observations and document analysis obtained by the first author of this article. The majority of the interviews were selected based on their influential position in national REDD+ policy-making (yielding similar results as GEBARA; FATORELLI; MAY; ZHANG, 2014), which was complemented with standalone REDD+ initiatives from corporate organizations (e.g. CGV and CDI, see below) in order to capture the full range of activities in the Brazilian Amazon. This selection yielded seven interviews with governmental organizations, corporate organizations and non-governmental organizations. Furthermore, two additional interviews with experts in REDD+ implementation and methodology were selected to enhance understanding of REDD+ activities. The interviews were recorded, transcribed and analysed using simple coding methods that initially focussed on the key elements of REDD+ implementation (i.e. raising financial resources and distribution of benefits). During this preliminary analysis, the codes were regrouped in order to reflect the individual actor positions with respect to REDD+ elements, which yielded a matrix representing the extent to which each actor adheres to particular forms of governance (i.e. market and government) and particular forms of strategy (i.e. commodification and development). This analysis yielded two clusters of REDD+ stakeholders that were recognized as the discourses presented below. This interview analysis forms the primary data source for this research article, from which the two discourses have been identified and all quotes in the empirical section are inspired. In order to obtain an updated perspective of the

negotiation process at the UNFCCC, the second author has also participated as an observer of the COP20 in Lima and interviewed delegates from different countries. These data and observations served to confirm and validate the main findings of this analysis with respect to general developments in REDD+ implementation, as well as obtain some insights on the current and future prospects of conceptual development.

The results from this interview analysis were complemented with and supported by a body of secondary data. Firstly, this research paper derives from a collection of governmental reports documents and brochures, such as the National REDD+ strategy, the National Plan for Climate Change, as well as publications, brochures and websites from NGOs and corporate organizations, as complementing research data that underscores the research results and enhances understanding of REDD+ implementation in the Brazilian Amazon. Secondly, during two visits to REDD+ initiatives in the north of Mato Grosso, it was possible to collect observations related to the implementation strategies and practices related to REDD+ implementation supported by the Amazon Fund. Finally, this study also benefited from the empirical data obtained by the second author as part of a longitudinal study that has been looking at the formation of deforestation control policies in Brazil since 2006, and that so far has collected more than one hundred interviews with government officials, politicians, members from NGOs and farmers. The empirical findings from these primary and secondary data resources are represented in a narrative description, which captures the central discourse features with respect to problem definition of deforestation in the Brazilian Amazon, the proposed strategy for reducing deforestation and the consequent construction of REDD+.

2.4. REDD+ discourses in Brazil

The genesis of REDD+ (Reducing Emissions from Deforestation and Forest Degradation) can be traced back to the proposal of a mechanism of 'Compensated Emission Reductions' by a group of Brazilian and North American scientists and activists, which was introduced in 2003 and integrated at the UNFCCC (United Nations Framework Convention on Climate) during COP11 in 2005 (MOUTINHO; SANTILLI; SCHWARTZMAN; RODRIGUES, 2005; MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011). The original idea advocated international financial compensation for countries that succeed in reducing tropical deforestation and, as such, contribute to climate change mitigation (MOUTINHO;

STELLA; LIMA; CHRISTOVAM *et al.*, 2011). While subsequent conceptual developments required the consideration of a number of technical (e.g. monitoring, reporting and verification), social (e.g. equity rights for indigenous peoples) and environmental (e.g. biodiversity protection) issues, this original concept based on international financial support for deforestation reduction efforts still underpins contemporary REDD+ debates (ANGELSEN, 2013; ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012).

In Brazil, REDD+ appeared as a new chapter in the country's attempt to control deforestation in the Amazon. From the military rule in the 1960s until the 1980s, Brazil established a number of large scale colonization and development policies (e.g. *Operação Amazônia*, *PolAmazônia* and *Calha Norte*) in order to increase regional economic activity in the Amazon and ensure the Brazilian sovereignty over an area seen as highly vulnerable to international military intervention. Due to successful efforts to put environmental issues, including deforestation, on the international and national political agenda during the 1980s, the colonization policies towards the Amazon were reconsidered and the federal government launched different programs aimed to tackle deforestation mainly through command and control actions (HECHT; COCKBURN, 1990; RAJÃO; HAYES, 2009; ZHOURI, 2004). While monitoring and law enforcement still constitutes the main deforestation control instrument in use in Brazil, a growing number of actors in the 2000s began to recognize the limits of this approach. In this context, the view that deforestation was also an economic (rather than merely legal) problem gained widespread acceptance, which induced the advocacy of economic incentives for the preservation of forests. It was within this broader context that REDD+ was viewed by different actors in Brazil as a way to channel financial resources and provide economic benefits for the conservation of the Amazon (MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011). Despite this common ground, REDD+ implementation in Brazil reveals a growing gap between its various conceptualizations and the concrete practices they engender. In the next two subsections we present the two main REDD+ discourses in operation in Brazil, enmeshing the way in which these discourses have been turned into implementation strategies and practices.

2.4.1. REDD+ as carbon commodification

Advocates of the carbon commodification discourse constitute a rather disconnected group of stakeholders that share an interest in direct payments for corresponding emissions reductions. In the particular case of Brazil, this small collection of REDD+ stakeholders entails a mixture of corporate organizations, state-level governments and some non-governmental organizations that often do not act as a coherent group but nevertheless engage in similar practices. The remainder of this subsection provides more detailed understanding of this discourse.

Conceptual dimension

In line with international debates on REDD+, a group of private and public actors in Brazil emphasise the role of carbon-offset markets as a key economic instrument to mitigate climate change a global level. This particular discourse presents REDD+ as a way to ensure the reduction of emissions by avoiding deforestation, and in this way, producing carbon credits that can be purchased by other sectors of the economy (e.g. energy) and countries (e.g. Japan) where opportunity cost of mitigation is much higher. Therefore, this rather disconnected group of stakeholders share an interest in market-based approaches to reducing deforestation that is commonly referred to as 'neoliberal conservation' (ARSEL; BÜSCHER, 2012; HEYNEN; ROBBINS, 2005; ROTH; DRESSLER, 2012).

The most apparent stakeholders of this discourse are corporate organizations, such as carbon traders Celestial Green Venture (CGV) and Carbon Decisions International (CDI), and environmental non-governmental organizations and some indigenous groups that financially, technically or organizationally support local sustainable development projects in exchange for carbon credits or financial compensation. According to the representative of a carbon trading company, reducing deforestation and correspondent carbon emissions in order to mitigate climate change is "why we are talking about REDD+". Understanding deforestation in terms of quantified carbon emissions with a monetary value induces the process of carbon commodification. In similar respect, the carbon commodification discourse argues that REDD+ should 'produce' the commodity of avoided carbon emissions (or carbon stocks) for the purpose of 'consumption' by emitting countries and corporations.

“Carbon trading could be like any other commodity if you want. A new commodity is demanded in the world markets and used. In principle, each country should have the right to decide how and if they want to incentivize the production of a certain commodity you see in their territories.”

– Carbon Trader A –

This conceptualization of emissions reductions from deforestation as a commodity is promulgated not only by private actors, but by some state-level governments as well. In particular the Amazonian states that propose U-REDD+ allocation, as well as the GCF Task Force to which these states pertain, advocate the offsetting of carbon emissions from industrial activities in Brazil or other countries through the ‘competition’ for REDD+ carbon credits (CENAMO; SOARES; KARST, 2014; GCF, 2012). As a consequence of this particular discourse, REDD+ is conceptualized chiefly as a way to mitigate climate change at global level through the use of market mechanism, leaving other benefits (e.g. poverty alleviation, biodiversity conservation etc...) as aspects that should be at best safeguarded rather than rewarded.

Strategic dimension

The conceptualization of REDD+ as the commodification of carbon emissions immediately points to the establishment of carbon markets as its most central implementation strategy. A broad understanding of carbon markets emphasizes an exchange between ‘consumers’ and ‘producers’ of avoided carbon emissions and/or carbon stocks. CGV, for example, produces carbon credits by certifying projects through standards such as VCS and CCB, which produce carbon yields that are sold to consumers on European carbon markets (CGV, 2011). Alternatively, U-REDD+ allocation would involve the production of avoided carbon emissions and/or carbon stocks by state governments, which are ‘sold’ to the federal government in order to comply with UNFCCC commitments (CENAMO; SOARES; KARST, 2014). Although the consumption of U-REDD+ by the federal government may imply a somewhat unusual formulation (the U-REDD+ proposal involves distribution of financial resources rather than a market), the competition involved in the allocation of financial resources provides an incentive for state governments to achieve (or produce) emissions reductions or carbon stocks. In other words, allocation will not occur according to correspondence with the multiple objectives of

sustainable development policies (see below), but rather based on quantifiable achievements with respect to reducing carbon emissions and/or maintaining carbon stocks.

The main argument for establishing such markets derives from the conviction that markets can efficiently manage available resources in order to achieve reductions in carbon emissions. This approach towards REDD+ projects consolidates a preference for a market-based rather than government-based approach, which is justified by the market's ability to solve not only economic but also social problems in a much more efficient manner as explained an influential Brazilian economist (see also VATN; VEDELD, 2013):

"In fact, the market-based mechanisms give you room for doing compensatory policies and for doing social policies, so it's just a way of seeing things which is more affirmative rather than say at the end we can do... we can take into account poverty or social issues we start saying this: Green economy is going to take care of the poor. So to do that, we needed to price the rich."

– Economist from governmental research institute –

While the focus on carbon emissions reductions and offset markets dominates the strategic dimension of the carbon commodification discourse, actors involved holds rather ambiguous positions with respect to the non-carbon features of REDD+ (i.e. protecting biodiversity and securing social equity). Carbon traders like CGV, for example, argue that issues like poverty and biodiversity loss distract REDD+ from its core purpose as climate change mitigation policy. Similarly, the different members of the GCF Task Force do not appear to include such issues into their activities in the same way, with the state of Acre showing a greater concern for social justice, while the state of Mato Grosso has a stronger focus on the economic aspect of REDD+ (GCF, 2012). However, the carbon trading companies interviewed suggested that the incorporation of some socioeconomic and biodiversity considerations in their activities is seen as a vital part of their business strategy to commercialize carbon credits, thus maintaining the carbon focus.

Practical dimension

The conceptualization and strategy of the carbon commodification discourse of REDD+ in Brazil has influenced a specific set of practices concerned with the evaluation and implementation of REDD+ projects. These practices emerge within companies that mediate the relation between buyers of carbon credits and landowners of tropical rainforest. Although carbon commodification practices are diverse and unstandardized, the activities of a European carbon trading company provide an excellent illustration of how such mediators construct markets and provide the arena where supply and demand intersect. In this particular case, the 'suppliers' of avoided carbon emissions to this carbon trader are the direct landowners in the Brazilian Amazon, which mostly involve municipalities, local communities and indigenous peoples. The projects elaborated with these supplies entail intellectual as well as financial support for forest conservation and local development in exchange for the right to sell carbon credits on the voluntary carbon market in Europe.

"We do research on the area and on the project. We do our own internal calculations on what the threat level is and [whether] it can be addressed. (...) After we have done that, we do our own calculations again on what we think the carbon credit yield would be. We agree a figure between ourselves and the land owners. We set up a project from beginning to end and we pay fifty [per cent] to the land owner for the carbon credit rates for the next thirty years. At no time we own the land."

– Carbon Trader A –

Even though carbon traders certainly contribute to social co-benefits of REDD+ projects, an analysis of their practices activities suggest that the main focus remains on generating carbon credits for a voluntary market. Thus, when actively looking for a 'demand side' for their for the carbon credits generated from agreements with Brazilian landowners, these companies look for global voluntary carbon markets and major players (e.g. banks, multinational companies) interested in offsetting their emissions. In this process they "pack" the carbon credits in formats that are in line with perceived investor needs, involving an appropriate scale as well as information on REDD+ benefits. This suggests that the business activities of this carbon trading company are very performance driven and customer oriented. Recognizing the central focus on avoided carbon emissions, the additional social

benefits related to development activities in Brazil should be understood as commercial advantage that, according to this carbon trader, "tells the story".

After establishing the financial viability for the creation of a REDD+ projects in a given area, the trader has develop a Project Design Document (PDD) that specifies how carbon yields are calculated. The development of a PDD is a complex process which involves the calculation of the biomass of the area, its forest inventory, a remote sensing assessment of the past and present forest cover, and, finally, the projection of future deforestation in order to constitute a base line enabling a conservation outcome evaluation of the project. The practices to construct a PPD strongly links with the conceptualization of REDD+ as a carbon yielder and its market strategy in two ways. First, while these projects mention social and biodiversity concerns (see above), the focus of the PDD development and validation is placed on the ability of the REDD+ project to create substantial emissions reduction, and, in this way, to "produce" carbon offset credits. Second, and most importantly, through this production of carbon offsets these REDD+ practices realize the market strategy by detaching its tons of carbon from the specific socio-environmental context from where it originates. In this way, the carbon offsets produced by different projects are turned into a global commodity and become a product that can be split, combined, transferred, and exchanged in the same way as any other commodity.

2.4.2. REDD+ as Sustainable development

The sustainable development discourse adheres to a broad set of REDD+ related environmental policies and practices that will be subsumed under a National REDD+ Strategy that is connected to UNFCCC commitments without participation in the UN-REDD+ programme (GCP, 2008; GEBARA; FATORELLI; MAY; ZHANG, 2014; GEBARA; THUVAULT, 2013). As such, many actors advocating this discourse are governmental organizations such as the Ministry of Environment (MMA), and the Ministry of Foreign affairs (MRE). Some groups inside the Secretariat of Strategic Affairs (SAE/PR) and Ministry of Finance adhere partially to the carbon commodification discourse, but these groups have a more peripheral role in the implementation of REDD+ in Brazil. The Amazon Fund, a distribution mechanism created in 2008 for the management of financial resources of REDD+ related activities in Brazil, constitutes one of the central instruments in the National REDD+ Strategy. This result-based

mechanism is financed by donations from the Official Development Assistance (ODA) budget mainly from Norway, but also with substantial contributions from Germany, mostly in the form of technical assistance. The fund has also received a small donation (relative to the fund's size) from PETROBRAS, the Brazilian oil giant that is under the majoritarian control of the Brazilian government. Between 2009 and 2014 the fund has received about 901 million USD that are allocated by the Brazilian Development Bank (BNDES) to support REDD+ initiatives from state and municipal governments, research institutes, and non-governmental organizations. Although the Amazon Fund may not represent the full extent of the National REDD+ Strategy (e.g. the Forest Code also plays a significant role), it does illustrate how stakeholders from national, state and local levels are connected in sustainable development activities in Brazil under the auspices of REDD+. The remainder of this subsection discusses the conceptual, strategic and practical considerations that characterize this sustainable development discourse.

Conceptual dimension

During the 20th century one of the key concerns of the Brazilian central government has been the economic development of the Amazon, which is considered both a strategic asset to be exploited and an unchartered area to be protected from foreign intervention (see above). With the uprising against large-scale deforestation triggered by the government's colonization policies during the 1970s and 1980s, it was necessary to reconsider, at least in discursive terms, the development strategy towards the Amazon. In this context the notion of "sustainable development" has gained widespread support across different sectors and is broadly defined as a form of economic growth "that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). In the case of the Amazon rainforest, the concept of sustainable development has often been conceived by the Brazilian government as the centralized coordination of economic development through the provision of financial incentives and technological capabilities aimed at nullifying the environmental externalities of economic activities on the long term. In this way the government aims to "ensure that the forest standing is worth more than the forest cut down". The following excerpt from an interview with a senior official from the Secretary of Strategic Affairs (SAE/PR) illustrates this conceptualization:

“When you talk about forests in the Amazon, [you talk about] low technology. We are still in the rock era in the Amazon, it is unbelievable! We should improve technology in the Amazon in all ways, so they can have health programs, security programs [and so forth]. What they have in the cities, they should have in the field.”

– SAE/PR representative –

When REDD+ appeared at the scene in the mid-2000s, it was readily identified by policy-makers from the Ministry of Environment as a way to finally obtain the financial resources necessary for implementing sustainable development actions. Therefore, these actors saw REDD+ not as a means for obtaining carbon yields to mitigate climate change, but rather as an instrument fostering sustainable development that alleviates the social causes of deforestation. This emphasis on the socioeconomic rather than the environmental dimension is a direct legacy of historical views of the Amazon and the persistently developmentalist concerns that has driven the policies towards the region (RAJÃO; HAYES, 2009).

Strategic dimension

The conceptualization of REDD+ primarily as the solution for a socioeconomic problem with environmental impact particularly manifests in a set of strategies that places the government (and not the market) as the main channel for the distribution of REDD+ benefits. This emphasis becomes particularly clear in the tendency of different senior officials to equate the national REDD+ strategies with governmental actions already in place in the Amazon. A representative from the Ministry of Environment (MMA), for example, stresses the integration of REDD+ in existing sustainable development policies:

“Brazil saw that REDD+ as a public policy is very convenient, because we were already seeking REDD+. We were already seeking things that were in the way of Green Economics. Here in the Ministry, REDD+ is treated very nearly to our plan against deforestation: PPCDAM. (...) REDD+ is one element that puts together all those other policies that were already in the field.”

– MMA representative –

Indeed, the cross references between the National REDD+ Strategy and the Brazilian Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm) confirm the convergence of REDD+ and existing policies (MMA, 2013). Within this view, REDD+ is a continuation and expansion of governmental actions already in place, with governmental organizations viewing the mechanism mainly as potential additional influx of financial resources for sustainable development policies. With this aim in mind, it becomes clear that, according to this discourse, the distribution of the benefits from REDD+ should be coordinated by the same entity responsible for fostering the development of the region, namely, the federal government.

Another important strategic catalyst for advocating a sustainable development discourse is the adoption of a strategy that aims to isolate the operation of REDD+ at an international level from Brazil's national policies. The Ministry of Foreign Relations (MRE), for example, strongly rejects the notion that REDD+ should provide carbon credits to be sold at an international level. This rejection stems from the view that REDD+ offset alleviates the emissions reductions commitments of rich countries while augmenting Brazil's obligations to reduce carbon emissions from deforestation. More specifically, the federal government fears that the legal obligations from carbon offsets will constrain its freedom in pursuing national political interests (e.g. building a hydroelectric dam or opening an iron ore mine) As such, the federal government denounces carbon offsets in an effort to maintain national sovereignty, which is a concern that resonates the impact of the military regime between 1964 and 1985 (see HECHT; COCKBURN, 1990).

These sovereignty concerns are reflected in Brazil's non-participation in the UN-REDD+ Programme, the refrainment from acknowledging carbon offsets in the draft of the national REDD+ strategy, and the repeated statements from Brazilian diplomats in the context of the UNFCCC negotiations (CARVALHO, 2012; GCP, 2008). In similar respect, the Amazon Fund issues certificates to donor countries that ambiguously states an "equivalent value in CO₂ tons" in reference to the donated value in dollars, the amount of which is transferred to Brazil in recognition of the efforts already undertaken in reducing deforestation rather than obligating future reductions. Moreover, by way of consolidating the governmental control over REDD+ activities, the two advisory committees of BNDES in charge of the Amazon Fund are both dominated by governmental organizations with only a minor participation

of members from the Brazilian academia and civil society. These observations suggest that sovereignty concerns of the Brazilian government (most notably MRE) have compelled the consideration of a sustainable development discourse for REDD+ by denying the possibility of a market for carbon offsets.

Practical dimension

The materialization of the conceptual and strategic elements of the sustainable development discourse into concrete REDD+ practices is perhaps best illustrated by tracing the allocation of financial resources of the Amazon Fund. The Guidelines and Criteria for Allocation of Resources of the Amazon Fund, elaborated by the Amazon Fund Guidance Committee (COFA), states that all Amazon Fund projects must “directly or indirectly contribute towards REDD+” (point B7) and “demonstrate a clear coherence with PPCDAm” (point B3), among thirteen other criteria. These criteria indicate that REDD+ practices occur along the lines of wider sustainable development policies as represented in PPCDAm, which involves the three pillars of land regularization, monitoring and control, and promotion of sustainable activities. In addition, it is important to mention that none of the fifteen criteria state a requirement for demonstrating substantial results in terms of emissions reductions. Instead, according to a researcher on REDD+ implementation at the project level, performance in emissions reductions has been downplayed in favour of other distribution criteria:

“It is not the data of avoided emissions that allowed [projects] to apply for money. It was the technical expertise that went into the readiness that made their financial partners see that ‘oh, these guys are really serious’. They have publications. They have all this expertise.”

– Researcher REDD+ implementation –

This expertise translates into an ability to provide, for example, transparency into the project activities (point B11), which demands a basic level of organizational performance. These observations indicate not only the kind of projects, but also the kind of organizations that pertain to the sustainable development discourse of REDD+ implementation in Brazil, namely, professional organizations involved in a variety of activities corresponding with national sustainable development and deforestation policies.

Two projects currently supported by the Amazon Fund illustrate the points raised above. The project *Sementes do Portal* of the *Ouro Verde* Institute is dedicated to establishing a local exchange platform for alternative agricultural products. Its activities involve supporting small farmers to compete with large landholders through the introduction of local markets for the sustainable agricultural production of forest products (e.g. cajú, manioc, corn, cupuaçu, nuts, etc.). By providing small farmers with organizational advice and financial resources for buying seeds, the *Ouro Verde* Institute empowers them and augments their competitiveness. Alternatively, according to an anthropologist interviewed for this research, another project in the region of Alta Floresta involves a contribution to the governmental enforcement capacity by supporting local farmers on the condition of compliance to environmental legislation and registration in national register. Especially the latter condition serves to regularize property rights for all economic actors in the Amazon region, which makes a profound contribution to monitoring and control activities by governmental organizations (see BNDES, 2012). While these two projects may contribute to forest restoration and the capture of CO₂, the mitigation of greenhouse emissions by reducing deforestation on a large scale is distant from the core activities of promoted by these projects.

2.5. Competition, coexistence and collaboration between REDD+ discourses

The observations in the previous section indicate the presence of two distinct discourses that materialize in rather different sets of strategies and practices. On the one hand, we identify a carbon commodification discourse that departs from a neoliberal conservation perspective on the problem of deforestation as the motivation for the commodification of avoided carbon emissions. This commodification underpins the argument that markets, which connect supply and demand of carbon credits or U-REDD+, constitute the most efficient solution for this problem. REDD+ implementation strategies and practices inspired by this discourse actively contribute to the construction such markets. On the other hand, we observe a sustainable development discourse that emphasizes the region's lack of access to technology as well as poverty as the main driver of deforestation. Advocates of this discourse posit REDD+ as financial support for national sustainable development policies that aim for similar objectives. As such, REDD+ becomes a financial mechanism that integrates and coordinates existing environmental and development policies in which the reduction of emissions

from deforestation is a side effect rather than the central objective. Table one enumerates these findings.

Given the distance between the two discourses and related strategies and practices, it is not surprising that there has been some conflicts for dominance between the groups of actors on the different sides of the debate. Apart from obvious differences between corporate initiatives (i.e. carbon trading) and projects in the Amazon Fund, these conflicts are particularly evident within the ongoing development of the National REDD+ strategy, where the federal government largely excluded the participation of the private sector and the states while inscribing the sustainable development discourse. At the same time, the many side events during the COP20 in Lima organized by the Amazonian states and carbon traders, on the one hand, as well as the agreement of Acre state directly with the German development bank, on the other hand, suggest that private and governmental organizations at various levels independently promote their respective discourse while debunking the other.

	Carbon commodification discourse	Sustainable development discourse
Conceptual dimension	<ul style="list-style-type: none"> • REDD+ as the production of carbon credits • Emphasis on climate change 	<ul style="list-style-type: none"> • REDD+ as inducer of sustainable development • Emphasis on socioeconomic drivers of deforestation
Strategic dimension	<ul style="list-style-type: none"> • Carbon market as the most efficient option for achieving emissions reductions • Non-carbon elements generally downplayed 	<ul style="list-style-type: none"> • Government as the best option for inducing development • Strong concern for national sovereignty protection • Consolidation of existing policies
Practical dimension	<ul style="list-style-type: none"> • Mediation between supply and demand on carbon market • Projects constituted through Project Design Documents • Commodification of emissions reduction as well as carbon sinks 	<ul style="list-style-type: none"> • Selection of projects based on aligned with policy objectives • Regularization of property right system • Monitoring and control • Promotion of sustainable production activities

Table 1: Central features of parallel REDD+ implementation discourses (see section 4)

In the context of these discursive conflicts, the sustainable development discourse currently appears to hold a quite dominant position not only in the number of stakeholders and the volume of financial resources linked to activities in the Amazon Fund (see GEBARA; FATORELLI; MAY; ZHANG, 2014), but mainly through the interest it engenders within the international negotiations. At international level, mostly due to the protagonist of Brazil at the UNFCCC, a framework has been approved at the CO19 in Warsaw that contains close resemblances to the Amazon Fund governance structure. In particular, while the Warsaw Framework leaves the possibility for the future development of a market approach for REDD+ as part of the Ad Hoc Durban Platform (to be concluded at the COP21 in Paris in 2015), UNFCCC's REDD+ will be, at least until 2020, a result-based non-market mechanism that depends mainly on donations to the Green Climate Fund. Most importantly, in accordance to the sustainable development strategy outlined above, paragraph 16 of the decision 9/CP19 notes that "the insertion of results on the information hub does not create any rights or obligations for any Party or other entity", thereby emphasizing the non-binding character of REDD+ and empowering the sustainable development discourse in Brazilian REDD+ implementation.

On the other hand, however, the carbon commodification discourse cannot be regarded as a failure just yet. The country successfully obtained the certification of ten Verified Carbon Standard (VCS), two Natural Forest Standards (NFS), and nine Climate, Community & Biodiversity Standards (CCB) REDD+ projects, which together have the potential to avoid tens of millions tons CO₂ (more than any other country) that can be sold as carbon credits in voluntary markets³. While not all credits have been sold, private companies in Brazil and abroad have already spent considerable resources in acquiring carbon offsets as part of their social responsibility initiatives and green marketing campaigns. According to Forest Trends, carbon offset transactions in voluntary markets reached 192 million dollars in 2013 with more than 80% of these credits from REDD+ projects mostly based in Latin America. In the same line, the recent acquisition of 40 million USD from the state of Acre in emissions reductions by the German Development Bank announced during the COP20 in Lima also

³ <http://www.vcsprojectdatabase.org>, <http://www.climate-standards.org> and <http://www.naturalforeststandard.com/projects/project-index-2/> accessed on 30/05/2014

brought some hopes for the REDD+ carbon commodification discourse⁴. These announcements offer a hopeful prospect for those actors who, since the mid-2000s, strived to develop a global carbon offset market in order to channel substantial resources into forest protection.

Despite the conflicts, these two discourses largely co-exist independently and even reinforce each other's agenda. In broad terms, both discourses seek to reduce deforestation and corresponding carbon emissions for which they seek the necessary financial resources. On the one hand, the Amazon Fund and the Warsaw Framework for REDD+ rely mostly on the channelling of official development assistance (ODA) from developed countries. In this way, rich countries are able comply to an agreement signed in 1970 that asks them to donate 0.7% of their gross national income⁵, by which they also seek to satisfy voters at home by contributing to the mitigation of climate change (HERMANSEN; KASA, 2014). On the other hand, the carbon commodification REDD+ projects tend to rely mostly on the acquisition of carbon credits from private companies, which select projects based not only on the price of the CO₂, but also has benefits for company image and product branding as a result of buying credits from that specific region (i.e. indigenous community, biodiversity hotspot). With their strong concern for the financial elements of REDD+, these seemingly differing discourse share a common denominator in seeking financial compensation (either through commodification or sustainable development) for practices that have a tangible impact on the social, political and economic reality of deforestation in the Amazon region.

It should be emphasized that this common objective is only partially related to the compromise reached in 2010 during the COP16 in Cancun on avoiding an increase in global temperature above 1.5 or 2.0 degrees Celsius (Art. 4, Decision 1/CP.16). In the Copenhagen Accords, signed in the aftermath of the troublesome COP15, Brazil made the commitment to reduce its greenhouse emissions by 36.1 to 38.9% in relation to its projected emissions by 2020. In order to achieve this, the Brazilian government has included the reduction of deforestation in both the Amazon and the Cerrado biomes as its most important nationally appropriated mitigation action (NAMA), which would avoid the emission of 668 million tons of CO₂ equivalent. However, Brazilian negotiators have

⁴ http://www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=10654 accessed on 30/05/2014

⁵ <http://www.un-documents.net/a25r2626.htm> accessed on 30/05/2014

repeatedly highlighted that, in accordance with the principle of common but differentiated responsibilities, developed countries should achieve the largest emissions reductions, giving a secondary role to REDD+ and other initiatives from developing countries. For this reason, the Brazilian government generally refrains from acknowledging REDD+ as (one of) the leading instrument for international climate change mitigation efforts. As governmental organizations dominate the more widely advocated sustainable development discourse, Brazil leaves largely out of sight the overall contribution of these reductions resulting from REDD+ to the mitigation of climate change at the global level, and instead focuses more explicitly on acquiring financial compensation for reducing deforestation.

2.6. Conclusions

The observations in this paper strongly indicate that REDD+ implementation is a heterogeneous process that, corresponding to the observations by Brockhaus, Di Gregorio and Mardiah (2014) and Kanowski, McDermott and Cashore (2011) depends strongly on the historical context and the pre-existing discourses to which stakeholders adhere. These pre-existing discourses, in the case of Brazil, entail the predominant governmental concerns of regional development and sovereignty protection that presuppose the sustainable development discourse, as well as notions of neoliberal conservation that sustain the carbon commodification discourse. It is clear from the previous section that both discourses contain a wide elaboration of its conceptual, strategic and practical REDD+ elements that are most likely to perpetuate discursive conflicts for the foreseeable future. As such, the need for an alignment or convergence of stakeholder interests as a prerequisite of REDD+ implementation, indicated by Skutsch and Van Laake (2008) and Thompson, Baruah and Carr (2011) among others, may not be always valid. Therefore, corresponding to McDermott et al. (2012), instead of waiting to resolve the conceptual issues of REDD+ at the international level, the case of Brazil shows that, at a national and subnational level, discourses already materialize in partially conflicting strategies and practices that nonetheless coexist alongside each other.

While it is difficult to judge whether this parallel REDD+ implementation is plausible in the long run, we warn for a possible collapse of the REDD+ identity. This collapse, firstly, will lead to conceptual and organizational polarization of REDD+ stakeholders, which we already observed in the case of

Brazil. In this context, the identity of REDD+ will not be represented by its features since these features vary considerably among implementation practices. REDD+ could instead only be characterized by the central objective that inspired the acronym: climate change mitigation by reducing emissions from deforestation and forest degradation. However, attaining this objective may complicate implementation processes as a consequence of a collapsing identity. As REDD+ constitutes a variety of conceptualizations, it will remain unclear who will be responsible for deforestation efforts, who should finance these efforts and who should reap the benefits. Although it has been argued that alignment of stakeholder interests is hardly viable nor completely necessary, the organization of implementation practices in a nested approach would certainly benefit both REDD+ in particular, as well as deforestation reduction efforts in general. In this respect, the coherent advocates of the sustainable development discourse would reflect this requirement better than the disconnected advocates of the carbon commodification discourse. While this approach is plausible for the internal development of discourses, however, the substantial differences and the polarization between both discourses so far have prevented the emergence of coordinated efforts.

This article barely touched upon the ramifications of parallel REDD+ discourses and, more importantly, their implementation practices, and is therefore only a preliminary inquiry into Brazilian REDD+ implementation. At the same time, however, it indicates a need for a renewed research focus in order to improve efforts to reduce deforestation and coherent carbon emissions. The heterogeneous character of REDD+ demands an abandonment of a focus on the discursive competition for dominance, and a focus instead on the coexistence of distinct discourses and practices, the dialectical interactions between them, and the problems that may arise in the process. More specifically, research efforts should focus on the potential integration of implementation practices deriving from distinct discourses, rather than on convergence of stakeholder interests. Such an approach could direct attention away from the fruitless attempts to establish a single REDD+ identity towards a more promising coexistence of REDD+ implementation practices at the international, national and subnational levels.

3. CLASHING INTERPRETATIONS OF REDD+ “RESULTS” IN THE AMAZON FUND⁶

As the political landscape for REDD+ in Brazil contains a dominant sustainable development discourse and a persisting carbon conservation discourse, it is necessary to further explore these skewed power relations. The discussion in the introductory chapter suggests that the persistence of the latter discourse finds much support within economic rationales. In general, market instruments build on extensive economic theories (BAVEYE; BAVEYE; GOWDY, 2013; GÓMEZ-BAGGETHUN; DE GROOT; LOMAS; MONTES, 2010), are supported by economists who emphasize their cost-effectiveness (LANE, 2012) and have been a popular policy instrument for environmental governance, even in Brazil (FILOCHE, 2017). Conversely, these considerations do not account for the dominance of the sustainable development discourse. The findings in chapter 2 already suggest that the sovereignty concerns of federal government organizations have played an important role in thwarting an offset-based approach to REDD+, but this factor by itself does not explain why these organizations have endorsed the characteristics and agreements that make up the Amazon Fund. In order to answer these questions, the present chapter focuses the analysis on the sustainable development discourse and explores the political foundations for the Amazon Fund. As donations to the Amazon Fund build on bilateral agreements with donor countries, it is useful to analyze the rationales behind these agreements and their impact on the organization of financial transactions.

3.1. Introduction

One of the challenges of international and national forest governance involves the establishment of financial instruments that contribute to the attainment of results. Over the last decade, the concept of Reducing Emissions from Deforestation and Forest Degradation (REDD+) partially abandoned an initial strong emphasis on market instruments for offsetting carbon emissions in favour of a result-based funding (RBF) approach that financially rewards historical emissions reductions (CARVALHO, 2012; VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). Even though international agreements,

⁶ This chapter is published in *Climatic Change*:

Van der Hoff, R., Rajão, R. & Leroy, P. (2018). Clashing interpretations of REDD+ ‘results’ in the Amazon Fund. *Climatic Change*, 150(3), 433-445. <https://doi.org/10.1007/s10584-018-2288-x>

including the Warsaw Framework for REDD+ in 2013 (see decision 13/CP.19) and the Paris Agreement in 2015 (i.e. art. 6), might still allow REDD+ offsets, there are many uncertainties about its viability (STRECK; HOWARD; RAJÃO, 2017; VOIGT; FERREIRA, 2015). Furthermore, the substantial bilateral investments made by Norway and Germany as well as the approval in October 2017 of USD 500 million from the Green Climate Fund (GCF) for REDD+ further consolidate this approach (DEN BESTEN; ARTS; VERKOOIJEN, 2014; TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016; VOIGT; FERREIRA, 2015). Although the use of RBF as a financial instrument for policy-making is already extensively applied and evaluated (BROOM, 1995; ELDRIDGE; PALMER, 2009; OXMAN; FRETHEIM, 2008), its development and application in the context of REDD+ is only emerging in international and national forest governance (BROCKHAUS; KORHONEN-KURKI; SEHRING; DI GREGORIO, 2015; NORMAN; NAKHOODA, 2014). In this context, the Brazilian Amazon Fund is currently one of the largest and most experienced RBF instruments worldwide, with over a decade of operational activity, up to USD 2 billion in donation pledges, and an approved disbursement of over USD 707 million for the support of 100 projects (BNDES, 2018). At the same time, scholars are slowly beginning to observe the emergence of critiques on the Amazon Fund's effectiveness with respect to reducing deforestation (ANGELSEN, 2017; HERMANSEN; MCNEILL; KASA; RAJÃO, 2017).

This paper aims to contribute to understanding the challenges and conflicts involved in the construction of RBF instruments by juxtaposing the discourses of both investor and recipient countries related to the Amazon Fund. More specifically, it focuses on diverging interpretations of what could count as 'results' that form the basis for financial transactions and effectiveness evaluations of the Amazon Fund. As managerial approaches for environmental governance become increasingly commonplace, an analysis of the political conflicts involved is a useful step towards enhancing the legitimacy of financial instruments for addressing climate change. Section two opens with a discussion of the available literature with respect to the deployment of RBF instruments both in general and in relation to REDD+, after which section three elaborates the methodological approach of this paper. The subsequent sections describe the discourses of both recipient and donor countries with respect to their adherence to the Amazon Fund (section four) as well as the internal contradictions that emerge in recent years (section five). The paper concludes with some considerations for understanding RBF instruments.

3.2. Results-based funding and REDD+

Much literature has discussed the relevance of RBF in education and healthcare policies (BROOM, 1995; LOW-BEER; AFKHAMI; KOMATSU; BANATI *et al.*, 2007; MEESEN; SOUCAT; SEKABARAGA, 2011) as well as environmental governance (e.g. ANGELSEN, 2017; NORMAN; NAKHOODA, 2014). This literature has produced a very diverse terminology, including 'results-based funding', 'payments-for-performance' (P4P), 'performance-based aid' and many others (ANGELSEN, 2017; ELDRIDGE; PALMER, 2009; MÜLLER; FANKHAUSER; FORSTATER, 2013; OXMAN; FRETHEIM, 2008). Eichler (2006, p. 5) defines RBF more generically as the "transfer of money or material goods conditional upon taking a measurable action or achieving a predetermined performance target". This definition denotes that payments are conditional on the demonstration of results through quantitative performance indicators (MÜLLER; FANKHAUSER; FORSTATER, 2013; TURNHOUT; NEVES; LIJSTER, 2014). Moreover, it reflects the argument that RBF directly addresses the 'principal-agent problem' in which one actor (i.e. 'principal') seeks behavioural change or provision of specific services from another actor (i.e. 'agent') (EICHLER, 2006; ELDRIDGE; PALMER, 2009). These characteristics evoke optimism among some scholars about "the potential of performance-based financing to reform" (MEESEN; SOUCAT; SEKABARAGA, 2011, p. 153). As such, RBF is reminiscent of ideas related to New Public Management (NPM), which emphasizes a managerial approach to addressing policy issues and represents public administrations that are efficient, 'lean and purposeful', in contrast to public administrations that advocate orderliness as in bureaucracies (GRUENING, 2001).

Another strand of literature has adopted a more critical stance towards the potential of RBF. Although RBF did improve the uptake of preventive health services in low income countries, for example, Oxman and Fretheim (2009) expressed their concerns about the long-term sustainability of desired effects (e.g. contracting out), the occurrence of undesirable effects like cherry-picking (e.g. excluding care for 'difficult' patients) and unintended behaviours (perpetuating child malnourishment to retain benefits), and general effectiveness in addressing complex and broad problems. In addition, Eldridge and Palmer (2009, p. 163) observed that, for some health models, "there was variation in whether payment was made for outcomes or for process indicators" and warned that confusing performance indicators like immunization rates as targets may actually yield adverse effects on effectivity. Furthermore, similar critiques have appeared in NPM literature, particularly with respect to its

paradigmatic nature. Hood and Peters (2004, p. 271), for example, identified the unintended effect of “goal displacement” where performance indicators “remained largely processual and compliance-oriented, in spite of the all-pervasive rhetoric of [results-oriented approaches]” (see also LYNN, 1998). These observations suggest that many problems of RBF emanate from a lack of clear definitions and, consequently, a susceptibility to diverging interpretations.

The issues of unclear definitions and discursive diversity has also affected national and international REDD+ debates (DEN BESTEN; ARTS; VERKOOIJEN, 2014; HIRALDO; TANNER, 2011; SOMORIN; BROWN; VISSEREN-HAMAKERS; SONWA *et al.*, 2012; VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). Some scholars have already identified that REDD+ implementation does not necessarily require stakeholder alignment or discursive dominance, as much literature would suggest, but may involve a parallel materialization of distinct discourses (TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016; VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). Still, this materialization implies an alignment of stakeholder interests between donor and recipient countries in order to solve the aforementioned principal-agent problem. This alignment involves the balancing of appropriate compensation (i.e. recipient risks), performance expectations (i.e. investor risks) and ownership of the results obtained (i.e. host vs donor country) (MÜLLER; FANKHAUSER; FORSTATER, 2013; ZADEK; FORSTATER; POLACOW, 2010). In this respect, the establishment of the Amazon Fund in 2008 built on a desire of the Brazilian government to receive non-offset-based compensation for past deforestation reductions (CARVALHO, 2012) that coincided with the decision of the Norwegian government to increase its international climate mitigation efforts and thus becoming a leading player at the climate negotiations (HERMANSEN, 2015; HERMANSEN; MCNEILL; KASA; RAJÃO, 2017). Some scholars, however, subject the RBF structure of the Amazon Fund to critical scrutiny. Angelsen (2017, p. 258), for example, questions whether the ex-post agreements of the Amazon Fund are “results-based in practice because the marginal incentives [for further deforestation reductions] are not in place”. Other scholars argued that stakeholder interests may not be fully aligned yet, but the conflicts and contradictions are internally negotiated with relevant stakeholders rather than publicly criticized in the media (HERMANSEN; MCNEILL; KASA; RAJÃO, 2017).

The ongoing debate in the literature suggests that a closer look at clashing interpretations of results between donor and recipient organizations may be useful for understanding potential challenges of RBF operations. We define discourses as “ensembles of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which are produced and reproduced through an identifiable set of practices” (HAJER; VERSTEEG, 2005, p. 175). In an earlier article that applies this definition, we already identify the Amazon Fund as the central REDD+ institution of a ‘sustainable development discourse’ of REDD+ in Brazil (VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). Extending this argumentation, we argue that Brazilian organizations are not the only stakeholders that actively produce and reproduce this discourse through the practices of the Amazon Fund, since donor countries have made equal contributions to its materialization (ANGELSEN, 2017; HERMANSEN, 2015). As such, this research paper contributes to the literature above by describing the interpretations of recipient and donor countries with respect to RBF, especially emphasizing their understanding of ‘results’ or ‘performance’ upon which funding is based. Moreover, such analysis aims to understand the processes of stakeholder alignment in the bilateral agreements of the Amazon Fund and the discursive tensions that arise from them.

3.3. Research methodology

The primary data of this research paper entails thirteen semi-structured interviews conducted by the first and second author between 2012 and 2017. The criteria for interview selection includes the representativeness of either recipient or donor country as well as close involvement in discussions on the development of the Amazon Fund. Interviewees related to the donor countries (i.e. Norway and Germany) include officials of Norway’s International Climate and Forest Initiative (NICFI), the Norwegian embassy in Brazil, the German Development Bank (KfW) and the *Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ). Officials of the recipient country (i.e. Brazil) include the Brazilian Development Bank (BNDES), the Steering Committee (COFA) and Technical Committee (CTFA) of the Amazon Fund, as well as the Brazilian Ministries of Foreign Affairs (MRE) and Finance (MF). These interviews were supplemented with auxiliary expert interviews with observing scholars and NGOs. The interviews were recorded, transcribed and analysed using simple coding methods that initially emphasized the distinct financial transaction processes that, after analysis, were regrouped to reflect the interviewees’ concerns related to contract criteria, disbursement strategy

and emerging contradictions. This research paper also relies on secondary data that support the statements from the interview analysis, including relevant legislative documents, the donation agreement, the Amazon Fund project document, the minutes of COFA meetings, annual reports and website information (www.amazonfund.gov.br). Secondly, the empirical data was enriched and cross-checked with observations related to operations of the Amazon Fund, including onsite visits to Amazon Fund projects in the state of Mato Grosso, informal conversations with governmental officials, participation in a roundtable on the GIZ evaluation, and participation in meetings between recipient and donor countries. Finally, we circulated earlier versions of this article to key informants in order to check for inconsistencies of our findings and interpretations.

3.4. Brazil: result-based funding as a reward and support to national policies

Prior to the inception of the Amazon Fund in 2008, governmental organizations in Brazil were not favourable towards international forest governance debates, and particularly opposed the possibility of including forests in offset-based mechanisms like the original REDD+ concept (CARVALHO, 2012). In the first half of the 2000s, a change in administration engendered favourable circumstances for the reconsideration of this opposition. The idea of receiving financial compensation for deforestation reductions strongly appealed to governmental organizations in Brazil, but particularly MRE argued that these payments should not engender future obligations nor offset domestic emissions of donor countries. The sharp reductions in deforestation that took place between 2004 and 2012 have been one of the main leverage points for a strong Brazilian position in the international climate negotiations. In this context, the original idea of ‘Compensated Reduction of Deforestation’ developed into a REDD+ approach that revolved around a ‘sustainable development discourse’ (see VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015), which in 2008 operationalized the international financial support for domestic forest policy instruments with the establishment of the Amazon Fund (see decree 6.527/2008). An NGO representative observed that “countries like Brazil (...) do not admit something mandatory, or something a little bit more commitment, [but] always voluntary [in part due to] a history of sovereignty [concerns]”. As such, Brazil developed an understanding of RBF as reward for reducing deforestation already achieved rather than a contractual commitment to provide further reductions. This understanding of RBF resonates in the rules establishing the Amazon Fund and related bilateral agreements with Norway. Firstly, the Amazon Fund performs an annual monetary

valuation of emissions reductions (i.e. USD5/tCO₂) based on the difference between the actual deforestation rate and a 10-year historical average (i.e. baseline) that changes every 5 years, which reflects the fundraising limit (BNDES, 2018). Moreover, the minutes of the 16th COFA meeting (December 2014) indicated that MMA interpreted these annual calculations of the fundraising limit as cumulative, suggesting that the results between 2008 and 2016 allowed the Amazon Fund to receive a total amount of USD 21 billion according to CTFA calculations. Secondly, the Memorandum of Understanding as well as the donation agreements between Brazil and Norway repetitively employed the words 'donation' and 'contribution' for defining the nature of payment. This implies that the transfers of financial resources were permanent and do not require restitution in case of a reversal in deforestation trends. Finally, the decree establishing the Amazon Fund explicitly stated that the diplomas, which validate the payments and their correspondent emissions reductions, "are nominal, non-transferable, and do not generate rights or credits of any kind" (decree 6.527/2008, art. 2-2). This underscores the abstinence from offset-based transactions while still formally indicating the emissions reductions for which donor countries make their contributions.

The sovereignty concerns of Brazil can also be found in the structure of the Amazon Fund, albeit with some concessions. The nomination of the Brazilian Development Bank (BNDES), rather than the World Bank, as managing organization for the Amazon Fund stemmed from Brazilian demands for sovereign autonomy over the financial resources and institutional capacity for managing projects (HERMANSEN; MCNEILL; KASA; RAJÃO, 2017). At the same time, Brazilian legislation limits the use of donated financial resources to "preventing, monitoring and combating deforestation and promoting the conservation and sustainable use of the Amazon biome" (decree 6.527/2008, art. 1). While offset-based REDD+ projects would involve contractual emissions reduction targets in relation to business-as-usual emission projections (RAJÃO; MARCOLINO, 2016), project approval is based on their support to national policies for attaining (sub)national emissions reduction targets. The Amazon Fund Guidelines and Criteria for Resource Allocation determine that projects need to demonstrate, for example, "coherence with the national and state Action Plans for the Prevention and Control of Deforestation in the Legal Amazon – PPCDAM – (B5), which is an operational plan that aims to enhance monitoring and control, promote sustainable production activities and improve land title regulation. PPCDAm contributes to the attainment of Brazil's nationally determined contribution

(NDC), which proposed to “reduce greenhouse gas emissions by 37% below 2005 levels in 2025”. These observations indicate that the Amazon Fund is embedded within a broader political structure that aims to reduce emissions. According to a Brazilian diplomat, “one of the reasons that REDD+ cannot be offset is because calculating how much of the emission reduction is the result of national policies and how much is not, is something impossible and incomparable”.

Understanding the performance of the Amazon Fund in terms of its contribution to national policies for reducing carbon emissions has an important role in ensuring autonomy of resource allocation. The breadth of the actions covered by PPCDAM allows projects substantial flexibility to conform to the eligibility criteria of the Amazon Fund without necessarily proving how specific projects may induce deforestation and emission reductions. For instance, COFA decided in April 2014 (15th meeting) that the fund should give priority to ‘structuring’ projects, which in practice involved a particular focus on implementing the Rural Environmental Registry (CAR). CAR is an instrument of the new Forest Code that enhances landowner visibility, and thereby enforcement capacity, by providing land use information of all private properties across Brazil. As a consequence, around 60% of financial resources of the fund have been allocated to CAR projects (18th COFA meeting, August 2015). Concurrently, some studies have demonstrated that before 2015 CAR has not been systematically used for law enforcement and has not led to deforestation reductions (AZEVEDO; RAJÃO; COSTA; STABILE *et al.*, 2014; RAJÃO; AZEVEDO; STABILE, 2012). Therefore, the ongoing support for the implementation of CAR stemmed from a “faith that it is going to function” in the future and not by proven results, as noted by a member from COFA. These observations suggest that project performance indicators reflect their contribution to national forest policies (e.g. number of CAR registries) rather than achieved emissions reductions or obligations to do so.

3.5. Donor countries: results-based funding for future climate mitigation

Norway and Germany, represented by NICFI and by KfW and GIZ, respectively, share a common interest in donating to the Amazon Fund for a number of reasons. Firstly, these organizations have a long history in development aid that is continued with their involvement in the Amazon Fund. During the 1990s and early 2000s, Germany led a group of countries that supported the Pilot Programme for the Conservation of Brazilian Rainforests (PPG7). As PPG7 came to a close, Germany saw in the

Amazon Fund the opportunity to continue and scale up their support to forest conservation initiatives. In this regard, a GIZ official argued that “now it was time [...] to really have a policy active in the whole of the Amazon, no longer by means of a pilot programme”. In Norway, development aid was given a boost after socioenvironmental NGOs successfully placed forests on the political agenda, particularly emphasizing the cost-effectiveness of investing in deforestation reduction in tropical countries rather than domestic action as an important factor (HERMANSEN, 2015). A few years later, a press release by the Norwegian Ministry of Climate and Environment (2015) quoted the statement by minister Sundtoft that “extending the [NICFI] initiative is the best contribution Norway can provide to a good agreement [during COP21] in Paris”. While the donations to the Amazon Fund cannot involve formal offsets due to Brazil’s resistance and have no link to the country’s NDC, some scholars have argued that the support from Norway, while formally still development aid, denotes a ‘political offset’ for domestic emissions (ANGELSEN, 2017; HERMANSEN; MCNEILL; KASA; RAJÃO, 2017). As such, the donations of financial resources to the Amazon Fund are aimed at incentivizing future emissions reductions from deforestation and forest degradation, thereby representing a contribution to tackling climate change.

While the donors saw the Amazon Fund as part of their climate mitigation strategy, they also understood and abided to rules of the fund and the related Brazilian understanding of RBF. Donors recognized that the payments are made in reference to emission reductions from deforestation already achieved by Brazil in the past and accepted that Brazil is not obliged to demonstrate the how Amazon Fund projects contribute to additional reductions. A KfW official asserted that “it was not imposed on [BNDES] to deliver these numbers, because (...) what [KfW] pays for was already obtained”. Instead, donor countries acknowledged and rewarded the historical achievements of Brazil as reflected in the calculations of the fundraising limit (see section 4). An official of the Norwegian embassy explained that:

“It is very hard to prove in a scientific way that this partnership has produced those results, but that is not the point. The point is that the results are coming in and Norway wants to support those results by recognizing results-based efforts and contributing with financial

support to Brazil. And we believe that Brazil will continue to reduce deforestation, and that is the main basis of the desire to want to continue the partnership.”

At the same time, donor countries still assured their contribution to incentivizing further emission reductions as the allocation of financial resources by BNDES is conditional upon reinvestment in projects that contribute to further achievements (see section 4). In this respect, as a NICFI official illustrated, the ‘hands-off’ approach to their contract with BNDES stemmed from a confidence that BNDES “cannot spend it on the army [or] build a public park in Rio de Janeiro”.

Donor countries also agreed with Brazil on the importance of ‘structuring’ projects that add to ongoing governmental policies, rather than isolated initiatives. An official of the Norwegian embassy, for example, argued that “you cannot [reduce deforestation] with projects [alone], the government needs to change its policy and incentive structures”. Extending this argument, a GIZ official claimed that “the Amazon Fund is a very important instrument for (...) consolidating Brazilian environmental policies”. In addition, this GIZ official added that, from a perspective of providing technical support, “Brazil is an anchor country [since] they already have the knowledge and economic power that allows for bilateral technical cooperation with Germany”. As such, donor organizations highly valued the competence of BNDES as assurance that the financial resources will be adequately employed for achieving further deforestation reductions. A KfW official concluded that donating to the Amazon Fund is “kind of a safe bet, because there was diminished deforestation and (...) the method of calculation was conservative”. Moreover, donor countries intended to provide financial support for institutional changes that adequately address deforestation. In this respect, for example, NICFI officials have reaffirmed that “CAR is an important instrument for supporting public policy in Brazil and supporting one of the most important tools they have for reducing deforestation, which is monitoring and control”. These intensions made it acceptable for donor organizations to evaluate the performance of the Amazon Fund on the basis of their support to national policy implementation rather than performance indicators that reflect project-level emissions reductions (e.g. ANACHE; TONI; MAIA; QUEIROZ, 2016).

3.6. Clashing conceptualizations of result-based funding

Although the interpretations of Brazilian and donor organizations agreed on many features of the Amazon Fund, there were some indications of diverging views between the two sides. Initial clashing conceptualizations arose with respect to spending the financial resources from donations. Donor organizations complained that by December 2012 the fund had only approved 36 projects and disbursed USD 55 million, less than half of the amount donated (see figure 1). Part of the reason involved the demanding guidelines and criteria for the approval of project proposals, for which BNDES requires the availability of financial resources for the entire project lifespan. In addition, NICFI was still following transfer procedures that demanded “an immediate, demonstrated and planned need” for financial resources from BNDES. Consequently, donor countries transferred USD 116 million in only five donations (BNDES, 2018), after which they started pressing BNDES to accelerate the very project approval procedures that they appreciated as sign of competence. The issue was resolved by efforts on both sides. As the number of project proposals to the Amazon Fund grew in subsequent years, donor countries were able to make up for the delay and transferred USD 654 million in 2013 (see figure 1). At the same time, NICFI operationalized changes in transfer procedures for all projects (not just Brazilian) in 2013 that liberated payments upon demonstration of emissions reductions, which were now in line with “annualized” budget approval procedures.

It was following the establishment of this new procedure to transfer annual payments based on results rather than needs that revealed the existence of clashing interpretations of the temporal aspect of results in the Amazon Fund. As mentioned above, the Amazon Fund accumulated the monetary values of annual results since 2006. However, both donor countries signaled that they are unwilling to make financial payments based on achievements too far in the past, especially if deforestation rates continue to rise. A KfW official, for example, articulated this concern quite clearly:

“For sure a donor would not want to pay for an achievement which is like ten years back. (...) The huge gains in 2004 to 2010, we would not want to pay for that. [Therefore], if you ask me how the Amazon Fund is doing, it is more like how they use the money they get to produce more results [in the future].”

While BNDES accumulated the monetary values of annual results since 2006 (see section 4), KfW's donation history shows that transactions made so far related to emissions reductions from 2009 onwards. This trend was most clearly observed in the transaction patterns of Norway. Since 2013, its payments have been exclusively based on emissions reductions achieved in the preceding year (BNDES, 2017; NORWAY, 2018). Moreover, NICFI officials have presented this rule as a guiding principle for its budget approval of donations to the Amazon Fund since the start. Only transactions from Petrobras, a national oil company donating to the Amazon Fund, have consistently related to results in 2006. These observations directly contradict the interpretation of the Brazilian government that the fundraising limit of the Amazon Fund is a cumulative monetary valuation of emissions reductions of which only 10% has been received. (see section 4). Officials from the two donor countries did not question Brazil's attempt to obtain payments based on the accumulated results via other sources, such as the GCF. However, the unwillingness of Norway and Germany to reward those results make it very unlikely that the fundraising limit may be met.

The clashing interpretations on the temporal aspects of results have very practical consequences for future donations as the calculative basis for fundraising limits (i.e. the difference between actual deforestation rates and the reference level) is declining. For instance, while the reference level for achievements from 2011 to 2015 was still built on the average deforestation rate between 2001 and 2010, and therefore included the substantial reductions of those years, the new reference level builds on the average deforestation rate between 2006 and 2015, thereby excluding some of these achievements. As deforestation rates have increased 7,464 km² in 2009 (year of first disbursements) to an estimated 7,893 km² in 2016, the monetary value of deforestation reductions dropped from USD 2.5 billion in 2015 to USD 41 million in 2017 (BNDES, 2018). This situation suggests that donations may dry up over time if results continue to wane, despite the accumulation of results in previous years.

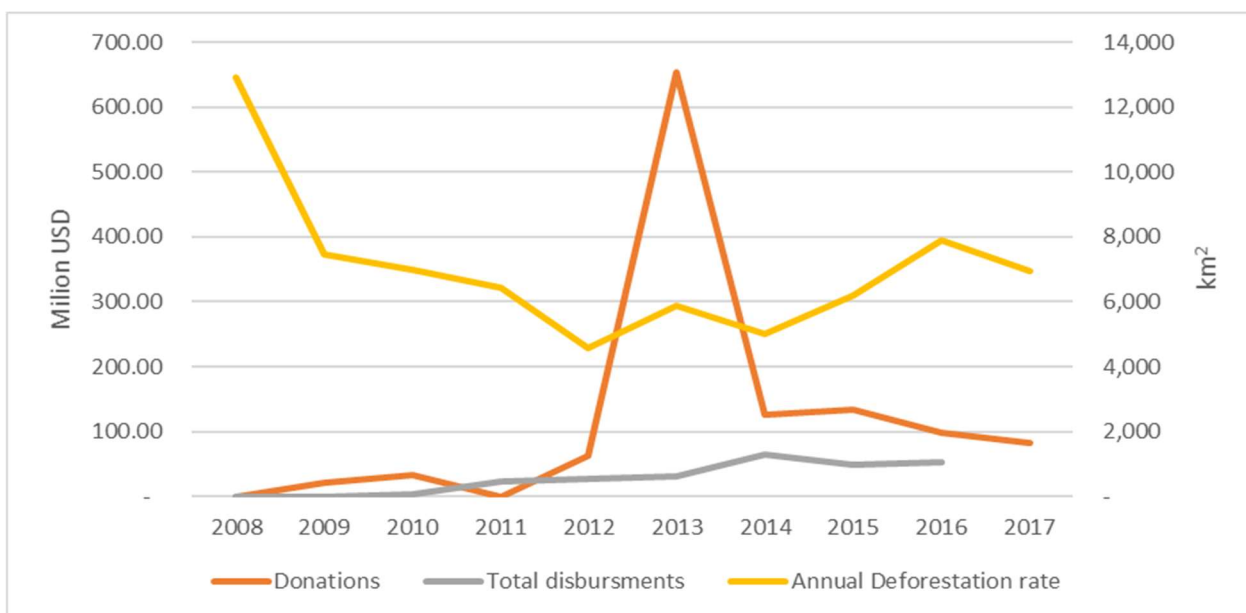


Figure 3: Donations, disbursements and deforestation rates per year – source: BNDES, 2017; PRODES/INPE⁷

A second clashing conceptualization emerged with respect to the epistemological approach to the attainment of valid knowledge on the results of projects supported by the Amazon Fund. While the calculation of the fundraising limit (i.e. emissions reductions) has not been challenged, some governmental bodies within the donor countries started to be concerned with the disconnect between these calculations and the basis for financial resource distribution (i.e. policy alignment). On the one hand, the donation agreement between Brazil and Norway in 2013 stated that the disbursements of contributions “shall be [...] based on fulfillment of the reporting requirements” (art. VI-3), including the submission of “reports and documentation assessing the contribution of the Fund in reducing emission from deforestation and forest degradation” (art. VIII-1). On the other hand, donor countries did not acknowledge that this information has been provided. A KfW official, for example, argued that *“there is not yet a monitoring process in place to get to the numbers of how much deforestation was avoided by these projects”*. Similarly, a GIZ official articulated that *“the Amazon Fund begins as a REDD+ [mechanism] for receiving resources but does not [apply] REDD+ for distribution”*. These sentiments seem to have instigated discursive conflicts and pressure to improve the functioning of the Amazon Fund. Norwegian officials also articulated their concerns

⁷ http://www.obt.inpe.br/prodes/prodes_1988_2016n.htm

during a high-level meeting held in March 2015, where BNDES, donor organizations, officials of the Brazilian government, NGOs and researchers came together to discuss the “evolution, challenges and perspectives” of the Amazon Fund. While recognizing the autonomy of BNDES in managing the Fund, Norwegian and German officials demanded for the first time a “stronger strategy focus” and the need to “review the priorities of the Amazon Fund”. One senior official from Norway articulated the concern that “the problem [of evaluating performance] is not to be solved with [...] more information at project level”, thereby hinting at the lack of information on aggregate contributions of the Amazon Fund to bringing down deforestation.

In spite of differing interests in and approaches to evaluating the performance of the Amazon Fund (see section 5), both donor countries agree on the importance of improving performance indicators. The Real-Time Evaluation of NICFI in 2014, for example, pointed out that BNDES did not comply with a provision in the donation agreement (art. 8.1) that requires the bank to publish “reports and documentation assessing the contribution of the fund in reducing emissions from deforestation and forest degradation”, even though the same report also acknowledges that this non-compliance is “not seen as a major concern for either party” (LTS INTERNATIONAL, 2014, p. 224). Correspondingly, the Norwegian Office of the Auditor General has published a report in May 2018 that also pointed to the need for improved the performance evaluation of projects funded by NICFI (RIKSREVISJONENS, 2018).

The concern with evaluation has been gradually materializing in Brazil. In 2016 GIZ and BNDES published an evaluation report that assessed the performance of an Amazon Fund project in relation to its objectives, but only one of the 44 guiding questions of its conceptual framework addressed the extent to which “the project has contributed or may come to contribute directly or indirectly to the reduction of emissions from deforestation or forest degradation” (ANACHE; TONI; MAIA; QUEIROZ, 2016, p. 71). This evaluation was followed by several other project evaluations conducted by GIZ and KfW, all of which addressed this question to some extent, thereby suggesting an increasing concern with the Amazon Fund’s contribution to reducing emissions. At the same time, these evaluations still admitted indirect contributions to emissions reductions and applied mostly qualitative performance criteria. Finally, German officials have reported new evaluation efforts by the United Nations

Economic Commission for Latin America (CEPAL) since 2018. It remains unclear, however, whether these evaluations will answer the concerns from donor countries about the fund's contribution to emission reductions, especially in a context of rising deforestation rates.

3.7. Discussion and conclusion

Our analysis shows that both recipient and donor countries have retained a general interpretation of the Amazon Fund as a promising and well-functioning mechanism for incentivizing deforestation reductions. While there has been some conflict in initial years, these have been quickly resolved as the Amazon Fund evolved. Concurrently, the failure to sustain Brazil's downward deforestation trend after 2013 (see figure 1) revealed a clashing interpretation of RBF in two fundamental ways. Firstly, interpretations have diverged about the temporal emphasis of the results for which financial resources were mobilized. Brazilian officials strongly argued that all results obtained since 2006 have merited a financial reward as those reductions have already benefited the planet. Although donor countries have agreed that such results should form the basis for payments, they are more concerned with the attainment of future results and have therefore made provisions to warrant the direct effectiveness of their donations. This is best reflected in Norwegian budget approval and (since 2013) financial transaction procedures that are exclusively based on results achieved in the preceding year, which safeguard incentivizes for the Brazilian government to generate further results. In this respect, donor countries have indicated that it is increasingly unlikely that the huge results obtained by Brazil between 2006 and 2013 will be translated into RBF payments in the future.

A second manifestation of clashing interpretations concerns the measurement of results in a valid way. For the Brazilian government is sufficient to measure the past results of emission reductions at biome in relation to a historical baseline, as defined by the Amazon Fund original agreement. In their view, the investments from Amazon Fund projects do not need to demonstrate the ability to provide additional reductions as long as the approved projects are in line with the guidelines of deforestation reduction policies. This view was challenged as donor countries have increasingly scrutinized the Amazon Fund in an attempt to substantiate the additional results generated by its supported projects. They found that the challenges to measuring the impact of indirect contributions to deforestation reductions (i.e. structural changes in the regional development model as well as increased

institutional capacity) may be insurmountable. In addition, an emphasis on performance indicators that more adequately reflect additional deforestation reductions from Amazon Fund projects may prevent such structuring projects from meeting the eligibility criteria for financial support. Following Turnhout, Neves and Lijster (2014), an insistence on performance indicators that reflect the direct impact of the Amazon Fund on emissions reductions reflects an impoverished foundation for disbursing financial resources, because it risks the underappreciation of the full complexity of deforestation dynamics in the Amazon. RBF approaches that emphasize carbon emissions, such as the original REDD+ concept, have been subject to severe criticism for their misrepresentation of local realities in policy-making as well as knowledge production (RAJÃO, 2013b; WILSON, 2013). Nevertheless, these demands for demonstrating the results of the Amazon Fund in scientifically rigorous manner are likely to become an important topic for donor countries. This is also true for the scientific community and NGOs, who have so far kept their criticisms largely behind closed doors (HERMANSEN; MCNEILL; KASA; RAJÃO, 2017). One may therefore expect that a return to the discussion on what ultimately constitutes good governance for addressing environmental issues (see HOOD; PETERS, 2004; LYNN, 1998).

The issues currently facing the Amazon Fund could also migrate to UNFCCC debates, especially on the definition on how the Green Climate Fund will operate and make RBF payments. A renegotiation of the basic principles of RBF, as currently expressed in the Warsaw Framework for REDD+, is still unlikely (MÜLLER; FANKHAUSER; FORSTATER, 2013; VOIGT; FERREIRA, 2015). At the same time, “tying payment to quantified results would enable funders to take a more hands-off approach to determining how funds are used”, which appears to be increasingly conditional on the ability to demonstrate the effectiveness of RBF activities (MÜLLER; FANKHAUSER; FORSTATER, 2013, p. 4). In this context, two scenarios are more likely to occur. In the first scenario, donor and recipient countries may still consider bilateral agreements that build on the RBF model defined by the Warsaw Framework for REDD+, but include requirements for measuring results generated by the new investments in addition to the existing demonstration of past results. For instance, this could involve measuring emission reductions at project level without issuing or transferring offsets. In the second scenario, countries may slowly abandon the RBF model and invest instead in the potential new mechanisms that are currently under negotiation in international environmental governance debates.

These include, most notably, the internationally transferred mitigation outcomes (ITMOs) under Article 6.2 of the Paris Agreement.

Notwithstanding the modality of forest finance, it has become clear that performance indicators continue to be a critical but controversial issue in both scientific literature and political debates on RBF. More specifically, an important question for scientific research is whether and on what grounds alternative RBF instruments containing a more direct relation between the project performance and their impact on central objectives, such as the (contractual) emissions reduction obligations that are characteristic of offset markets, become considered as substitutes for aid-based RBF instruments, especially when the latter fails to meet stakeholder expectations. The Amazon Fund must be considered as a unique and important experience in many ways, most notably its longstanding history, volume of donations and its support to numerous projects. As such, it has many lessons for the implementation and operationalization of RBF not only in Brazil but also in and between other countries that aim to undertake similar efforts. As political debates still struggle to find the most adequate approach to financing deforestation reduction, we believe that the considerations presented in this paper are a necessary first step towards the improvement of financial instruments for addressing climate change.

4. CAN REDD+ STILL BECOME A MARKET? RUPTURED DEPENDENCIES AND MARKET LOGICS FOR EMISSIONS REDUCTIONS IN BRAZIL⁸

The clashing interpretations of results in the Amazon Fund and the consequent openness of political debates to the possibility of alternative financial instruments for REDD+ raise questions about the probability that the latter may in fact occur. Although there is no immediate suggestion that market instruments are the first and foremost candidate to substitute results-based funding, they do seem to represent the other end of a spectrum of potential approaches to REDD+ finance. Indeed, chapter 2 has demonstrated a polarized and parallel materialization of the sustainable development discourse that revolved around the Amazon Fund and the carbon conservation discourse that applies a logic of market instruments. Combining the critiques on results-based funding and market instruments as the most proximate alternative, the present chapter aims to analyze the existence of epistemological foundations for shifting towards market instruments.

The introductory chapter of this dissertation already explained that the epistemological positioning of this research extends beyond the politics of discourse and considers deeper layers of social structures as well. While chapters 2 and 3 involve an analysis of the politics of discourse, the present chapter explores these deeper layers. More specifically, it analyzes the foundational structures of market instruments and projects them on the institutions associated with the sustainable development discourse. In this way it is possible to understand at which depth political debates continue to influence these social structures and at which depth this influence ceases to have any effect. The outcome of this analysis helps to understand the malleability of financial instruments for REDD+.

At this point of the research it is useful to consider REDD+ development in Brazil more comprehensively than presented in chapter 2. In addition to the Amazon Fund, Brazil has established

⁸ An updated version of this chapter is published in *Climatic Change*:
Van der Hoff, R., Rajão, R. & Leroy, P. (2019). Can REDD+ still become a market? Ruptured dependencies and market logics for emission reductions in Brazil. *Ecological Economics*, 161, 121-129. <https://doi.org/10.1007/s10584-018-2288-x>

GTT REDD+ (2014) and CONAREDD+ (2015), has adopted ENREDD+ (2016) and has appointed SAIN-MF as its NDA. Although the Amazon Fund continues to be an exemplary institution, a consideration of the most contemporary institutional framework for REDD+ in Brazil provides a more reliable outlook on future trends.

4.1. Introduction

After almost 20 years of debating the concept of Payments for Ecosystem Services (PES), scholars have increasingly reached agreement about the non-market nature of existing PES schemes. Empirical observations demonstrated that most PES schemes do not constitute an environmental market at all (FLETCHER; BÜSCHER, 2017; MURADIAN; ARSEL; PELLEGRINI; ADAMAN *et al.*, 2013; PIRARD; LAPEYRE, 2014). Consequently, PES definitions have been modified from an emphasis on the trade between buyers and providers of ecosystem services (WUNDER, 2005) to “voluntary transactions between service users and service providers that are conditional on agreed rules of natural resource management for generating offsite services” (WUNDER, 2015, p. 241). In the context of forest governance, the conceptual development of “Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries” (REDD+) has been exemplary for these changes. In their historical account of REDD+ institutionalization, Den Besten, Arts and Verkooijen (2014) have described conceptual transformations that excluded a market-based approach due to critical concerns about the overemphasis on carbon, potential avoidance of emissions reductions from buyers and the dependence on technological solutions. Some national governments, most notably Brazil, were also critical of such approaches for similar reasons and have openly resisted them (CARVALHO, 2012). As a consequence, contemporary REDD+ schemes have been characterized by some scholars as ‘results-based aid mechanisms’ (ANGELSEN, 2017). These trends indicate that financial transactions still take place with respect to both PES and REDD+, but the conditions of these transactions are mutually agreed upon by trade parties rather than immediately related to the provision of ecosystem services (FLETCHER; BÜSCHER, 2017).

While the materialization of REDD+ strategies certainly divert from a characterization as a market instrument, more recent developments provide some subtle evidence that the use of market

instruments is not entirely off the negotiation table. Some scholars have argued that the Paris Agreement has contributed to a situation where the use of market instruments for REDD+ is “an open issue and remains very contested in the context of the UNFCCC (TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016, p. 8). The Warsaw Framework for REDD+ contributes to the ambiguity about the use of market instruments by retaining openness about their possibility yet abstaining from any predefined disposition towards their use (VOIGT; FERREIRA, 2015). Other scholars have suggested that REDD+ schemes obscure market-like relations, as donations are used as ‘political offsets’ in order to “respond to critiques regarding the lack of domestic efforts to reduce emissions” (ANGELSEN, 2017, p. 22). Finally, the prevalence of offset-based approaches to REDD+, albeit a minority, has been observed within some national contexts, most notably in Brazil (VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). If the REDD+ concept is decidedly not a market instrument, as acknowledged by most literature, on what basis are political debates on their possibility still persevering? In what way could REDD+ still become a market instrument?

This research paper aims to answer these questions by describing how the REDD+ concept still retains some of the rationales that underpin market instruments. For this purpose, we use the materialization of REDD+ in Brazil as a case study, since it is widely known for its resistance to carbon offsetting and currently has one of the most advanced REDD+ implementation processes in the world. In the next section, we discuss in depth the building blocks of environmental market instruments and develop an analytical lens that we call ‘ruptured dependence’. After explaining our research approach in section 3, we describe in detail how Brazilian REDD+ institutions reflect each of these building blocks and the extent to which the latter adhere to ‘ruptured dependence’ (section 4). Section 5 returns our argument to the use of market instruments for REDD+ schemes and explains why this issue still prevails in political debates. We conclude with some considerations for future REDD+ politics.

4.2. Environmental markets: building blocks and their critiques

Market instruments for environmental governance embody an approach to addressing environmental issues that aims to reduce destructive consequences of economic activity by building on the same logic that engendered them. Since the emergence of environmental awareness, particularly on climate change, many scholars have advocated a respect for the human dependence

on nature and the limits or planetary boundaries imposed by this dependence (MEADOWS; RANDERS; MEADOWS, 2004; ROCKSTRÖM; STEFFEN; NOONE; PERSSON *et al.*, 2009). According to Gómez-Baggethun and Naredo (2015), such calls for respecting planetary boundaries through more stringent public regulation and political intervention were mostly rejected in favour of an emphasis on economic growth, market instruments and technological solutions. In the same line, economists advocate the decoupling of economic growth from its negative environmental consequences (MEADOWS; RANDERS; MEADOWS, 2004; PEARCE; MARKANDYA; BARBIER, 1989) and frame market instruments as most efficient approach to addressing environmental problems (MENDELSON, 2006). Market instruments thereby embody the conviction that environmental problems exist because “environmental goods and services, and the general functions which environments serve (e.g. as a waste sink), are not invariably bought and sold in the marketplace” (PEARCE; MARKANDYA; BARBIER, 1989, p. 51). Economists argue that such market instruments advance the internalization of externalities by incorporating environmental consequences into decision-making processes (TIETENBERG; LEWIS, 2012), which seems to acknowledge the human dependence on nature. As mainstream approaches to environmental problems, including markets instruments, build on economic conceptualizations (GÓMEZ-BAGGETHUN; NAREDO, 2015), however, these instruments perpetuate a world view in which “the rational egoist of orthodox, neo-classical economics is [...] independent from social, biological and ecological needs and relationships” (BARRY, 2007, p. 212). This sets up a paradox: the use of market instruments reflects an attempt to incorporate human dependence on nature into economic systems without altering its ontological foundations that assert the opposite.

The critical literature on market instruments for environmental governance sheds some light on this paradox by demonstrating that the incorporation of human dependence on nature is far from comprehensive. Some scholars have argued that environmental market instruments build on fragmentary representations of reality by isolating only one element of an essentially highly complex system (ARSEL; BÜSCHER, 2012; FARNSWORTH; ADENUGA; DE GROOT, 2015; TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016). More broadly, these representations often obscure the ecological, economic and political dimensions of the reality of environmental issues, which some scholars refer to as a ‘commodity fetish’ (KOSOY; CORBERA, 2010; NORGAARD, 2010; PETERSON;

HALL; FELDPAUSCH-PARKER; PETERSON, 2009). In this respect, the construction of environmental markets oversimplifies these issues in order to render markets viable (MORENO; CHASSÉ; FUHR, 2015; STEPHAN, 2012). Other scholars have extended this critique of reductionism to the attribution of monetary values to nature, arguing that “possibly some of it, probably not most of it, and definitely not all of it” is adequate for monetary valuation (FARNSWORTH; ADENUGA; DE GROOT, 2015; HAJKOWICZ, 2007, p. 25; SPANGENBERG; SETTELE, 2016). Moreover, monetary values reflect only one of many approaches to making value judgements and ‘crowd out’ “a complex amalgam of intuitions [...], beliefs, norms, principles, dispositions, attitudes, emotions, passions and sentiments” that motivate nature protection (GRAEBER, 2001; HILL, 2006; LO, 2014; NEUTELEERS; ENGELEN, 2015, p. 256). Rather than incorporating the human dependence on nature comprehensively, this critical literature implies that market instruments reproduce what we call a ‘ruptured dependence’, which becomes clear through a closer scrutiny of the building blocks of market instruments, namely singularization, monetary valuation and appropriation.

Environmental market instruments build, first and foremost, on a clear understanding of the object of trade that will contribute to nature conservation. More specifically, they require the characterization of a singular object (‘qualification’), the expression of these characteristics into common metrics (‘commensuration’) and the decontextualization of the tradable object (‘disentanglement’), a process also described as ‘singularization’ (CALLON; MUNIESA, 2005; LOVELL; LIVERMAN, 2010; STEPHAN, 2012). Many environmental markets define their trade objects in terms of restrictions to use rights of natural resources (e.g. LAM; PITCHER, 2012; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). Since the late 1990s, environmental markets also increasingly build on a conceptualization of natural properties in terms of ‘ecosystem services’, which denote the “supply of valuable products and materials, support and regulation of environmental conditions and provision of cultural and aesthetic benefits” and include services like climate regulation, biodiversity, protection against flooding, and even psychological and spiritual wellness (ARMSWORTH; CHAN; DAILY; EHRLICH *et al.*, 2007; FEARNSIDE, 1997; FOLEY; ASNER; COSTA; COE *et al.*, 2007, p. 25). In this respect, reducing emissions from deforestation, for example, contributes to the preservation of such ecosystem services (BOYD; BOYKOFF; NEWELL, 2011; WORLD BANK, 2016).

The construction of singular and tangible trade objects builds on scientific knowledge that represents the mechanics (i.e. 'the gears and bolts') of natural systems that starkly contrasts with alternative (i.e. emotional or spiritual) knowledges (BARRY, 2007; WORSTER, 1994). Consequently, understanding nature means "reducing plants and animals to insensate matter, mere conglomerates of atomic of atomic particles devoid of internal purpose or intelligence", and as such becomes controllable and manageable in a way that removes "the remaining barriers to unrestrained economic growth" (WORSTER, 1994, p. 40). Environmental markets related to emissions reductions (i.e. carbon offsetting) build on a mechanistic understanding of climate change dynamics that problematizes the contribution of carbon emissions from deforestation and forest degradation to global anthropocentric greenhouse gas emissions (ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012; WORLD BANK, 2016). Furthermore, such representations involve high-technology methodological approaches such as Forest Reference Emissions Levels (FREL), Measuring, Reporting and Verification (MRV) systems, and forest monitoring systems in order to quantify carbon emissions and carbon stocks (see VOIGT; FERREIRA, 2015). This mechanistic approach to understanding natural and environmental issues conceptualizes environmental issues in terms of a scarcity problem that is a direct consequence of natural resource depletion and Earth's diminishing carrying capacity (e.g. MEADOWS; RANDERS; MEADOWS, 2004). In this way the mechanistic approach to nature is integral to markets as it enables the subdivision of broad scarcity problems (e.g. overfishing or deforestation) into discrete rights (e.g. quantity of fish or forested hectares per quota) that can be transacted.

A second important building block for environmental markets concerns the conversion of knowledge about the aforementioned scarcity problems into a monetary value. According to Pearce, Markandya and Barbier (1989, p. 5), the scarcity of natural resources or ecosystem services only becomes meaningfully problematic when "something is provided at a zero price, [because] more of it will be demanded than if there was a positive price". By placing this scarcity problem "directly or indirectly in relation with the measuring rod of money" (PIGOU, 1920, p. 11), it becomes "reduced to a problem of scarcity of capital [and] considered as an abstract category that could be expressed in homogeneous monetary units" (NAREDO, 2003, p. 250). Building on this economic rationale, many scholars began advocating the attribution of monetary values to nature since at least the 1950s (BAVEYE; BAVEYE; GOWDY, 2013; CHICHILNISKY; HEAL, 1998; COSTANZA; D'ARGE; DE GROOT;

FARBER *et al.*, 1997; PEARCE; MARKANDYA; BARBIER, 1989; WUNDER, 2007). Estimations of the value of environmental benefits (i.e. willingness-to-pay) and environmental costs (i.e. willingness-to-accept) are among the most widely used methodologies, which estimates a perceived value of nature in the context of competing private interests (CHEE, 2004; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016; ZHANG; LI, 2005). Alternative approaches, albeit more generic, include calculations of the opportunity costs, or forgone economic benefits of reducing negative environmental impacts (ANGELSEN; BROCKHAUS; SUNDERLIN; VERCHOT, 2012; PAGIOLA; BOSQUET, 2009).

The monetary values described above refer to 'exchange values', or the "[purchasing power] that possession of an object can convey", rather than 'use values', or "the utility of some particular object" (GÓMEZ-BAGGETHUN; DE GROOT; LOMAS; MONTES, 2010; ZHANG; LI, 2005, p. 180). Basically, this attribution of a monetary value to nature functions as a common denominator for understanding environmental problems in the context of other priorities (COSTANZA; DALY, 1992; PEARCE; MARKANDYA; BARBIER, 1989). This conceptualization of monetary values as 'purchasing power' implies that the tradable objects of environmental markets become intelligible in comparison with alternative objects that are similarly attributed with an exchange value and may even allow a certain degree of substitutability. As a consequence, decision-making in environmental markets often involve a trade-off between two or more alternative approaches to environmental issues (CHEE, 2004; PEARCE, 1998; PEARCE; MARKANDYA; BARBIER, 1989; TIETENBERG; LEWIS, 2012). In compensating deficits of legal requirements determining the forested area on private lands, for example, rural producers may choose between reforestation on their property, purchasing other (forested) properties, or purchasing environmental reserve quota (not to mention accept penalties) in order to effectuate legal compliance (SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). This juxtaposition facilitates our understanding of the negative environmental consequences of economic activity by internalizing their monetary values into decision-making processes and could potentially redirect investments to minimize environmental harm (SOLOW, 1973).

The third and final building block of environmental markets concerns the appropriation of the tradable objects described above, where it is assumed that the establishment of individual property rights is both an institutional requirement for the functioning of markets and also an implicit end goal

of market interventions. As nature valuation translates natural resource scarcity into capital resource scarcity (see NAREDO, 2003), efficient allocation of capital resources becomes an important consideration in addressing environmental issues, a characteristic that is often attributed to markets instead of command-and-control approaches (LANE, 2012; MENDELSON, 2006; NEWELL; PIZER; RAIMI, 2012). Many contemporary proposals to establish environmental markets often emphasize efficiency gains as most important component, as has been argued with respect to, for example, payments for ecosystem services (e.g. WUNDER, 2007) and environmental reserve quota in Brazil (SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). In this respect, while economic scholars acknowledge that command-and-control policies may actually achieve efficiency gains in specific situations (see also COLE; GROSSMAN, 1999; WITTNEBEN, 2009), their primary function is mostly limited to correcting for market inefficiencies or establishing a strong institutional framework within which markets are to operate (TIETENBERG; LEWIS, 2012). Weaknesses in the latter function have indeed been identified as underlying factor for many contemporary environmental issues (see ARAUJO; BONJEAN; COMBES; COMBES MOTEL *et al.*, 2009; PUPPIM DE OLIVEIRA, 2008).

In sum, the processes of singularization, monetary valuation and appropriation reproduce a social order of ruptured dependence on nature. Singularization renders a clearly defined tradable object that reflects that part of nature upon which humans depend. Monetary valuation further decontextualizes nature and renders it commensurable with other trade objects within a particular modality of value judgements. Appropriation, finally, excludes consumption of nature by others and enables the possibility of exchange, which is legitimized on the basis of efficiency. This understanding of ruptured dependence will be the analytical lens through which we analyze REDD+ in Brazil.

4.3. Theoretical and methodological considerations

The central purpose of this research paper is to understand the extent to which REDD+ implementation in Brazil still retains the building blocks of environmental market instruments in spite of outspoken resistance to carbon offsetting. Such an analysis involves a search for similarities between the originally offset-based environmental market and the currently performance-based funding mechanism. This objective corresponds strongly with a Foucauldian analysis of the epistemological structure, or *episteme*, that governs the regularity of statements and practices in the

politics of discourse. This regularity concerns a set of rules that govern the relations between individual statements and practices, such that some become more possible or valid than others (FOUCAULT, 1970; 1972). Mannheim (1954) also recognizes a regularity in the use of the concept of 'collective-unconscious', which is continuously being shaped and reshaped by historical-social or situational motivations. More specifically, he describes thought structures that transcend reality in order to either maintain the status quo for largely political reasons (i.e. 'ideologies') or rupture the existing order in favor of a desirable new order (i.e. 'utopias'). Mannheim's approach emphasizes the role of agency in shaping and reshaping the 'collective-unconscious', whereas Foucault's approach focuses on how the existing order of things governs practices and statements. Since our interest is to understand the extent to which the building blocks of environmental market instruments are still reproduced within non-market instruments like REDD+, we follow the Foucauldian conceptualization of regularity that structure the politics of discourse with respect to REDD+ implementation in Brazil.

This paper adopts an interpretive approach to the analysis of Brazilian REDD+ policies in order to describe the regularities of market and non-market instruments in forest governance. According to Yanow (1999), interpretive policy analysis emphasizes the construction of specific interpretations of reality as reflected in the combination of various 'artifacts' (i.e. language, objects and acts). Extending this view, Foucault argued that such artifacts not only produce and reproduce specific practices and statements within a specific interpretation, but also convey the epistemic structures that govern how some are more possible than others. Since Brazilian REDD+ policy has only started to take shape after international REDD+ debates consolidated in 2013 (see below), most meaning still comes from language (e.g. debates, legislation, documents, plans, etc.) rather than objects (e.g. credits, diplomas, etc.) or acts (e.g. financial transactions).

The primary data for our research paper, therefore, builds on document analysis, which include national strategies and other submissions to UNFCCC, minutes of committee meetings and associated subgroups, and legislative documents, among others. This data has been complemented with participant observations during two series of workshops. The first series of workshops were organized by SAIN between September and December 2017 on the development of strategy for receiving results-based finance, whereas the second series of workshops was organized by MMA

between February and October 2018 on the development of a Safeguards Information System for REDD+ (SISREDD+). Finally, this research has benefited from a longitudinal study by the first author on the role of financial instruments for REDD+ governance since 2012, which has yielded 22 semi-structured in-depth interviews with key stakeholders in developing REDD+ in Brazil, as well as a longitudinal study by the second author on the formation of Brazilian forest policies since 2006, which has yielded over one hundred interviews. These interviews include representatives of the Ministry of Environment (MMA), Ministry of Finance (MF), Ministry of Foreign Affairs (MRE), the Brazilian Development Bank (BNDES), non-governmental organizations (NGOs) and representatives from state and municipal governments. Our analysis has paid particular attention to the building blocks of environmental markets, which were operationalized into three focus categories, namely (1) the indicators that measure results or performance (i.e. singularization), (2) the calculation basis for financial transactions (i.e. monetary valuation) and (3) the formal obligations involved in these transactions (i.e. appropriation).

4.4. Building towards results-based payments for REDD+ in Brazil

In November 2013, participants in the UNFCCC debates during COP13 in Warsaw agreed upon a series of decisions that established the Warsaw Framework for REDD+ (WFR), which became a milestone in international REDD+ development since its inception in 2003 (MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011; VOIGT; FERREIRA, 2015). Part of its importance stems from institutionalization of REDD+ that impedes or at least complicates carbon offsetting, which has been one of the main critiques in preceding debates (DEN BESTEN; ARTS; VERKOOIJEN, 2014). On the one hand, the WFR affirms that “results-based finance [...] may come from variety of sources, public and private, bilateral and multilateral, including alternative sources” (see decision 09/CP.19), which effectively allows for the use of market instruments. On the other hand, the possibility of carbon offsetting has been complicated by the agreement that “results-based actions that may be eligible to appropriate market-based approaches (...) may be subject to any further specific modalities for verification” (decision 14/CP.19, paragraph 15). Moreover, the WFR recognizes “the key role that the Green Climate Fund will play in channelling financial resources to developing countries and catalysing climate finance”. These provisions denote the institutionalization of a REDD+ concept that abstains from carbon offsetting, but scholars still anticipated that this issue remains highly contested in

political debates (TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016; VOIGT; FERREIRA, 2015).

For now, however, international REDD+ finance channels through the Green Climate Fund. The WFR has operationalized this by deciding that the obtainment of results-based finance by developing countries is conditional upon the provision of four elements established in 2010 during COP16 in Cancún (i.e. decision 01/CP.16, paragraph 71). These elements include, firstly, a national strategy or action plan in which the developing country describes how REDD+ is embedded within the national context and how it plans to develop the remaining three elements in a coherent REDD+ structure. The second and third elements concern national (or interim subnational) Forest Reference Emissions Level (FREL) or Forest Reference Level (FRL) as well as a robust and transparent forest monitoring system, which together enable the developing country to determine its results in terms of emissions reductions. Finally, developing countries are required to establish a system for providing information on addressing safeguards, which involve (a) consistency with national forest programmes, (b) transparency and effectiveness of national governance structures, (c) respect for knowledge and rights of indigenous peoples and local communities, (d) full and effective participation of relevant stakeholders, including indigenous peoples and local communities, (e) consistency with conservation of natural forests and biological diversity, (f) addressing the risk of reversals (i.e. impermanence), and (g) reducing displacement of emissions (i.e. leakage). This documentation currently mobilizes developing countries to make efforts for receiving results-based finance from the Green Climate Fund.

4.4.1. The Brazilian REDD+ structure in a post-Warsaw world

Prior to the first signs of an emerging REDD+ structure, the Brazilian government has been expressly resistant in international forest governance debates to the idea of using emissions reductions in tropical forests to offset carbon emissions in developed countries, which has been the premise of the Clean Development Mechanism and was also proposed for REDD+ in the early 2000s (CARVALHO, 2012). Instead, the Brazilian government sought opportunities for receiving financial compensation for the attainment of quickly dropping deforestation rates since 2004, which appeared in the context of Norwegian politics interested in providing development aid for emissions reductions in tropical

forests (HERMANSEN, 2015). The Brazilian and Norwegian governments reached an agreement in 2008, after which a Brazilian REDD+ structure started materializing with the establishment of the Amazon Fund (decree 6.527/2008). Under the administrative management of the Brazilian Development Bank (BNDES), the Amazon Fund would receive financial donations for the attainment of emissions reductions from forest-related activities, as verified by its Technical Committee (CTFA), and reinvest in project activities that seek to contribute to attaining REDD+ objectives, as governed by its Steering Committee (COFA) (BNDES, 2017). At least until the adoption of WFR in 2013, the Amazon Fund has been the most important REDD+ institution in Brazil, and continues to channel the majority of financial resources for REDD+ implementation in following years (VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015).

Immediately after the adoption of WFR, the Brazilian REDD+ structure started expanding with the adoption of new institutions and the redefinition of existing institutions, the outcome of which is reflected in figure 1. In 2014, MMA established the Technical Working Group on REDD+ (GTT REDD+) with the purpose of “elaborating and revising input for Brazilian submissions on climate change and forests” (see Portaria 41/2013). During the first three meetings in the same year, GTT REDD+ almost exclusively discussed the FREL methodology, the first version of which was submitted to UNFCCC in June 2014. In November 2015, four days before the decisive UNFCCC meeting in Paris, the Brazilian government established the National Commission of REDD+ (CONAREDD+). CONAREDD+ is responsible for the implementation of the National REDD+ Strategy (ENREDD+) and the compliance with requirements for access to results-based payments (decree 8.576/2015). During its initial years, CONAREDD+ consisted of three Thematic Consulting Chambers (CCTs) that provided a forum for discussing in more detail issues related to safeguards (CCT-Salv), coherence of multi-sector and multi-level governance (CCT-Pact) and fundraising and resource allocation (CCT-CDRNR). Together with GTT REDD+, these CCTs support CONAREDD+ in implementing REDD+ in Brazil and attaining access to financial resources from the Green Climate Fund. The latter objective has also become a responsibility, at least since March 2017, of the Secretariat for Strategic Affairs (SAIN) of the Ministry of Finance (MF) in its role as Nationally Designated Authority (NDA). Part of the SAIN’s responsibility is to assign accreditation to eligible organizations. BNDES has received automatic eligibility with the

establishment of CONAREDD+ (see art. 5 of decree 8.576/2015) and is awaiting accreditation, while other candidates are Caixa Econômica Federal (CEF) and the Brazilian Biodiversity Fund (FUNBIO).

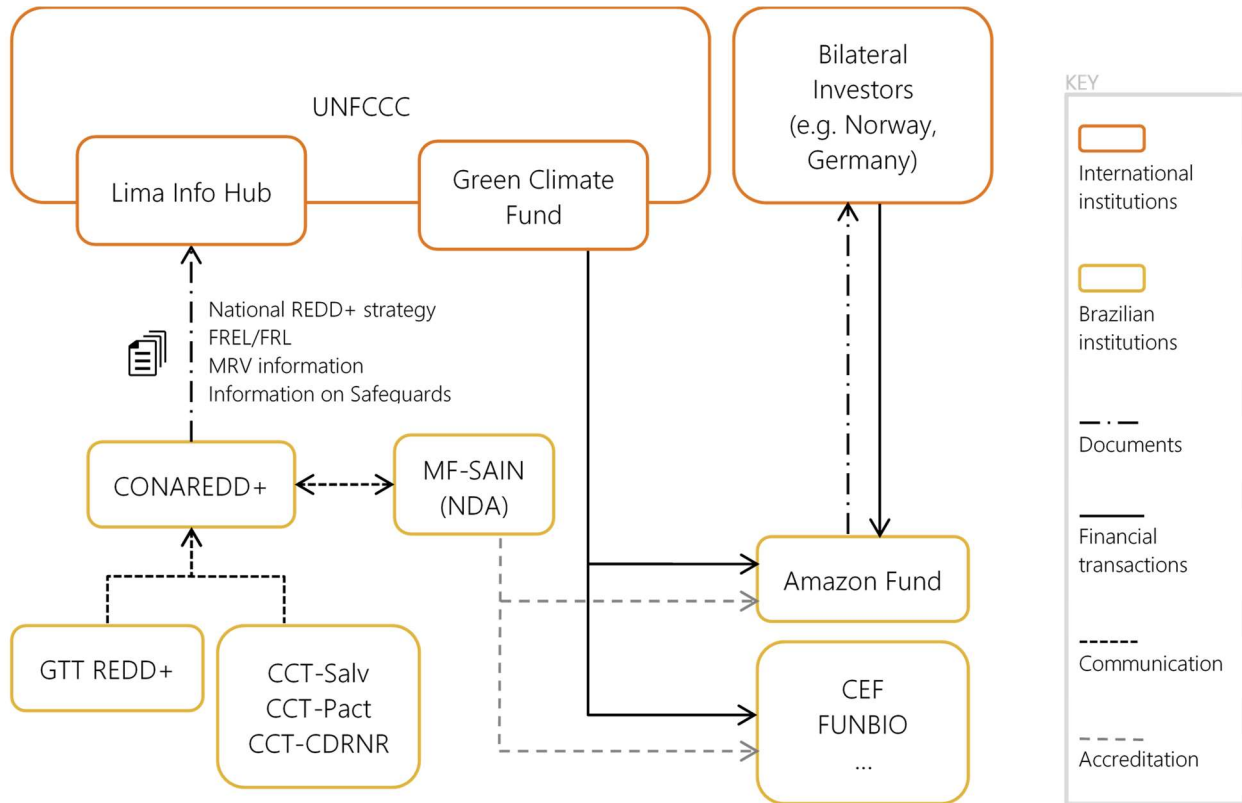


Figure 4: REDD+ governance structure in Brazil (adapted from (adapted from MMA, 2016, p. 29)

4.4.2. Definition of results

Approaches to and instruments for the singularization of REDD+ results abound in submission documents and was a recurrent discussion point during meetings of REDD+ institutions. Already in 2008 did the Amazon Fund establish a methodology for calculating its fundraising limit on the basis of historical results in terms of emissions reductions. In 2014, Brazil began preparations for the submission of FREL, which was extensively discussed during three GTT REDD+ meetings. By 2018, GTT REDD+ had elaborated and submitted two FRELS for the Amazon biome (2014 and 2018) and one FREL for the Cerrado biome (2017). FRELS for the remaining biomes, however, still require further elaboration. In addition, FRELS, the Brazilian government has been working on a Safeguards Information System for REDD+ (SISREDD+) during the period of our analysis, especially since 2018. For this purpose, CCT-Salv organized a series of workshops between February and October 2018. The

central objective of these workshops was to establish a set of indicators for evaluating the performance of REDD+ in terms of addressing safeguards.

The Amazon Fund has adopted a retrospective approach to results-based payments, meaning that results need to be demonstrated prior to receiving financial compensation. The methodology for determining these results starts with the obtainment of data from the Amazon Deforestation Calculation Programme (PRODES), a spatial monitoring instrument based on satellite images developed by the Brazilian Institute for Spatial Research (INPE). Since PRODES generates annual deforestation rates in hectares, CTFA applies an emission factor (i.e. 100-132.3 tC/ha) and a conversion factor (i.e. 3.66 tC-tCO₂) in order to transform this data into tCO₂ (BNDES, 2017). The resultant annual emission rates form the basis for calculating the reference levels that alter every five years. More specifically, these reference levels constitute average emissions levels for the periods 1996-2005 (i.e. 719 million tCO₂), 2001-2010 (i.e. 605 million tCO₂) and 2006-2015 (i.e. 298 million tCO₂), which are compared with actual emission levels for the periods 2006-2010, 2011-2015 and 2016-2020 in order to obtain the results in terms of emissions reductions. Based on these calculations, Brazil has achieved a cumulative emission reduction of 3,638.4 million tCO₂ for the period 2006-2015.

Although the methodology for the FRELs is more complex than the Amazon Fund reference level, the basic mathematical approach to the singularization of REDD+ results is quite identical. The first step is to calculate the annual CO₂ emissions since the first year of the reference period, namely 1996 for the Amazon biome and 2000 for the Cerrado biome. The outcome of this calculation depends on a wide variety of factors, most notably the definition and inclusion of activities (e.g. deforestation, forest degradation, etc.), pools (e.g. soil, biomass, etc.), and gases (e.g. CO₂, CH₄, N₂O, etc.), among others. These annual emission rates form the basis for calculating the reference levels that alter every five years. The FREL for the Amazon biome, for example, reflects the average emissions level for the periods 1996-2005 (i.e. FREL-A: 1,106 million tCO₂), 1996-2010 (i.e. FREL-B: 908 million tCO₂) and 1996-2015 (i.e. FREL-C: 750 million tCO₂), which are compared with the annual emissions levels of the periods 2006-2010, 2011-2015 and 2016-2020, respectively. Based on this comparison, GTT REDD+ confirmed that Brazil has achieved a total reduction of over 6,125.5 million tCO₂ in the period 2006-2015, which is substantially higher than the results reported by CTFA and may be attributed to

methodological differences. During the first meeting of GTT REDD+, an MMA representative clarified that “there is no problem in having a different design than the PNMC or the Amazon Fund, as long as it is consistent with the [forest] inventory”. A similar procedure also takes place with respect to the Amazon biome, where the FREL for the period 2000-2010 (i.e. 335.5 million tCO₂) will be compared with the annual emissions levels in the period 2010-2015, but these results still await the publication of Brazil’s third Biennial Update Report (BUR) on its national greenhouse gas inventory, expected in 2018.

While the singularization of emissions reductions has been successfully completed in preparation for receiving results-based finance, similar outcomes were not observed with respect to safeguards. More specifically, the establishment of performance indicators for safeguards and co-benefits have proven much more challenging than determining emissions reductions. The construction process of SISREDD+ aims to establish a number of performance indicators in order to evaluate the extent to which these safeguards are being addressed. During the first in a series of workshops organized by CCT-Salv to occur between February 2018 and October 2018, representatives of various organizations and social groups fervently debated an adequate set of indicators that would encompass and reflect all concerns. Initially, the debates rendered 52 indicators, but was quickly reduced to 16 indicators due to limited monitoring capacity. For instance, indicators related to safeguard ‘e’ (i.e. consistency with conservation of natural forests and biological diversity) have included reduction in species under threat of extinction, REDD+ finance for sustainable production and integrated management plans for protected areas, among many others. In absence of SISREDD+, however, the information on safeguards submitted by Brazil in May 2015 as well as a preliminary updated version of September 2017 involved a largely qualitative discussion on how the Cancún safeguards apply to the Brazilian context of REDD+ implementation. Furthermore, ENREDD+ argues that Brazil already has a few information systems related to safeguards, citing “the National Registry of Conservation Units (CNUC), the National System for Forest Information (SNIF), the National System of the Rural Environmental Cadastre (SICAR) and the Biodiversity Portal” (MMA, 2016, p. 24). None of these information systems, however, integrally address all REDD+ safeguards, which illustrates that a singularization of safeguards remains a tough challenge for policy-makers.

4.4.3. Valuation of results

As REDD+ implementation in Brazil encompasses a broad array of performance indicators, only results in terms of emissions reductions have been subject to monetary valuation. Already since 2008, the Amazon Fund has valued these results at USD 5.00 per tCO₂ (BNDES, 2017). As such, the results obtained in the period 2006-2015 translate into a cumulative fundraising limit of USD 18.2 billion. The Green Climate Fund has adopted a similar approach after adopting decision B.18/07 in November 2017, which allows the allocation of up to USD 500 million for proposals to the “REDD-plus results-based payments pilot programme” on the basis of USD 5.00 per tCO₂. Extrapolating this logic to the results reported by the FRELs for the Amazon biome, for example, this price would allow Brazil to receive over USD 30.6 billion for results obtained in the period 2006-2015. In spite of emissions reductions being the only results with a monetary value, governmental representatives maintain that REDD+ contributes to objectives beyond climate change mitigation. During the first meeting of GTT REDD+ in February 2014, for example, an MRE representative explained that “REDD+ is not just carbon”, but also encompasses safeguards and co-benefits (i.e. “carbon is just a proxy”). Still, potential recipient countries of results-based payments must provide information on how non-carbon benefits and safeguards have been obtained. In this respect, these non-carbon results are also represented in the valuation of emissions reductions as they pose conditional requirements for receiving results-based payments. Such requirements are not yet demanded in the context of the Amazon Fund, but the integration of the Amazon Fund with broader REDD+ initiatives has been a concern that was raised during the first meeting of CCT-Salv.

4.4.4. Modalities and conditions of payments

Corresponding to the Brazilian position with respect to forest finance in early international forest governance debates, Brazilian REDD+ institutions have formally retained the non-offset nature of results-based payments. The first traces of evidence emerge with the establishment of the Amazon Fund by decree 6.527/2008, which determines that “the diplomas [for results-based payments] are nominal, non-transferable and do not generate rights or credits of any kind” (art. 2, §2). Similarly, the establishment of CONAREDD by decree 8.576/2015 included the determination that “results-based payments and their respective diplomas cannot be used, either directly or indirectly, for the purpose of meeting mitigation commitments of other countries” (art. 6). In December 2016, this statement was

reiterated by CONAREDD+ in resolution 5, explaining that “results-based payments do not constitute an international transfer for the purpose of meeting mitigation obligations of other countries” (art. 1, VI). This retainment of the non-offset nature of REDD+ finance reinforces that results-based payments are essentially retrospective, that is, based on achievements realized in the past rather than directly conducive to future achievements.

The attainment of future REDD+ results is pursued by means of guidelines and criteria for the redistribution of the financial resources obtained from results-based payments. In this respect, the formal agreement between donor countries and BNDES, for example, obligated the latter to report on “the contribution of the [Amazon] Fund in reducing emission from deforestation and forest degradation” (art. VIII-1). Furthermore, the guidelines and criteria for Amazon Fund projects warrants the coherence of project objectives with national policies, including ENREDD+, that seek to reduce emissions from forest-related activities. Similar provisions have not yet been fully elaborated in the context of CONAREDD+ except for a proposition in resolution 6 that state government should evenly distribute their resources on the basis of native forest cover and deforestation reduction. This suggests that guidelines and criteria for redistributing financial resources is ultimately a concern for accredited entities such as the Amazon Fund, which contrasts with the historical emissions reductions that for the basis for fundraising efforts as discussed in section 4.2. This point was raised by the first author during the series of workshops on results-based payments from the Green Climate Fund. In response, SAIN presented as one of the outcomes that “REDD+ results-based payments are a modality of country support and not a specific theme for investments”.

Although the materialization of the Brazilian REDD+ structure has moved away from offset-based approaches to results-based payments, the possibility of offsetting carbon emissions has not been definitively removed from REDD+ debates. During COP22 in Marrakesh in 2016, for example, a number of Brazilian organizations offered a letter to the Brazilian federal government arguing that the Brazilian position on offsets should be reconsidered. This letter, known as the Marrakesh Letter on REDD+, has already evoked much reaction from the Brazilian federal government, albeit still without an official response, as well as from other organizations either supporting or criticizing such a reconsideration. Another such event occurred during a CONAREDD+ meeting in June 2017, state

government representatives demanded the possibility of commercializing REDD+ results on voluntary markets in order to open up alternative fundraising opportunities, or at least opening up debates in CONAREDD+ meetings for discussing offsets. Many participants, most notably federal government representatives, defended that the formal understanding of UNFCCC outcomes refrains from offset-based mechanisms. Instead, they relegated such debates to alternative forums and institutions like the Brazilian Climate Change Forum (FBMC) or the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). CONAREDD+ did not agree on the incorporation of this suggestion from state government representatives, but rather soothed their demands by stating in resolution 6 that “those interested in fundraising through voluntary schemes [...] must declare [...] that they are aware that these exclusively represent one financing modality” (art. 5, §2). Concurrently, the same resolution reaffirmed that receipt of results-based payments “do not generate [...] the right to realize international transfers for the purpose of meeting international mitigation commitments” (art. 5, §3).

4.5. Resonating market logics in REDD+ materialization

Although REDD+ development has generally been characterized as a results-based funding mechanism (ANGELSEN, 2017), our analysis of Brazilian REDD+ institutions has observed a retainment of the building blocks of environmental markets to some extent. We described how REDD+ in Brazil, in responding to the declining capacity of tropical forests to provide ecosystem services, emphasized the mechanical role of forests activities as sources (i.e. deforestation) or sinks (i.e. forest cover) of carbon dioxide. As illustrated in section 4.2, this conceptualization underpins the REDD+ methodology that compares annual deforestation rates with a reference level in order to derive the results that merit financial payments. We found few evidence, however, that REDD+ in Brazil builds on a more comprehensive understanding of forest and deforestation dynamics. While the first efforts to establish performance indicators for social and environmental safeguards have begun, our observations suggest that they are unlikely to cover all 17 ecosystem services provided by tropical forests (COSTANZA; D'ARGE; DE GROOT; FARBER *et al.*, 1997) or reflect broader understandings of nature. These findings indicate that, in the context of REDD+, singularization (CALLON; MUNIESA, 2005; STEPHAN, 2012) has been achieved to a large extent for performance indicators on carbon emissions and are only emerging for non-carbon performance indicators.

The Brazilian REDD+ structure has attributed a monetary value to only one of the performance indicators, namely emissions reductions (see section 4.3), thereby suggesting that the central tenet of REDD+ remains emissions reductions, whereas non-carbon elements of REDD+, most notably safeguards, became auxiliary conditions for results-based payments at best. While the monetary values attributed to emissions reductions may facilitate a commensurability of emissions reductions, however, we did not find evidence that they convey a substitutability with alternative policy options. The monetary values referred to in the Brazilian REDD+ structure constitute fundraising limits for recipients of financial resources rather than commodities. By contrast, safeguards did not and will not receive any attribution of monetary values. Since they are clearly an important requirement for results-based payments from the Green Climate Fund, this suggests that safeguards pose a conditionality for such payments and do not constitute a final objective. Moreover, we found no evidence that REDD+ in Brazil builds on a more pluralistic foundation for value judgments. Stakeholders of the Brazilian REDD+ structure and participants in its institutions clearly expressed their understanding that REDD+ mobilizes financial resources, thereby underscoring monetary value judgements. One may argue that some safeguards, most notably respect for the knowledge and rights of indigenous peoples and local communities, includes alternative value judgements into decision-making processes (NEUTELEERS; ENGELEN, 2015), but it is still unclear under which circumstances either UNFCCC or Brazil have met these conditional requirements for results-based payments. These findings confirm that REDD+ remains faithful to its core objective of attaining emissions reductions and attributes monetary values accordingly.

Evidence for the appropriation and subsequent exchange of trade objects has not been found during our analysis, but there were clear indications of political pressure in favour of this final building block. Many stakeholders have argued for the diversification of REDD+ finance, which is illustrated by the appeals from state government representatives during CONAREDD+ meetings as well as the Marrakesh Letter on REDD+ signed by various organizations. Other stakeholders have raised concerns about effectiveness of existing REDD+ institutions as rising deforestation rates between 2013 and 2017 have jeopardized positive results in comparison with reference levels and thereby reduce the methodological foundation for results-based payments. Rather than engaging in polemic debates about whether market instruments are more efficient than alternative mechanisms (COLE;

GROSSMAN, 1999; MENDELSON, 2006), these stakeholders may instead consider market instruments due to the ineffectiveness of results-based funding mechanisms. These lines of argument currently undermine Brazil's sovereignty concerns that have been very influential in diverting REDD+ debates away from offset-based approaches (CARVALHO, 2012; VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). One may argue that the resistance to carbon offsetting has been institutionalized in Brazil, which has been an argument used by MMA to ward off political pressure. However, our observations suggest that this institutionalization is not (yet) conclusive and may occupy forest politics in the future.

Although our discussion has demonstrated that REDD+ institutions in Brazil adhere only partially to the building blocks of market instruments, we argue that the regularity of actions and statements related to these institutions is governed by an existing order of ruptured dependence. The representation of nature in terms of performance indicators and reinforced by monetary values does not encompass all nature, in spite of recent attempts to do so through safeguards (see HAJKOWICZ, 2007). Moreover, monetary value judgements imply a temporary dependence on nature in addition to a further reduction of nature. The idea of a fundraising limit, for example, implies the view that the dependence on nature will cease to be relevant once the totality of financial resources has been received and the 'debt' will be paid for. These propositions repudiate the economic argumentation that the effort of 'internalizing externalities' (PEARCE; MARKANDYA; BARBIER, 1989; TIETENBERG; LEWIS, 2012) contributes to the integration of human and natural systems. The existing order of ruptured dependence does not, however, irrevocably justify the prevalence of market instruments over alternative approaches, which denotes that appropriation is subject to the politics of discourse. One may argue that Wunder (2015) acknowledged the political nature of market instruments as he revisited his understanding of PES schemes, since he removed the appropriation of nature from the definition by changing the emphasis from 'exchange' to 'conditionality' and from 'service buyers' to 'service users' (FLETCHER; BÜSCHER, 2017). At the same time, service users that are interested in obtaining 'political offsets' (ANGELSEN, 2017) may consider alternative channels for climate finance when the conditions, or perceptions thereof, are not met. The first traces of such consequences have already been observed with respect to the Amazon Fund.

4.6. Conclusion

Although we agree with most literature that REDD+ cannot be characterized as a market instrument for carbon offsetting, we found substantial evidence that suggest a potential for transformation, at least in Brazil. We have identified that REDD+ institutions in Brazil adhere to at least two building blocks of environmental market instruments, namely singularization and monetary valuation. Furthermore, we have shown that the resistance to market instruments, albeit institutionalized, still pertains to the politics of discourse. This was observed with respect to two particular argumentations. Firstly, some stakeholders have articulated their interest in a more diversified access to financial resources that, in their view, market instruments could provide. Secondly, and more significantly, other stakeholders have raised concerns about the effectiveness of existing REDD+ activities to which they make financial contributions in the form of donations to the Amazon Fund. While the former argument reflects a political interest in more diverse approaches to the appropriation of nature, the latter may hint at structural problems related to singularization and monetary valuation processes. These observations indicate that the prevalence of market instruments in REDD+ debates do not build on a predefined determination of superior efficiency, but are instead a reflection of either deeper structural problems related to ruptured dependence or diverging stakeholder interests in the politics of discourse.

It seems useful to further investigate the extent to which ruptured dependence indeed constitutes a governing social structure for a variety of financial and economic instruments as well as environmental policy-making in general. This latter proposition emanates from of the observation by some scholars that environmental policy-making has been mostly inspired by economic rationales (BAVEYE; BAVEYE; GOWDY, 2013; GÓMEZ-BAGGETHUN; MURADIAN, 2015; GÓMEZ-BAGGETHUN; NAREDO, 2015). If this investigation were to yield positive results, then it will be necessary to further develop the theoretical and philosophical foundations on which the concept of ruptured dependence builds. The development of such a theoretical framework for ruptured dependence could inform environmental and forest governance debates on the underlying foundations for appeals to the use of market instruments. More specifically, this framework will be useful for identifying whether such appeals reflect structural problems related to the reproduction of ruptured dependence or whether they reflect stakeholder interests that emerge in the politics of discourse. Understanding these

dynamics could help policy-makers to decide whether market instruments are indeed necessary or whether adjustments in alternative financial instruments are preferred. Of course, ruptured dependence may also reignite more critical arguments for a more comprehensive relation between humans and nature.

5. THE POLITICS OF ENVIRONMENTAL MARKETS: ADVOCACY COALITION'S STRUGGLE TO OPERATIONALIZE THE BRAZILIAN TRADE IN FOREST CERTIFICATES⁹

Although REDD+ has become a central concept for forest governance in Brazil, it does not reflect the full spectrum of political debates on the use of financial instruments. As argued in the introductory chapter of this dissertation, the underlying argumentations for resisting market instruments for REDD+ (i.e. national sovereignty concerns) may not apply to the use of such instruments for domestic forest governance. The present chapter aims to balance the findings of previous chapters with an analysis of a such a domestic market instrument, namely forest certificates trading. This market is particularly interesting for a number of reasons. First and foremost, it is indirectly related to the Brazilian REDD+ governance structure as it is a flexibility instrument for the Brazilian Forest Code. As suggested in early contributions (MOUTINHO; STELLA; LIMA; CHRISTOVAM *et al.*, 2011) and confirmed in recent years (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016), the Brazilian Forest Code is an important building block for REDD+ implementation in Brazil and was explicitly mentioned as such in ENREDD+ (MMA, 2016). This includes the policy instruments adopted by the Brazilian Forest Code, such as the Rural Environmental Registry (CAR) and the Environmental Reserve Quota (CRA). Another reason is the extensive and inconclusive development of the Brazilian trade in forest certificates. Assuming that the trade in forest certificates corresponds with all three building blocks of market instruments, it is unlikely that political debates linger on the 'appropriation', as was found for REDD+ debates in the previous chapter. Moreover, as national sovereignty concerns are not expected to be a governing factor, it remains difficult to understand why the development of this market has not yet been operationalized at the time of writing this dissertation. This chapter therefore transcends the REDD+ concept and contributes to a broader understanding of the factors that govern political debates on the use of financial instruments for forest governance in Brazil.

⁹ This chapter is under review in Land Use Policy.

5.1. Introduction

Market instruments have become increasingly important for environmental governance since at least the 1970s. A notable example is the proliferation of emissions trading across the United States (LANE, 2012; VOß, 2007), Europe (CONVERY, 2009; WOERDMAN, 2004) and China (HÜBLER; VOIGT; LÖSCHEL, 2014; JIANG; YE; MA, 2014; ZHANG; KARPLUS; CASSISA; ZHANG, 2014), among many other countries (WORLD BANK, 2018). Even in Brazil, known for its resistance to emissions trading in the context of international forest governance debates (CARVALHO, 2012), scholars have observed an incremental increase in debates on the use market instruments (FILOCHE, 2017). The operationalization of these market instruments has been much more challenging. Emissions trading schemes have been compelled to adapt to contextual factors during implementation and operationalization stages. In Brazil, the use of market instruments for Reducing Emissions of Deforestation and Forest Degradation (REDD+) has been banned from mainstream practices due to sovereignty concerns (AUBERTIN, 2015; VAN DER HOFF; RAJÃO; LEROY; BOEZEMAN, 2015). Alternatively, the trade in forest certificates, established by the Brazilian Forest Code, has been debated since at least the late 1990s (WEIGAND JR, 1998), but has still not been operationalized at the federal level, even after two decades of political debate (MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). This difficulty of operationalizing market instruments in Brazil raises questions about the underlying factors that trump political and practical development.

Few scholars have shed light on the development of market instruments for environmental governance in an attempt to answer this question. Empirical studies on the rise of emissions trading in the United States acknowledged that early market designs “represented the state-of-the-art in economic theory”, but argued that hindrances reflect “the messiness of reality” that demands technical fixes or ‘repairs’ to the original market design in order to “secure acceptance by target groups and the wider public” (LANE, 2012; VOß, 2007, p. 335-336). These technical fixes laid the foundation for a ‘regime formation’ phase, in which the operationalization of market instruments became more commonplace (VOß, 2007). Already taking these foundations for granted, studies of emissions trading in Europe have identified the high costs of switching to alternative policies as main debilitating factor to policy change, although they were incrementally decreasing. In addition, the

use of market instruments became increasingly more attractive as policy-makers became more knowledgeable and political pressures were building (WOERDMAN, 2004). Chinese market instruments have similarly adjusted to the context of political interests, which have mainly revolved around economic growth (HÜBLER; VOIGT; LÖSCHEL, 2014; JIANG; YE; MA, 2014; ZHANG; KARPLUS; CASSISA; ZHANG, 2014). These studies have characterized the operationalization of market instruments either as a process of technological development, as build-up of political momentum and opportunity, or as process of contextual embedding. At the same time, they reflect a bias towards market instruments for emissions and air pollution, and emphasize how and why operationalization has been successful rather than problematic.

This research paper aims to contribute to this literature by analyzing the underlying factors of the problematic operationalization of trading forest certificates in Brazil. This market instrument is particularly interesting as it is rooted in the same foundations for emissions trading (WEIGAND JR, 1998) while at the same time having a completely different function (MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). Section two develops our analytical approach based on the Advocacy Coalition Framework (ACF), particularly emphasizing the concept of policy learning and drawing on literature on organizational learning and knowledge utilization for refinement. Section three presents the empirical findings of this research, analyzing how advocacy coalitions understand spatial trade boundaries, identify buyers and sellers, and negotiate the possibility to go beyond compensation. We discuss the results of this analysis in section four and present conclusions in section five.

5.2. Obstacles to policy operationalization in advocacy coalitions

Although definitions and applications of policy learning have varied significantly across studies, it has been generally identified as a fundamental building block for achieving policy change, altering social behavior and attaining adaptive governance (BENNETT; HOWLETT, 1992; MOYSON; SCHOLTEN; WEIBLE, 2017; PAHL-WOSTL, 2009). Despite the variety of approaches, policy learning generally involves an agency (e.g. individual, group, network) obtaining new knowledge or experience about a policy issue (e.g. process, program, ideas) in order to influence the policy process towards organizational, policy or societal change (BENNETT; HOWLETT, 1992). Sabatier (1988, p. 133) defines

policy-oriented learning as “relatively enduring alterations of thought or behavioral intentions which result from experience and which are concerned with the attainment (or revision) of policy objectives”. Moreover, this approach “assumes that scientific and technical information plays an important role in modifying the beliefs of policy participants” that aim to influence policy-making processes (SABATIER; WEIBLE, 2007, p. 192). For this definition to be useful for analyzing the operationalization of trading forest certificates in Brazil, it is helpful to circumscribe policy-learning within the Advocacy Coalition Framework (ACF) from which it was derived.

The Advocacy Coalition Framework (ACF) addresses political issues at the level of the policy subsystem, which “consists of actors from a variety of public and private organizations who are actively concerned with a policy problem or issue [...] and who regularly seek to influence public policy in that domain” (SABATIER, 1998, p. 99). Furthermore, these actors tend to group together in advocacy coalitions on the basis of shared *deep core beliefs* (i.e. general assumptions about reality), *policy core beliefs* (i.e. subsystem-wide applications of deep core beliefs) and *secondary beliefs* (i.e. detail applications of policy core beliefs). Aamodt (2018), for example, has analyzed the political competition between a climate advocacy coalition and an agrobusiness advocacy coalition within a climate policy subsystem in Brazil. Although the ACF identifies policy subsystem as the most appropriate level of analysis, other scholars have argued that “formation of informal networks in early stages of change is essential” in (adaptive) environmental policy-making (PAHL-WOSTL, 2009, p. 361). As policies-making develops, it moves to more formal settings like commissions or organizations and becomes established in formal documents like laws and programs. Policy learning, therefore, is done by the participants in the policy process in both informal and formal networks in order to advocate specific political objectives. As we elaborate in section 3, while some aspects of the Brazilian market in forest certificates may occur in formal networks (e.g. national congress), the operationalization of this market also relied on an informal network.

Like the belief systems of advocacy coalitions, policy learning has recently become understood as a layered process of different intensity and complexity levels. In the literature on organizational learning, these layers have been recognized as single-, double-, and triple-loop learning, although the latter has been variously conceptualized by different scholars (TOSEY; VISSER; SAUNDERS, 2012).

While single- and double-loop learning refer to processes of correcting erroneous practices and adjusting objectives, respectively (ARGYRIS; SCHÖN, 1978), triple-loop learning generally involves processes that require a more systemic transformation in the way organizations operate (e.g. new organization philosophy). Pahl-Wostl (2009) has applied these approaches to develop a conceptual framework for adaptive resource governance. In this framework, single-, double- and triple-loop learning refer to “a refinement of actions”, “a change in frame of reference [and] guiding assumptions”, and “a transformation of the structural context”, respectively (p. 359). For the purposes of our analysis, we attribute single-loop learning to the layer of secondary beliefs, double-loop learning to the layer of policy core beliefs and preferences, and triple-loop learning to deep core beliefs (see figure 1). This approach corresponds with ACF’s claim that policy-learning is most likely to affect only secondary beliefs and, in fewer cases, policy core beliefs or preferences, while deep core beliefs tend to remain unshaken (SABATIER, 1988; SABATIER; WEIBLE, 2007).

Although policy-oriented learning is one of the principal factors that contribute to policy change, the impacts of new knowledge and experience are often limited to incremental changes. Sabatier and Weible (2007) describe how advocacy coalitions apply *perpetual filters* that absorb information corresponding with their beliefs and excludes information that contradicts them. Drawing on literature on knowledge utilization, we may further enrich this understanding of how policy participants deal with new knowledge and experiences. Bax (2011), for example, argues that new knowledge (and, for that matter, experiences) could be used for solving known policy problems (*instrumental*), identifying new problems (*conceptual*), legitimizing political stances (*strategic*) or resolving conflicts (*reconciliatory*). Boezeman (2015) adds that knowledge (and experience) may be transformed in order to align with political contexts, yet these transformations could essentially return to similar uses or shift to alternative uses. By contrast, Rayner (2012) described how knowledge (and experiences) could be considered ‘uncomfortable’ and, consequently, policy participants may not acknowledge its existence (*denial*), question its accuracy or relevance (*dismissal*), create distractive activities (*diversion*) or manage a representation of the main problem (*displacement*). The absorption and utilization of different knowledge and experience types, on the one hand, and the resistance to uncomfortable knowledge and experience, on the other, is useful to more clearly analyze the different processes by which participants aim to influence processes of policy-making.

Policy-oriented learning is only one of four factors that may help or hinder policy change. Since the inception of the ACF, external shocks were recognized to be the major contributing factor to policy change, which may involve changes in socioeconomic conditions, changes in systemic governing coalitions and policy decisions and impacts from other subsystems (SABATIER, 1988). Climate change politics in Brazil, for example, were affected by a shift in power relations between advocacy coalitions in 2010 due to changes in governmental composition (AAMODT, 2018). As the ACF developed over time, theorists have recognized that policy change may also be induced by internal shocks (e.g. disasters within the policy subsystem) or may be achieved through a negotiated agreement between advocacy coalitions (SABATIER; WEIBLE, 2007). While these factors (external shocks, internal shocks and negotiated agreement) have been presented as distinct from policy learning, we argue that they are absorbed (or rejected) in the policy learning processes of advocacy coalitions in order to effectuate policy change either through competition or negotiation. In this respect, external shocks, internal shocks and negotiation may feed into single-, double-, or triple-loop learning processes as new knowledge or experiences on the basis of which advocacy coalitions continue to influence policy-making. In case of a change in government regime, for example, advocacy coalitions learn to accept (or reject) the new governmental configuration, retreat from particular political positions or refrain from particular argumentations, and review their strategic approach to the new policy-making setup. All these occurrences may also affect their belief system to some extent, as reflected in single-, double-, or triple-loop learning.

The literature on the operationalization of market instruments has generally described policy learning as linear development processes towards implementation and operationalization. The conceptual repairs or fixes to market instruments, as identified by Voß (2007), reflect a gradual incorporation of experiences from interaction with reality that develops from gestation to regime formation. Similarly, Lane (2012) has elaborated how the provision of empirical evidence to previously theoretical claims have contributed to the mainstreaming of an emissions trading system in the United States. Woerdman (2004, p. 270) described how “the availability, quality and dissemination of information on permit trading among policy-makers improved over time”, evolving from a stage of unawareness or misunderstanding to a stage of active proposal, development and eventual implementation of a European directive. Emergent emissions trading systems in China, finally, build on past experiences

elsewhere (e.g. economic crises and emissions trading in Europe) for applying an 'intensity-based cap' that shifts in accordance with economic conjuncture (HÜBLER; VOIGT; LÖSCHEL, 2014; JIANG; YE; MA, 2014, p. 18; ZHANG; KARPLUS; CASSISA; ZHANG, 2014). Although these studies widely differ in their descriptions of policy learning processes, often without much detail, they seem to agree that policy learning contributed to enhancing the likelihood of implementation and operationalization. This does not disqualify observations that external and internal events have been decisive, which corresponds with ACF propositions. For instance, policy learning was only one of several factors that have enabled emissions trading in Europe, including implementation of permit trading in some countries, the consequent drop in switching costs and the sudden withdrawal of the United States from negotiations (WOERDMAN, 2004).

These studies have shed light on the inception, development and operationalization of market instruments for environmental governance, but the implicit linearity of these processes may not accurately apply to all cases. According to the timeline developed by Voß (2007), the development of market instruments, arguably initiated in 1960 with Coase's (1960) milestone publication, has taken 17 years to the first materialization in the United States and another 21 years to enter the 'regime formation' phase. Meanwhile, individual market instruments have taken less and less time to materialize in their respective contexts. Emissions trading in Europe had been developed in less than 10 years between the adoption of the Kyoto Protocol in 1997 and the adoption of the European directive in 2003 (WOERDMAN, 2004). Emissions trading in China has been surging in even less time, with the first pilots emerging after only 4 years of communicating its national commitments (ZHANG; KARPLUS; CASSISA; ZHANG, 2014). These studies suggest that the timespan of operationalization processes tend to shorten as the use of market instruments becomes more commonplace. However, this implication starkly contrasts with other initiatives that have been much slower to develop, most notably the forest certificates market in Brazil. This market instrument has been in development for over 20 years since its first manifestation in scientific and political debates (WEIGAND JR, 1998) without any prospects of operationalization by Brazilian legislators (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). These observations question whether policy learning is indeed a linear process towards operationalization and challenge the implication that these processes tend to shorten over time. Our study aims to clarify this by

analyzing the role of policy learning in the operationalization of the Brazilian trade in forest certificates.

5.3. Research methodology

The primary research data for analyzing this policy subsystem involves 13 semi-structured interviews with relevant stakeholders in the construction of a market for trading forest certificates, some of whom we interviewed more than once. Research data on the CRF market includes interviews with former representatives at the ministry of environment and ministry of finance. Research data on the CRA market includes interviews with representatives of the ministry of environment (MMA) and ministry of finance (MF), environmental NGOs, agricultural organizations, universities and private organizations. All interviews were conducted in Portuguese, recorded and transcribed, and analyzed using open coding methods that focused primarily on the knowledge utilization categories and were organized in concert with political conflicts that emerged from the data (see next section). In addition to interviews, this research paper also builds on many secondary data sources. Document analysis mainly involves legal documents related to the Forest Code, such as laws, decrees and MPs. In addition, we analyzed 14 bills (PLs) that were discussing in the Chamber of Deputies and the Senate between 1999 and 2011, including the relevant plenary debates, deputy opinions and substitutive versions). For the analysis of these documents, we have used a Forest Code database that was constructed for a broader analysis of the political development of the Forest Code. Other documents involve ten draft versions of the CRA decree between 2014 and 2017, which document the progress of political debates. These latter documents provided crucial for tracking the more recent development of specific trade elements. The research has also benefited from minutes of meetings at the Brazilian Environmental Council (CONAMA – Portuguese acronym) between 1996 and 2001, which has made important contributions to the political debates on the development of the CRF market. In addition to document analysis, this paper also relies on participant observation during a series of informal meetings on the formulation of a CRA decree, which took place in Brasília between 2014 and 2017. Policy participants who attended these meetings include the second author of this paper, governmental organizations, environmental NGOs, private companies and agricultural organizations (more detail in the next section). The triangulation of interview analysis, graphical

visualization of collective interpretations, document analysis and participant observations safeguard the validity of research findings.

5.4. Development of trading forest certificates

The inception and early development of the Brazilian trade in forest certificates was situated in a highly volatile political climate for advocating environmental concerns. Environmentalist sympathies had built up in the late 1980s and early 1990s, while the Cardoso administration (1995-2002) manifested a strong interest in using market instruments (VIOLA, 2004; ZHOURI, 2004). In this context, the idea took hold that trading forest certificates could enhance compliance with the Brazilian Forest Code (law 4.771/1965), which was based on observations from nature conservation developments in the United States (WEIGAND JR, 1998). This idea was absorbed during a legal amendment process, or provisional measure (MP), for the Forest Code that was initiated by the executive branches of the Ministry of Agriculture (MAPA) and the Ministry of Environment (MMA) in 1996 (MP1.511) and concluded by constitutional amendment in 2001 (MP 2.166-67)¹⁰. During this period, the development process passed through the National Environmental Commission (CONAMA), the advisory committee of MMA, after a representative of the Northeastern Environmental Entities called attention to the amendment process in a meeting in November 1999. The efforts of CONAMA, elaborated by a technical committee and debated in a meeting in March 2000, have contributed to the first appearance of the market for Forest Reserve Quota (CRF) in MP1.956-50 in May 2000. Despite these extensive debates, the adoption of the CRF market in 2001 provided very little detail on how it would function and left much open to the interpretation of legislators in subsequent years.

¹⁰ Before 2001, MPs were temporary legal documents that had a validity of 30 days after adoption. In this respect, the development of MP 1.511-01 (1996) to MP 1.956-50 (2000) to MP 2.166-67 (2001) reflects a monthly renewal of this document, all referring to the same legislative process albeit with minor or major adjustments. In September 2001, the lower house and the senate adopted a constitutional amendment stating that, due to new regulations for issuing MPs, all MPs in progress will maintain their legal status until formally revoked. This means that the provisions in MP 2.166-67, including the establishment of the CRF market, remained in vigor without requiring consecutive renewal each month.

The Lula administration (2003-2010) had been a very favorable period for advancing environmental interests and was indeed very productive in terms of new environmental legislation and institutions as well as notable reductions in deforestation rates (VIOLA; FRANCHINI, 2014). Nonetheless, it had also been a period in which the MMA and the Ministry of Finance (MF) made unsuccessful efforts to regulate the CRF market. By the end of the term, environmentalist influences reached a peak and economic concerns were on the rise, turning the tides once the Rousseff administration (2011-2016) took office (AAMODT, 2018; VIOLA; FRANCHINI, 2014). Aamodt (2018) observed that power shifted from a climate advocacy coalition to an agribusiness advocacy coalition. One of the consequences of these events involved the growing support for a proposal to alter the Forest Code, which involved a 'legalization of illegalities' and a general 'flexibilization of regularization requirements' (ANTUNES, 2013; GARCIA, 2012; SAUER; FRANÇA, 2012) in spite of many early warnings from scientists (METZGER, 2010; SILVA; NOBRE; JOLY; NOBRE *et al.*, 2012; SPAROVEK; BARRETTO; KLUG; PAPP *et al.*, 2011; SPAROVEK; BERNDDES; BARRETTO; KLUG, 2012). The intense debates culminated in the adoption of a new Forest Code (law 12.651) in 2012 and had substantial consequences for the trade in forest certificates, now called Environmental Reserve Quota (CRA), that became manifested from 2013 onwards. Firstly, the Socialism and Liberty party (PSOL) and the attorney general of the republic, supported by several environmental groups and organizations, submitted an appeal to the Supreme Court challenging the constitutionality of the new Forest Code. In addition, scientists had begun to engage in political debates on the operationalization of the market, evaluating its viability and, more importantly, critically identifying problematic trade-offs between environmental integrity of Brazilian ecosystems and low compliance costs for rural landowners (BERNASCONI; BLUMENTRATH; BARTON; RUSCH *et al.*, 2016; MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015; SILVA; RANIERI, 2014; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). These debates, however, had emerged in a political climate that was increasingly becoming unfavorable to environmental interests (AAMODT, 2018; FEARNSIDE, 2016; ROCHEDO; SOARES-FILHO; SCHAEFFER; VIOLA *et al.*, 2018).

Throughout the history of developing and operationalizing the trade in forest certificates, three themes have been central to political debates and were the main conductors to conflict between advocacy coalitions. These themes concern (1) the nature and purpose of the market, (2) spatial trade boundaries, and (3) buyer and seller identification. While these conflicts have been derived from our

empirical observations, they were already identified as such in the available literature, particularly after the adoption of the new Forest Code in 2012. The nature and purpose of the market emerged as a potential issue when Soares-Filho *et al.* (2016) coined the idea of forest certificates beyond compensation. In the same study, scenarios with different spatial trade boundaries were evaluated for market viability, while others have argued that this definition may involve trade-offs between environmental protection and economic efficiency (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016). Finally, the identification of buyers and sellers was particularly problematized by Nunes *et al.* (2016), who distinguished between forest certificates from areas that cannot be used other than for compensation (i.e. 'compensation-only surpluses) and those from areas that are under threat (i.e. 'deforestable surpluses'). We discuss these conflicts in more detail in the sections below. In line with Aamodt's (2018) findings, these conflicts reveal two advocacy coalitions: an environmental integrity coalition and a legal flexibility coalition.

5.4.1. Nature and purpose of trading forest certificates

Political debates on the nature and purpose of trading forest certificates were initially not manifested as an issue, but rather as a justification for establishing the market. The first traces of arguments for trading forest certificates were found in an academic publication in mid-1998 that proposed the establishment of a market for Negotiable Forest Reserve Certificates (CNRF) in the Atlantic Forest in the state of Bahia, which was inspired by observations of emissions trading in the United States (WEIGAND JR, 1998). Similar observations were made by MMA, as recalled by a former official:

"We saw that there were places that had more [legal reserve] than required by law, [which landowners] could deforest, and there were other places that [...] would have to cease production on parts [of their lands] in order to replant forest. Would it not be more logical if [the latter] could rent the land of [the former]?"

Based on these observations, the proposal claims that, on the one hand, the CNRF trade reduces social compliance costs of environmental legislation, because it provides individual landowners with an alternative to reforestation that enhances the likelihood of them complying with the requirements of the Forest Code. On the other hand, the CNRF market stimulates the protection of native vegetation, which has a higher ecological quality in comparison with reforested areas or cacao

plantations. Trading forest certificates was therefore thought to provide joint benefits of enhancing legal compliance, reducing compliance costs and stimulating environmental protection, which was also the purpose of the CRF market.

As the market developed, the interpretation of this purpose slightly changed its emphasis in accordance with broader political developments that favored agrobusiness interests (AAMODT, 2018; VIOLA; FRANCHINI, 2014). The amendments to the Forest Code in 2001 (MP2.166-67) by MAPA and MMA included, at least in the Amazon, raising landowner's nature conservation obligations from 50% to 80% of their properties. Although the augmentation of this 'Legal Reserve' had little effect in terms of compliance to the Forest Code (BACHA, 2004), it did evoke a sentiment of injustice among stakeholders that were sympathetic to agrobusiness interests. A former MMA leader, who took office in 2010, interpreted these changes as such:

"In the end, you are imposing a restriction on the use of a private property without compensation. [...] You were transforming a legal reserve of biomass for economic use [...] into a legal reserve for environmental conservation"

These sentiments gave impetus to advocating legal flexibilization not only to alleviate rural landowners, but also for improving legal compliance with the Forest Code. An MF official explained this point:

"We understand that the law signaled that it is necessary to have flexibility instruments. We think that this is important for guaranteeing the integral compliance with legislation. [...] It is in the public interest that the totality of legislation is implemented."

A comparison with the initial intension of the market for forest certificates suggests that rise in agribusiness advocacy and the change of administration in 2010 did not immediately lead to formal changes in its nature and purpose (i.e. compensation was still key), but placed more emphasis on allowing landowners to economically exploit their properties in whichever way possible. One notable example of such efforts was the transformation of CRF into CRA proposed by Homero Pereira, a

congressman linked to the rural caucus in Brazil^{11,12} in April 2008 (PL3342), which broadened certificates to include all vegetation. This proposal was motivated by the high deforestation rates in preceding years, the absence of legislation regulating the CRF market, and the unmet expectations of various economic sectors. As no stakeholder had explicitly manifested diverging interpretations, advocates of the legal flexibility coalition were able to shift the emphasis to a broad understanding of compensating legal reserve deficits, although this shift would become important in later stages.

Manifestations by the environmental integrity coalition became more apparent after the Federal University of Minas Gerais (UFMG) published a market evaluation report in 2014. Although initially invited by MF to provide instrumental knowledge on economic viability under different regulatory scenarios, UFMG researchers proposed to aggregate the compensation of legal reserve deficits with the provision of ecosystem services, such as biodiversity protection, avoided carbon emissions and watershed protection, in a new concept that they called 'xCRA' (SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). While this new concept was intended to resolve some of the other challenges to the operationalization of trading forest certificates (see below), MMA policy-makers aligned with the legal flexibility coalition used this concept to convey an understanding of a forest certificate market that is broader than mere compensation of legal deficits. An MMA official confirmed this belief:

"... if you are regulating CRA, which says it is an environmental title, and you only say that CRA can be used for compensating legal reserve [deficits], you are receding. [...] If you read [the Forest Code], you see that the intention is to be something more than just compensating legal reserve [deficits]"

Moreover, MMA argued that the decree initially elaborated by MF between 2013 and 2014, which was primarily oriented towards compensating legal reserve deficits, did not reflect the "intention" or

¹¹ <http://reporterbrasil.org.br/2006/10/composicao-da-bancada-ruralista-para-2007/>

¹² <http://fpagropecuaria.org.br/integrantes/todos-os-integrantes/>

“spirit” of the new Forest Code. The MMA official was therefore adamant that at least the possibility of trading xCRAs should be included in a decree:

“The insertions in article 41 and 44 [of the Forest Code represent] the intention that this title has to be something more than just compensation of legal reserve [deficits]. [...] It is possible that we will need to have more specific regulations afterwards, but the basic differentiation saying that this title also serves for these ends is something that we think we need to mention in this decree. [...] If we would not mention this, we will [need to] think about another decree that does.”

Consequently, all versions of the CRA decree after 2015 articulated the possibility “discriminating other characteristics” than compensation, and since 2016 the section labelled “On Legal Reserve Compensation With CRA” was transformed into “On The Use Of CRA”, among other provisions. MMA also advocated the cumulative use of forest certificates for a single hectare in order to diversify possibilities for landowners to economically exploit their properties. In late March 2017, this interest was incorporated into a draft version of the decree by stating that “CRA could be used for other purposes of conserving native vegetation [...] other than compensating legal reserve deficits”, whereas a prohibition of “cumulative CRA utilization” was removed from the text. By 2018, this interpretation has become more widely advocated by other ministries like MF, further ingraining the advocacy of legal flexibility within federal government organizations.

MMA’s insistence on trading multiple modalities of forest certificates and allowing accumulation evoked various responses from other participants of the policy process. Firstly, some UFMG research have severely challenged the unintended interpretation of their concept by MMA officials, arguing that the accumulation of forest certificates is detrimental for the environmental integrity of nature conservation on private lands. This sentiment was most clearly expressed during a knowledge sharing event in March 2018, when one researcher demanded that “the government should for once listen to what science says”. A second response involves a sentiment of impatience from policy participants with an active interest in having a functioning market. These include MF officials, agricultural organizations like the Brazilian Rural Society (SRB) and private companies like Biofílca and BVRio, which argue that a swift implementation of the CRA market is both possible and necessary in order

to alleviate the individual costs of forest restoration and conservation for private landowners. Thirdly, some observers have expressed that the incorporation of ecosystem services perpetuates the debate about what CRA certificates represent in practice. For instance, a former MMA representative argues the following:

“Initially it seemed to be a renunciation of the right to deforest, which was the original proposal [...], but you do not have this right to deforest. [...] I believe it is a royalty. You have a right [to use] the land, so a right [to use] the groundwater and biodiversity. When you create the quota, you [...] recognize and identify [that right], which one can sell to other people. We will need to have this [kind of] discussion with respect to this proposal.”

5.4.2. Spatial trade boundaries

The interpretive conflict on the definition and demarcation of spatial boundaries for trading forest certificates emerged from the outset, but was initially overshadowed by broader debates on the legal amendments to the Forest Code proposed by MAPA and MMA. This was particularly evident during a CONAMA meeting in March 2000, when a temporary technical committee presented and discussed their proposal. This proposal stated that private landowners could only compensate legal reserve deficit by acquiring CRFs within the same ecosystem and micro-watershed. In addition, it suggested that, in absence of the possibility to do so, the responsible institution may adopt the criterium of “greatest possible proximity”. An MMA representative explained that these trade restrictions directly reflected the manifestations of an environmentalist opposition that defended the protection of the integrity of local ecosystems. By restricting trade to micro-watersheds, legal reserve deficits could only be compensated with forested areas of an equivalent or identical environmental profile. Many environmental groups, including the SocioEnvironmental Institute (ISA), indeed expressed their satisfaction with what they thought to be an “intelligent proposal”. By contrast, defenders of landowner interests, most notably the National Confederations of Agriculture (CNA) and Industry (CNI), did not manifest strong opinions on the trade in forest certificates, but instead expressed their dissatisfaction with the legal reserve percentages. Based on these CONAMA debates, MAPA and MMA determined in MP1.956-50 in May 2000 that the area to be compensated must not only be

equivalent in size but also in 'ecological importance' (art. 44-III) and extended the proximity criterium to ensure that both properties pertain to the same watershed and federal state (art. 44-§4).

The attempts by MMA and MF to operationalize the trade in forest certificates between 2004 and 2010 faced some insurmountable challenges. Policy-makers became increasingly convinced that the trade restrictions to the micro-watershed would obstruct its operationalization, although these claims were not subjected to any scientific analysis. According to a former MMA representative, legislators at both MMA and MF made several attempts to reinterpret the Forest Code in order to amplify compensation possibilities:

"[The restriction to] micro-watersheds prevented us from having Forest Reserve Quota. That is basically it. If we would not have this requirement, we could have had [CRF] titles. [...] We [tried in vain] whether it would not be possible to interpret the law [differently] in order to amplify at least this [...] micro-watershed, because we wanted to enable the market".

One of the arguments that may have contributed to this conviction was the absence of a single market platform for trading CRFs. An MF representative explained that "there was no accurate monitoring system, [so] you would talk to [potential traders] in person on the basis of trust". Correspondingly, available CAR data indicates that the CRFs emitted by over 25,000 landowners since 2001 have never been traded for the compensation of legal reserve deficits. Policy-makers in the federal government therefore learned from new experiences (or, perhaps more accurately, new interpretations) rather than new knowledge, that operationalization required some degree of legal flexibilization.

The experiences from operationalization attempts seems to have reached politicians in the national congress as well, since there have been several proposals to amplify spatial trade boundaries. Already in September 2005, for example, a project specifically directed at the CRF market proposed that compensation would be possible within the same state and biome (PL5.876, art. 5-§3). Other projects would either adopt similar requirements (e.g. PL5.226/2009) or allow interstate trade within the same biome (e.g. PL6.732/2010). The amplification also migrated with the transition from CRF to CRA in the

second half of the 2000s. The final proposal, compiled and authored by ruralist Aldo Rebelo, had amplified the spatial trade boundaries by allowing trade between federal states within the same biome (art. 41-§3) and remained unaltered as it passed through the senate in 2011. Despite the lack of evidence that the experiences from operationalization attempts were indeed transferred to these formal policy networks, this interpretation would be highly convenient in the context of broader political shifts that started favoring the flexibilization of climate change politics (AAMODT, 2018; VIOLA; FRANCHINI, 2014).

After formal adoption of the Forest Code in 2012, there have been a few attempts, mostly by academic researchers and environmental organizations, to restrict the trade of forest certificates to federal state boundaries, but these were met with severe opposition. The UFMG study, for example, showed that there was enough supply of CRAs within the states due to the plentiful amplifications of compensation opportunities (see also section 3.3). This would remove some of MF's initial concerns that some states may not generate sufficient supply should they decide to allow transactions only within their borders, which was expected for states like São Paulo that have already lost most of its forests. In addition, and going beyond the original scope of the study contracted by MF, the study explicitly advocated these restrictions to generate environmental benefits (SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016), thereby advocating environmental integrity. Just after the release of this study, a research team of the Center for International Forestry Research (CIFOR) also argued that the low prices, albeit contributing to low compliance costs, would not represent a fair compensation for forest conservation and may compromise the environmental integrity as landowners are expected to trade low value CRAs first (MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015). Other studies have also stressed the importance of positive conservation outcomes as the result of trade restrictions (BERNASCONI; BLUMENTRATH; BARTON; RUSCH *et al.*, 2016; SILVA; RANIERI, 2014).

In practice, however, restricting the trade of forest certificates to federal state borders has proven politically difficult to sustain. The federal state government of Mato Grosso, for example, has received much criticism from agricultural interest groups on the contradiction between the federal law, which was understood to allow trade across states within the biome, and decree 420 in 2016, which only

allowed this “if there are no available areas for compensation in the state of Mato Grosso” (art. 47). A representative of the Amazon Environmental Research Institute (IPAM) explained this criticism:

“It is the prerogative of the state to be more restrictive than national law, but this generates many challenges within the state. [...] The decree] is suffering contestation by the agrobusiness. They want to know why it closed [the state boundaries], because the [national] law does not. The federal law is open to [trade within] the biome.”

A year later, in 2017, the state government of Mato Grosso adopted decree 1.031, revoking the requirements for compensation determined in the previous decree. These observations suggest that, as the possibility of opening up spatial trade boundaries to the biome is articulated in federal legislation, the frontier of these debates seemed to have migrated from federal to state level politics.

This lasted until February 2018, when a judgement by the Supreme Court on the matter compelled political debates at the federal level to return to the issue of spatial trade boundaries. Although the majority of the contestations in the Forest Code were controversially judged constitutional, the definition of trade restrictions was not. More specifically, the Supreme Court has decided that trading forest certificates will only be possible if traders can demonstrate the ‘ecological identity’ of compensated lands. Consequently, the development process of the market for forest certificates had now stagnated and participants were looking to researchers from UFMG, USP and other organizations to resolve the challenge of defining and operationalizing ‘ecological identity’.

5.4.3. Supplier definitions

Interpretive conflicts on the definition of potential suppliers only emerged in the late 2000s, before which the legal amendment of 2001 (MP2.166-67) allowed the institution of forest certificates for vegetation that exceeds legal reserve requirements for private landowners (art. 44B). From 2008 onwards, the legal flexibility coalition increasingly pressured for the diversification of potential suppliers, particularly (1) properties inside conservation units and (2) the legal reserves of small properties. The consideration of properties inside conservation units as potential suppliers to the trade of forest certificates stemmed from a desire to provide some compensation for the legal restrictions within those areas. Such leniencies were already granted by the federal state government

of Mato Grosso do Sul since 2004 (decree 11.700, art. 11), which had established “Titles of Legal Reserve Quota” for compensating legal reserve deficits in other areas. At the federal level, properties inside conservation units were included only in 2009 with PL5.226 (art. 37-IV) and eventually in the formally adopted Forest Code in 2012. Political debates also leaned towards considering smallholders as potential suppliers to the trade of forest certificates, which was part of broader efforts to construct a more flexible legislation. According to Sauer and França (2012, p. 288), “the situation of small and medium properties was used as an excuse for sensitizing the public opinion”, citing efforts by ruralist Katia Abreu to emphasize the precarious situation of these groups. In this context, ruralists Leonardo Monteiro (PL5.226/2009) and Valdir Colatto (PL5367/2009), among others, have defined smallholders as a “social interest” group that merit legal flexibility. Correspondingly, the Forest Code bill that was approved in the Chamber of Deputies in May 2011 (Substitutive Amendment 186) allowed smallholders to supply forest certificates not merely for surpluses but for the integral legal reserve on their properties (art. 51-§4).

The amendments that passed through the Congress occurred without consulting stakeholders outside the policy process, although broader critiques were articulated in academic publications (METZGER, 2010; SAUER; FRANÇA, 2012; SPAROVEK; BERNDES; BARRETTO; KLUG, 2012). These critiques became more pronounced after the formal adoption of the Forest Code in 2012 and particularly addressed the environmental additionality of supplied forest certificates (BERNASCONI; BLUMENTRATH; BARTON; RUSCH *et al.*, 2016; MAY; BERNASCONI; WUNDER; LUBOWSKI, 2015; NUNES; GARDNER; BARLOW; MARTINS *et al.*, 2016; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). More specifically, researchers voiced their dissatisfaction with the decision in the Forest Code (Law 12.651) that properties inside conservation units as well as smallholders with legal reserve deficits could still supply forest certificates despite being prohibited from clearing forests (art. 38-II and art. 44-§4, respectively). Similarly, an IPAM representative, argued that there is support for “a CRA instrument that is cheap, flexible and allows for easy regularization of properties [...] as long as it has environmental additionality”. An independent policy consultant articulated these concerns in more detail:

“The area that cannot be deforested will be inserted in the market as CRA, does not have any opportunity costs because it cannot be used for any other [activity], and will compete in the market with those areas [suitable for] planting soy or raising cattle. This will create a competition that will lower prices to the level of quota without opportunity costs, thereby erasing the incentive to conserve the areas that require conservation.”

These concerns have had consequences for the operationalization of the market for forest certificates via a decree. Together with the Forest Code Observatory (OCF), an environmental watchdog organization, these stakeholders advocated that compensation of legal reserve deficits would only be possible by using certificates from ‘deforestable surpluses’ (NUNES; GARDNER; BARLOW; MARTINS *et al.*, 2016), thus manifesting their adherence to the environmental integrity coalition.

This advocacy was strongly contested by other policy participants by dismissing the likelihood that these concerns will be compromised. An MMA representative maintained that the obligation to retain a legal reserve on private properties is unique to Brazil and accrues costs for individual landowners in order to provide societal benefits. At one extreme, a representative of Biofílica, a private company interested in facilitating the trade in forest certificates, assured that “the costs of regularizing your liabilities – the legal reserve is a liability from the perspective of the producer – will fall, [which] is better for society”. Other stakeholders, including some aligned with the environmental integrity coalition, dismissed the likeliness of some potential suppliers to even provide forest certificates. According to an IPAM representative, private landowners located within conservation units would prefer to sell their lands rather than issue CRAs:

“[Suppose] you have a farm that today is located within a Conservation Unit, but the state did not pay you, did not recompense you and did not expropriate you... but you are all restricted. [...] For you it would be interesting to leave there, and you would like the state to compensate for the farm and turn it all into Conservation Unit, but the state has no money. [...] If you have a farm within a Conservation Unit, and you emit CRA, you will not solve the problem.”

Smallholders also face several challenges before participation becomes feasible. First, every participant must have legal ownership of the property, which, according to the IPAM representative, “are very few, and will not unbalance the market”. Second, they must invest financial resources in order to register at the local notary office, register in the Environmental Rural Cadaster (CAR – Portuguese acronym) and gain access to the CRA system before participation becomes possible. According to an MF representative, the high transaction costs “make it practically unviable for smallholders to issue CRAs, so [...] this really is not a problem”. These arguments were also advanced by representatives of NGOs like IPAM, thereby justifying that the inclusion of minority landowners will not relinquish environmental protection.

The conflicts between these advocacies became particularly apparent in anticipation of a meeting in March 2016. Up to that point, there have been regular meetings about the CRA degree with various policy participants from both advocacy coalitions: the Brazilian Forest Service (SFB), MMA, Greenpeace, WWF, Biofilica, BVRio, UFMG and OCF. As mentioned earlier, however, particularly UFMG had expressed critiques related to supplier definitions that were denied and dismissed by the legal flexibility coalition as well as some advocates of the environmental integrity coalition. The initial exclusion of UFMG, among others, from the meeting in March 2016 therefore raised suspicions of attempts to operationalize the market without answering these critiques. Only after insisting did the UFMG representative succeed in participating in the meeting, while others were more rebellious and refused to do so. Such occurrences, however, are often subtle and have taken place in informal networks.

5.5. Policy learning by advocacy coalitions in Brazil

Our analysis in the previous section has reconstructed two advocacy coalitions: an environmental integrity coalition and a legal flexibility coalition. On the one hand, policy participants like academic researchers, environmental NGOs and former MMA officials have collaborated in defending environmental concerns throughout the process. They share the policy core belief that nature conservation is an important concern for environmental policy-making and should be given priority. This reflects their secondary beliefs that cumulative CRA utilization jeopardizes environmental integrity, that narrow trade boundaries imply better environmental protection, and that fewer

suppliers could value native vegetation more accurately. Some environmental NGOs, such as ISA and IPAM, however, also share the policy core belief that disadvantaged groups like smallholders and landowners within conservation units should not be prejudiced. On the other hand, policy participants like private companies, agricultural organizations, governmental organizations (i.e. MF, MMA, SFB) and congressmen linked to the rural caucus have grouped together to advocate legal compliance. In order to achieve this, their policy core belief defends the importance of legal flexibilization. This reflects in their secondary beliefs about how to regularize the market for forest certificates, most notably their advocacy of trade within the biome as well as the inclusion of 'compensation-only' certificates (NUNES; GARDNER; BARLOW; MARTINS *et al.*, 2016). At the same time, this advocacy coalition may be divided by an alternative policy core belief that stresses the importance of a smooth implementation. This may reflect their secondary belief that insistence on xCRA is delaying the operationalization process. In spite of the conflicting differences between advocacy coalition, we have identified three key moments or 'milestones' when the operationalization process advanced. We discuss milestones in more detail below.

The first milestone in policy learning involved the emulation of emissions trading schemes in the United States and the application thereof to Brazilian land use politics. This was clearest articulated in the publication that proposed CNRFs, which argued that a similar concept could be applied to forest conservation on private lands in the Atlantic forest (WEIGAND JR, 1998). There were no confirmations by policy participants other than the author that conceptual emulation was indeed the foundation for the inception of forest certificates trading in governmental organizations, although it preceded any other reference in governmental documents. Despite this unclarity, it seems that policy learning did not have substantial impacts on the operationalization process. The initial adoption in 2001 had provided very little detail on how to regulate the market and, as mentioned in section 3.2, had never resulted in any transactions. The shifting political climate in the 2000s changed this. The Lula administration began spending an average of USD 1 billion per year on strengthening its previously weak monitoring and enforcement institutions, thereby exerting even more pressure on individual landowners to comply with demanding legal reserve requirements (BACHA, 2004; CUNHA; BÖRNER; WUNDER; COSENZA *et al.*, 2016; VIOLA; FRANCHINI, 2014). As deforestation rates declined, it raised sympathies towards private landowners. A former MMA official, for example, recalled that

“the Forest Reserve Quota, which was already a good idea at the time, became even more important, because it [reduces the costs] of regularization”. One may therefore argue that this first milestone in policy learning did not have immediate consequences, but laid the foundation for future developments.

The second milestone in policy learning involved the failed attempts to operationalize the market for forest certificates and the realization that the narrow spatial trade boundaries obstructed this objective. This moment of policy learning, which gradually built up between 2004 and 2010, occurred for a very limited number of policy participants (i.e. MMA and MF) who were working on the decree. Although clear evidence is absent, an MF official speculated that “as the executive power did not regulate and implement [the market], the legislative [power] therefore wanted to bring everything into the law in order to leave little room for requiring regulation”, thus suggesting that legislators had learned from this ‘experiential knowledge’. There were few critiques on the amplification of spatial trade boundaries by the environmental conservation coalition, but one may argue that most critiques were directed at broader changes to the Forest Code. A research team of the University of São Paulo (USP), for example, argued that “the proposed reductions in legal requirements [...] are so far-reaching in the substitutive [Forest Code] that off-farm compensation requirements may become essentially zero (SPAROVEK; BARRETTO; KLUG; PAPP *et al.*, 2011). In a later publication, they acknowledged that spatial trade boundaries were initially too narrow (i.e. within same watershed) for allowing compensation to occur, but became too broad (i.e. within same biome) to ensure any effective protection of natural vegetation (SPAROVEK; BARRETTO; KLUG; PAPP *et al.*, 2011). These critiques, however, were either unheard or denied by the legislators discussing the new Forest Code at the time, who were generally sympathetic to the agribusiness coalition (AAMODT, 2018).

The third and final milestone in policy learning involved the surge in critical studies on the operationalization of the market for forest certificates, most notably the UFMG study, and the political conflicts that they instigated. Rather than merely providing the instrumental knowledge on market viability, as MF had invited UFMG to provide, UFMG researchers had taken the opportunity to raise a number of conceptual concerns related to the amplification of spatial trade boundaries and supplier definitions. This is where perpetual filters were most clearly manifested. Although many studies had

advocated to keep spatial trade boundaries narrow (i.e. within federal states), pressure from regional agricultural organizations were adamant to dismiss the justice of such restrictions in some states by pointing out the federal leniency towards trading across state boundaries. Likewise, the concerns about the environmental additionality of some suppliers were dismissed by claiming that high transaction costs will complicate participation for smallholders and properties within conservation units would prefer alternative regularization options, although such claims have not been subject to investigation. This latter event also reflects a slight change in policy core preferences by socioenvironmental organizations as their social concerns became more pronounced. Admittedly, impeding potential suppliers of certificates from 'compensation- only surpluses (e.g. smallholder's legal reserves), as argued by UFMG and others, also denies the legitimacy of Brazilian legislation. The UFMG study had another important effect on policy learning by proposing a forest certificates market that goes beyond the compensation of legal reserve deficits (i.e. xCRA). Contrary to the concerns about environmental additionality, this conceptual novelty was readily absorbed by advocates of legal flexibility, most notably MMA, and was even adapted to allow for accumulation. This latter attempt, however, was all but reconciliatory and implies single-loop learning rather than the envisaged double-loop learning. In addition to prompting a critical response from environmental additionality advocates, particularly academic researchers, it also evoked dissatisfaction among several advocates of the legal flexibility coalition who favored a swift implementation, which implies a difference in policy-preferences that may develop into the formation of a new advocacy coalition.

Throughout the history of developing and operationalizing the Brazilian market in forest certificates, political debates have been highly sensitive to external events and shocks. The inception of the Brazilian trade in forest certificates, firstly, was mainly possible due to increased sympathy towards the use of market instruments during the Cardoso administration (1996-2002) (VIOLA, 2004). Secondly, the experiences with operationalizing the forest certificate market between 2004 and 2010 coincided with an increasingly influential agrobusiness coalition (AAMODT, 2018; VIOLA; FRANCHINI, 2014). During this period, most advocates of environmental protection were more concerned with broader dynamics in political debates on altering the Forest Code, as the surge in academic research testifies (METZGER; LEWINSOHN; JOLY; VERDADE *et al.*, 2010; SPAROVEK; BERNDES; BARRETTO; KLUG, 2012). By the time environmentalist interests became more closely engaged in the

operationalization of the trade in forest certificates, the political climate had become highly favorable to agrobusiness interests. In addition, the unstable political climate, such as the impeachment of the Rousseff administration and transition to the Temer administration in 2016, had contributed to substantial delays in market operationalization as policy participants stagnated the process in uncertain anticipation of unfolding events. A similar event might have occurred in anticipation of the 2018 elections, but the Supreme Court's decision in February 2018 had already shaken up the operationalization debates. Compelling legislators to consider the demonstration of 'ecologically identical' forest certificates by traders, this shock event implies the reprising importance of spatial trade boundaries in political debates that appears to favor advocates of environmental protection. In addition, policy participants now look to researchers to provide the instrumental knowledge for operationalizing this concept of 'ecological identity'.

5.6. Conclusion

Our analysis of the operationalization of trading forest certificates in Brazil has provided empirical evidence for the proposition that many factors that induce policy change can also lead to policy stagnation. Mainly external factors have been influential, which corresponds with the ACF. For instance, broader political developments, such as administration changes and power shifts, have indirectly bolstered the legal flexibility coalition, but the operationalization processes have been thrown upside down after the Supreme Court's decision in 2018. This contrasts with evidence from other studies that demonstrate how external factors have been conducive of policy change (e.g. WOERDMAN, 2004). Policy learning has been an important driving force for advancing the trade in forest certificates, which is exemplified by the emulation of foreign trading schemes, learning from 'experiential knowledge', and the absorption of new 'formal' knowledge on certificates beyond compensation. At the same time, an important factor of these learning processes involves the perpetual filters applied by the advocacy coalitions. Although the environmental integration coalition used such filters to some extent (e.g. denial of legal provisions), the use of perpetual filters by the legal flexibility coalition, most notably federal governmental organizations, have made important contributions to political conflicts and policy stagnation. More specifically, while 'experiential knowledge' was readily absorbed, most 'scientific' knowledge was heavily filtered only to support evidence of a functioning market (e.g. UFMG study), instigating conflict, or the diversification of

compensation opportunities (e.g. xCRA), delaying the process. These observations contrast with the argument that market operationalization is a linear process that adapts to reality (VOß, 2007) or that increased learning leads to higher probability of implementation (WOERDMAN, 2004).

A way out of this policy stagnation will not be simple. The first task at hand, compelled by the Supreme Court's decision, is to sort out how to operationalize the concept of 'ecological identity'. Secondly, while the advocacy coalitions are not on equal footing, as would be expected, our findings denote a particularly underappreciated role of scientific knowledge, since knowledge utilization has almost exclusively been instrumental without much regard for critical perspectives. By contrast, the operationalization process has generally been guided by experiential knowledge. This seems to be symptomatic of broader trends in Brazilian environmental politics (AAMODT, 2018; METZGER, 2010). Future research efforts therefore need to address this issue in order to improve knowledge utilization and policy learning processes. This would also require policy-makers to reconsider these relations in order to reduce political conflicts and reduce oscillations of operationalization processes.

6. CONCLUSIONS

6.1. The ambivalent politics of market instruments for forest governance

Debates on the use of financial markets for forest governance has been highly polemic. Particularly the use of market instruments has been widely advocated by some economists (LANE, 2012; MENDELSON, 2006; VOß, 2007) and fiercely criticized by researchers from other disciplines (e.g. KOSOY; CORBERA, 2010; MELATHOPOULOS; STONER, 2015). Historical analyses on the influence of economic thought on environmental governance have repeatedly confirmed that market instruments are firmly rooted in economic theory (BAVEYE; BAVEYE; GOWDY, 2013; GÓMEZ-BAGGETHUN; DE GROOT; LOMAS; MONTES, 2010; GÓMEZ-BAGGETHUN; MURADIAN, 2015; GÓMEZ-BAGGETHUN; NAREDO, 2015) that has supported their prolific implementation in various political contexts (BULLOCK, 2012; LANE, 2012; VOß, 2007; WOERDMAN, 2004; ZHANG; KARPLUS; CASSISA; ZHANG, 2014). In forest governance, however, this use of market instruments has been much more problematic, particularly in the context of REDD+ debates. Many scholars have recognized that the initial offset-based REDD+ concept has evoked substantial criticism from some national governments (CARVALHO, 2012) as well as various interest groups (BOAS, 2011; CABELLO; GILBERTSON, 2011), especially after more stakeholders were included in international debates (DEN BESTEN; ARTS; VERKOOIJEN, 2014). These critiques were able to divert institutionalization away from carbon offsets towards a performance-based aid mechanism (ANGELSEN, 2017; BROCKHAUS; KORHONEN-KURKI; SEHRING; DI GREGORIO *et al.*, 2017). The case of REDD+ underscores that market instruments for environmental problems are the outcome of essentially political processes, as already argued by some scholars (e.g. DEN BESTEN; ARTS; VERKOOIJEN, 2014). Although this outcome represents an agreement among stakeholders to some extent, the previous chapters have demonstrated that it is still rife with ambivalence, paradoxes and contradictions. These factors account for the lingering political debates on the use of financial instruments.

Forest governance in Brazil has been particularly interesting for its ambiguous use of financial instruments. On the one hand, the Brazilian government has been notorious for resisting the trade of carbon offsets from avoided deforestation in an international market, as was initially proposed in the context of both CDM and REDD+ (CARVALHO, 2012), which denotes an impediment to market

instruments for forest governance. Instead, Brazil established the Amazon Fund in order to channel results-based payments to REDD+ projects. On the other hand, Brazilian legislation furnishes the possibility of trading forest certificates for private landowners since at least 2001, which depicts quite a different approach to market instruments for forest governance. The introduction of this dissertation already considered that the apparent motives for blocking offset-based approaches to REDD+ (i.e. sovereignty concerns) do not apply to domestic markets, but this cannot explain why the operationalization of forest certificates trading, as reconstructed in chapter 5, has been so challenging. Justifications for the prevalence of either economic rationales (e.g. cost-effectiveness) or their critiques from various literature strands remain unable to explain the prominence of some approaches to environmental problems over others, much less the confluence of contradictory approaches within a singular institutional context (MELATHOPOULOS; STONER, 2015). The coexistence of these approaches within the same institutional context in Brazil (see MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016) indeed poses an apparent paradox that remains unresolved, perpetuating questions about how Brazil is able to both oppose and propose the use of market instruments. These questions are linked to broader issues about which financial instruments are most adequate for reducing deforestation and were the focus of this dissertation.

This dissertation set out to untangle and illuminate the ambiguity surrounding the use of financial instruments for forest governance purposes and refine the understanding about how such instruments materialize in complex political contexts. Although the initial focus on the REDD+ concept has been broadened in accordance with political developments in Brazil (see section 1.7), it has been very central in national and international forest governance debates. With an implementation process that is already a few years ahead (PIFFER SALLES; PAIVA SALINAS; PAULINO, 2017; TURNHOUT; GUPTA; WEATHERLEY-SINGH; VIJGE *et al.*, 2016; VOIGT; FERREIRA, 2015), there is much to learn from the case of REDD+ materialization in Brazil. These lessons not only comprise the performance of financial instruments like the Amazon Fund and the Green Climate Fund, but also their coexistence with instruments like the trade in forest certificates that seem paradoxical given the opposition to markets for REDD+. The analyses presented in preceding chapters have reconstructed the institutionalization of financial instruments for forest governance in Brazil in the 2000s and 2010s, focusing on the polarization between market instruments and results-based funding. These analyses

contribute to answering the central research question presented in the introduction of this dissertation, namely:

How have the possibilities for using financial instruments for reducing deforestation in Brazil been shaped and reshaped in processes of political discourse and institutionalization, and what factors and mechanisms underlie these processes?

This final chapter aims to answer this research question by presenting four main conclusions. The first two conclusions, presented in section 6.2 and 6.3, argue that the REDD+ concept has not evolved into a financial mechanism, as much literature would suggest. Instead, REDD+ became a common set of objectives and conditions for which financial resources are mobilized in order to support forest governance in attaining them. As the results-based payments for REDD+ descend from international to national to subnational/project levels of governance, this carbon-centered concept dissolves into the forest governance nexus in Brazil and loses clarity about how projects contribute to emissions reductions to the point that they are no longer recognizable as such. The third and fourth conclusions focus on the social structures and political controversies that govern the materialization of financial instruments (sections 6.4 and 6.5). On the one hand, these debates are also constrained by the formal rules (or interpretations thereof) provided by national legislation and international agreements. On the other hand, debates on the use of financial instruments must largely adhere to the epistemic foundations of 'ruptured dependence', which not only underlie the perpetual advocacy of market instruments but also the critiques on the performance of results-based funding. The chapter concludes with some considerations for policy-making (section 6.6) and reflections on the research of this dissertation (section 6.7).

6.2. REDD+ is not a financial mechanism

At least part of the ambivalence, paradoxes and contradictions related to the use of financial instruments for REDD+ could be attributed to the very diffuse conceptualization in scholarly literature. Many scholars have characterized REDD+ as an innovative policy design involving numerous approaches to benefit-sharing mechanisms (DUNLOP; CORBERA, 2016; LUTTRELL; LOFT; FERNANDA GEBARA; KWEKA *et al.*, 2013; PHAM; BROCKHAUS; WONG; LE *et al.*, 2013), forest

governance structures (BROCKHAUS; DI GREGORIO; MARDIAH, 2014; VATN; VEDELD, 2013) and financial instruments (e.g. CHIROLEU-ASSOULINE; POUDOU; ROUSSEL, 2018; NORMAN; NAKHOODA, 2014; STEPHAN, 2012). While acknowledging these design elements, international negotiations on forest governance have agreed on a progressive materialization of REDD+ (i.e. phased approach), starting with the build-up of REDD+ readiness (i.e. policy development), moving towards implementation phase (i.e. policy implementation) and culminating in results-based actions (ANGELSEN, 2017; BROCKHAUS; KORHONEN-KURKI; SEHRING; DI GREGORIO *et al.*, 2017). These features would indeed characterize REDD+ as a financial instrument for results-based payments that rewards and incentivizes the attainment of emissions reductions. However, this does not entirely resonate with the findings in this dissertation. Chapter 2 has made clear that while the Amazon Fund indeed plays a central role in the dominant sustainable development discourse, other financial instruments, particularly carbon offsetting, have materialized in parallel. Moreover, chapter 3 has argued that although the dominant sustainable development discourse indeed supported projects based on broader criteria than their contribution to emissions reductions, the donations of financial resources were still exclusively grounded within an emissions reduction rationale. These findings indicate that both the practical approaches to and financial instruments for reducing emissions from deforestation are politically defined and vary greatly, but the analyses in this dissertation provide evidence for the retainment of emissions reductions as central objective. This leads to the first conclusion: rather than being a financial mechanism, REDD+ articulates the common objective of emissions reductions that mobilizes and channels a diversity of financial resources and other forms of support.

Evidence for the retainment of emissions reductions as the central objective of REDD+ is abundant, but one may argue that REDD+ transcends this narrow objective by including safeguards and co-benefits (e.g. AICHER, 2014). These elements are certainly important requirements for results-based payments from the Green Climate Fund (VOIGT; FERREIRA, 2015) and, as elaborated in chapter 4, the Brazilian government has been developing SISREDD+ since 2018. According to the same chapter, however, there is no clear evidence that these safeguards have a compelling influence on the mobilization of financial resources for the attainment of emissions reductions. The Amazon Fund, for example, did not articulate any reference to safeguards in its documentation, which was a concern

articulated by several stakeholders in the process of consolidating BNDES as a recipient organization of financial resources from the Green Climate Fund. Moreover, there is no clear evidence that performance evaluations for safeguards and co-benefits may instigate or affect the mobilization of financial resources for REDD+. The findings in chapter 3 further emphasize that the performance or results in terms of emissions reductions are the foundation for the financial transactions from donor to recipient country and have been the central factor for clashing interpretations on these results. As a consequence, safeguards and co-benefits may denote mere auxiliary rather than central requirements for the mobilization of financial resources for attaining emissions reductions.

Conceptualizing REDD+ as the common objective of emissions reductions helps to understand the parallel emergence and materialization of diverging and sometimes conflicting discourses. Indeed, it resonates with the acknowledgement in the Warsaw Framework for REDD+ that finance may come from a variety of sources (VOIGT; FERREIRA, 2015), thereby allowing different stakeholders to hold different interpretations on which financial instrument is most appropriate. The Amazon Fund and other Brazilian REDD+ institutions, on the one hand, impose an approach that strongly refrains from carbon offsetting and renders appeals to alternative financial instruments, particularly carbon offsetting, illegitimate. On the other hand, chapter 2 confirmed that these alternative financial instruments are nonetheless materializing in the form of a carbon conservation discourse, as illustrated by the engagement of Amazonian state governments in a Californian REDD+ initiative for offsetting emissions (LUEDERS; HOROWITZ; CARLSON; HECHT *et al.*, 2014). Furthermore, these appeals to carbon offsetting have also applied discursive pressure on the dominant approach to financial instruments. Chapter 4 has illustrated how state government officials have pressured REDD+ institutions to provide some leeway to allow carbon offsetting. Moreover, the clashing interpretations of results and the lack of clear evidence on contributions to REDD+ objectives, as fully described in chapter 3, may provide a pretext for donor countries to consider alternative instruments for financing forest governance. These findings only underscore that the general characterization of REDD+ as results-based aid (ANGELSEN, 2017) only constitutes one modalities of financial instruments.

6.3. REDD+ dissolves into a forest policy nexus

The conceptualization of the REDD+ concept as a common objective rather than a financial mechanism is only a starting point for understanding the institutional and discursive dynamics of forest governance in Brazil. With the exception of some practices related to the carbon conservation discourse, the establishment of REDD+ institutions have firmly concentrated at the national level. According to the findings in chapter 2, the Amazon Fund has been the central institution for REDD+ in Brazil between 2008 and 2018. After the adoption of the Warsaw Framework for REDD+ in 2013 (VOIGT; FERREIRA, 2015), the collection of REDD+ institutions expanded with the establishment of GTT REDD+ in 2014, the National REDD+ Commission (CONAREDD+) in 2015, and the development and implementation of the National Strategy for REDD+ (ENREDD+) in subsequent years (see chapter 3). These national REDD+ institutions coordinate a broad institutional and political network of diverse stakeholders with intertwined discourses and practices (e.g. GEBARA; FATORELLI; MAY; ZHANG, 2014) geared towards the attainment of emissions reductions. The findings in previous chapters, however, indicate the connections and references to emissions reductions were not at all clear and in some cases even faded to the background. Rather than a coexistence of diverse stakeholders in a REDD+ policy network, chapter 3 found some evidence of discursive conflict between them (e.g. federal and state governments), particularly on the use of financial instruments. This suggests that 'nexus', understood as a complex web of interrelations between relevant stakeholders, could more accurately convey such competition than 'network'. This sets up the second conclusion of this dissertation: the common REDD+ objective of emissions reductions transforms in national REDD+ institutions and dissolves into a forest policy nexus.

The transformation of the REDD+ concept, firstly, starts at the national level of forest governance. This transformation of the REDD+ concept can be observed within the procedures and processes of national REDD+ institutions (see above) in two distinct yet interrelated processes. On the one hand, they translate the central REDD+ objective of reducing emissions into a set of national plans and policies that are deemed necessary for the attainment of this objective. Chapter 4, for example, described how ENREDD+ links the central objective of reducing emissions from deforestation to the more diverse objectives of existing forest policies and thereby form the institutional structure for REDD+ in Brazil (see also MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016). On the other hand, this

transformation is reinforced through the obtainment and distribution of financial resources. Chapter 3 has explained how financial resources of the Amazon Fund are obtained from donations based on demonstrated emissions reductions, whereas resource allocation to individual projects is based on their conformity to the objectives of national forest policies, most notably PPCDAm. Both the translation of policy objectives and the redistribution of financial resources denote the implication that existing forest policies (e.g. Forest Code, PNMC, PAS, PPCDAm, etc.) are relevant building blocks of policy change for the attainment of emissions reductions. So far, therefore, these findings reiterate the sustainable development discourse identified in chapter 2 and are still congruent with arguments in the literature on REDD+ design (KORHONEN-KURKI; BROCKHAUS; SEHRING; DI GREGORIO *et al.*, 2018).

A second and perhaps clearer indication of REDD+ transformation relates to the impacts of financial support from national REDD+ institutions. The central REDD+ objective of emissions reductions, as conceptualized in section 6.2., was not immediately reflected in the performance of the policies, strategies and plans that were considered essential for its attainment. Chapter 3 demonstrated how the Amazon Fund rarely articulated a clear contribution to reducing emissions through its project performance indicators, which was acknowledged by donor countries to be very challenging. Instead, their performance was evaluated on aspects like the number of newly trained firefighters, number of CAR registrations and number of new conservation units, among many others (see also BNDES, 2018). According to chapter 4, it is uncertain but highly probable that other accredited organizations for receiving financial resources from the Green Climate Fund (e.g. Funbio and Caixa Econômica Federal) may emulate these evaluation processes. The evaluation of REDD+ performance therefore seems to be transformed from a central focus on emissions reductions to a myriad of different indicators geared towards the individual components of existing policies, strategies and plans. In other words, the REDD+ concept, understood as the attainment of emissions reductions, is reflected only within national REDD+ institution and dissolves when descending to lower levels of forest governance.

The dissolution of the REDD+ concept into the forest policy nexus in Brazil has an important consequence for the use of market instruments. Brazil's resistance to carbon offsetting, like the preoccupation with emissions reductions, is concentrated at the federal level of forest governance,

but seems to have little influence at lower levels. Chapter 4, for example, illustrates how mostly federal government officials effectively blocked efforts by state government officials to include carbon offsetting into a CONAREDD+ resolution. At the same time, the engagement of state governments in the GCF Task Force, as observed in chapter 2, underscores that such restrictions, if they were indeed voiced by the federal government, have not penetrated into lower levels of forest governance. The dissolution of this resistance to carbon offsetting, together with the REDD+ concept, into the forest policy nexus also explains the coexistence of market instruments at lower levels of this nexus. As chapter 5 reconstructed, the attempts to operationalize the trade in forest certificates concerns the legal obligation of private landowners to conserve forests and, even if xCRA develops, is unlikely to include carbon offsetting that transcends national boundaries. This also explains how trading forest certificates is indirectly subsumed within the forest policy nexus upon that forms the foundation for REDD+ in Brazil.

6.4. Formal rules of national institutions spur political conflict and ambiguity

The concentration of the sustainable development discourse for REDD+ at the national level, including the resistance to carbon offsetting, resonates with the argument that national sovereignty concerns have been a guiding principle for financing deforestation reductions (CARVALHO, 2012). Despite this resemblance, this factor still cannot explain why domestic market instruments like forest certificates trading have not yet become operational. More importantly, the analyses in previous chapters did not reveal any statements by government officials that directly relate the resistance to carbon offsetting to a preoccupation with national sovereignty. The findings in these analyses instead point to various instances in which government officials have referred to Brazilian legislation and international agreements for evidence that the REDD+ concept refrains from carbon offsetting. Similarly, the analysis in chapter 5 suggests that Brazilian legislation has also been a determining factor for the operationalization of forest certificates trading. Much more than beliefs, worldviews, norms or values, it suggests that formal rules have a 'power-over-ideas' (CARSTENSEN; SCHMIDT, 2016) with respect to the development and operationalization of market instruments for forest governance (SCOTT, 1995). This leads to a third conclusion of this dissertation: the political debates

on the use of market instruments for forest governance in Brazil were largely circumscribed by the formal rules of national forest governance institutions.

Perhaps unsurprisingly, the obstructions to establishing market instruments for forest governance were most clearly observed in REDD+ institutions. Chapter 4 has extensively described how formal rules have clearly and repetitively articulated the national opposition to offsetting carbon emissions. This was not only evident in the decrees establishing the Amazon Fund in 2008 (decree 6.527, art. 1) and CONAREDD+ in 2015 (decree 8.576, art. 6), but was also reiterated in CONAREDD+ resolutions in 2016 (n° 5, art. 1) and 2017 (n° 6, art. 5), among other documents. In response to attempts by state government officials to include carbon offsetting in REDD+ institutions, federal government officials have repetitively referred to these formal rules. More importantly, the observations in chapter 4 also included evidence for interpretations of international agreements that ignored the possibility of forest finance from various sources and emphasized the mainstreaming of results-based funding rather than carbon offsetting. Similar indications were also provided in chapter 3. For instance, the donations to the Amazon Fund are based on demonstrated emissions reductions and do not generate future obligations to reduce emission. These findings underscore that the opposition to carbon offsetting is no longer grounded in a political advocacy of protecting national sovereignty, but is instead institutionalized within the formal rules of REDD+ institutions.

The 'power-over-ideas' emanating from the formal rules related to the market for forest certificates involve quite different dynamics. The evolution of regulating spatial trade boundaries for this market, as extensively described in chapter 5, best illustrates the ambiguous 'power-over-ideas' of these formal rules. Before the new Forest Code was adopted in 2012, the legal confinement of trading forest certificates to the micro-watershed had been perceived as severe obstructions to market operationalization processes. After 2012, by contrast, the substantially broader spatial trade boundaries had both increased trade viability and strengthened resistance to new socioenvironmental concerns, as observations in Mato Grosso (see section 5.4.1.) testified. Finally, the operationalization process was suspended by a Supreme Court's verdict in 2018 that determined that the trade of forest certificates must demonstrate the 'ecological identity' of compensated lands. Spatial trade boundaries represent only one theme in political debates on market operationalization

between 1998 and 2018, but they illustrate how formal rules of national institutions (i.e. the Brazilian Forest Code) were able to dictate the political processes of market operationalization. One needs to recognize, however, that these processes were highly susceptible to broader dynamics of federal politics, which is still congruent with the conclusion that national institutions exert much 'power-over-ideas'. By contrast, where the formal rules of national institutions are open to interpretation due to incompleteness or ambiguity, the 'power-through-ideas' becomes the determining factor for institutionalization processes.

6.5. The politics of financial instruments is grounded in 'ruptured dependence'

The 'power-over-ideas' of the formal rules of national institutions does not immediately discredit the legitimacy of argumentations that favor market instruments. Surely, the Brazilian government has been very conclusive in purposefully blocking appeals to the use of market instruments for the REDD+ concept, but the analyses in previous chapters reveal several occasions in which appeals were manifested. Firstly, chapter 2 demonstrates how market instruments have appeared at the margin of the mainstream REDD+ structure among advocates of the 'carbon conservation' discourse, which includes private initiatives as well as state governments linked to the GCF Task Force. As argued in section 6.3, secondly, market instruments have appeared where the REDD+ concept has already been dissolved into the policy nexus, namely in the form of a market for forest certificates. Thirdly, chapter 4 has provided ample evidence of discursive attempts to impose the inclusion of carbon offsetting within the mainstream REDD+ structure, including state government officials' manifestations during CONAREDD+ meetings, the Marrakesh letter on REDD+ pleading for openness to finance from carbon offsetting and CORSIA's interest in purchasing carbon offsets from Brazil. Furthermore, chapter 3 has illustrated that Brazilian REDD+ institutions like the Amazon Fund are sensitive to such appeals due to clashing interpretations on their performance. In order to elucidate these findings, Chapter 4 has offered the epistemic foundations that underpin political debates on financial instruments, namely 'ruptured dependence', and from which policy participants derive their 'power-in-ideas' (CARSTENSEN; SCHMIDT, 2016). This leads to the fourth and final conclusion: the polemic

political debates on the use of financial instruments for forest governance are grounded within the episteme of 'ruptured dependence'.

The episteme of 'ruptured dependence', as explained in chapter 4, characterizes the human relation with nature as neither fully independent (i.e. some nature is useful) nor fully dependent (i.e. not all nature is useful). Moreover, ruptured dependence strongly reflects in the building blocks of market instruments, namely singularization, monetary valuation and appropriation, some of which also characterize alternative financial instruments like results-based funding. Although the privatization of nature has been acknowledged to be open to political contestation (see chapter 3 and section 6.3), the analysis suggests that weaknesses in the other building blocks have prompted discursive conflicts in some cases. For instance, chapter 3 found that the clashing interpretations of REDD+ results in the Amazon Fund stemmed from an unclear relation between the activities of the Amazon Fund and their impact on deforestation rates. This is most clearly reflected in the warning from the Norwegian government in 2017 that donations may stagnate if the deforestation rates would continue to fall. As these observations underscore the importance of performance indicators that correspond with the common objective of emissions reductions, it becomes clear that the incapacity to demonstrate how individual projects contribute to the common REDD+ objective was problematized, consequently challenging the legitimacy of the financial instruments employed by Brazilian REDD+ institutions. In other words, the emphasis on emissions reductions becomes less obvious as the REDD+ concept dissolves into the forest policy nexus in Brazil. This exposes Brazilian REDD+ institutions to contestation and political debate, imbuing policy participants with 'power-through-ideas' for supporting their advocacy of alternative financial instruments like carbon offsetting.

The argument that adherence to ruptured dependence increases the legitimacy of financial instruments for REDD+ does not imply that the politics of REDD+ finance tend to gravitate towards market instruments. The market for forest certificates, for example, is an exemplary combination of objectification (i.e. CRA), monetary valuation (determine by supply and demand) and privatization (i.e. trade among landowners) (BERNASCONI; BLUMENTRATH; BARTON; RUSCH *et al.*, 2016; SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). As extensively described in chapter 5, however, this market instrument has occupied political debates for over 20 years without conclusive outcomes for

operationalization, which section 6.5 has partially attributed to the formal rules of national institutions. Conversely, the mainstream REDD+ approach (i.e. 'sustainable development' discourse) has been operational for about a decade, but the partial adherence to 'ruptured dependence' have rendered this approach unstable and open to political contestation. More specifically, the dissolution of the REDD+ concept raises questions about whether the forest policy nexus in Brazil, for which financial resources have been mobilized, lives up to the expectation of being a "highly cost-effective way of reducing greenhouse gas emissions" (STERN, 2006, p. 537). If the existing institutional structure cannot provide clear evidence of this contribution, other approaches like market instruments may become more appealing.

6.6. Considerations for policy-making

The four conclusions of this dissertation account for much of the diversity in financial instruments for forest governance in Brazil. It has become clear that the REDD+ concept is not a financial instrument, as was perhaps perceived in the literature, but is instead characterized in section 6.2 as the common objective of emissions reductions that may mobilize financial resources through various channels for the support of a diversity of policies, programs and plans. This explained how policy participants have advocated different and often competing approaches to attaining this common objective. The mainstream interpretation of the REDD+ concept has been shown to dissolve into the forest policy nexus in Brazil, as described in section 6.3, which explained why forest certificates trading could be subsumed within the same nexus. While this understanding accounts for the diversity of financial instruments for REDD+, their materialization and institutionalization is still governed by two institutional factors. On the one hand, section 6.4 has demonstrated how the formal rules of national institutions exert 'power-over-ideas' in the politics of financial instruments in Brazil, mostly constraining appeals to market instruments. On the other hand, section 6.5 argued that these political debates on financial instruments are grounded in 'ruptured dependence'. During the years of this research, this concept imbued advocates of market instruments with a 'power-in-ideas' and thereby sustained their appeals despite the constraints imposed by formal rules of national institutions. Although these conclusions may enhance our understanding of the use of financial instruments for forest governance, they also signify substantial challenges for sustaining and improving financial support for deforestation reductions. These challenges are discussed in more detail below.

While general adherence to 'ruptured dependence' is important for the successful materialization of financial instruments, this research has found that discursive problems have become particularly apparent with respect to the misalignment of performance indicators across different levels of forest governance. Chapter 4 described how official documents of the Amazon Fund (e.g. bilateral contracts, project document and guidelines) determined that BNDES shall provide information about its contribution to reducing deforestation, which places great importance on the provision of this information in quantitative terms. Although the financial transactions from donor countries do not imply an obligation to provide a return on investment, the legitimacy of these donations has started to erode as their impact cannot be accounted for. Moreover, while the Amazon Fund imposes strict requirements for project approval, there was no evidence of a clear strategy for allocating financial resources based on maximum impact on deforestation dynamics, which pushes legitimacy further down. Similar complications are to be expected for financial transactions from the Green Climate Fund to lower levels of forest governance. As discussed above, these appeals to the use of market instruments for REDD+ did not stem from a deep-rooted conviction of their superior efficiency and effectiveness, as has been the underlying argument for early emissions trading systems (LANE, 2012; VOB, 2007). Instead, stakeholders articulate alternative interests that do not necessarily lead to market instruments, such as demonstration of return on investment (i.e. donor countries) and access to financial resources (e.g. state governments). Neglecting these interests, however, may redirect political interests to the use of market instruments.

One potential solution to the discursive conflicts emanating from misalignment of performance indicators is simply to translate all REDD+ activities into a contribution to emissions reductions, avoiding the dissolution of the REDD+ concept into the forest policy nexus. Improving the commensurability of performance indicators across governance layers is more directly in line with the 'ruptured dependence' episteme and, therefore, enhances the legitimacy of financial transactions and strengthens existing REDD+ institutions. At the same time, however, translating the indirect contributions of some initiatives, most notably CAR implementation, will be challenging and costly. Although pressing for more information on the Amazon Fund's contribution to emission reductions, chapter 3 showed that donor countries acknowledged the necessity of such structuration projects and therefore concede to the lack of information to some extent. Moreover, insistence on producing

commensurate performance indicators for measuring the contribution to emissions reduction risks relinquishing attention to indirect drivers of deforestation (MAY; GEBARA; BARCELLOS; RIZEK *et al.*, 2016; WEATHERLEY-SINGH; GUPTA, 2015). These observations indicate that oversimplification, often described as 'singularization' (CALLON; MUNIESA, 2005) or 'disentanglement' (STEPHAN, 2012) in the literature on market instruments, is likely to ignore these indirect contributions that advance the attainment of emissions reductions.

Rather than tracing the direct contribution of financial transactions to emissions reductions, another potential solution involves the diversification of 'results' that mobilize financial resources. This option directly responds to the many manifestations for opening up to carbon offsetting in order to broaden access to finance. Debates on the diversification of 'results' have taken place to some extent, as described in chapter 5. More specifically, forest certificates may extend their initial focus on compensating legal reserve deficits to recognizing the provision of ecosystem services like carbon uptake, biodiversity conservation and watershed protection (i.e. "xCRA", see SOARES-FILHO; RAJÃO; MERRY; RODRIGUES *et al.*, 2016). A similar approach could also be applied to REDD+. Both the Amazon Fund and the Green Climate Fund exclusively use emissions reductions as the basis for financial transactions, but this ignores that REDD+ also involves conservation, sustainable forest management and enhancement of forest carbon stocks (i.e. the "+" categories). While these observations are not new (e.g. CENAMO; SOARES; KARST, 2014), the analysis in previous chapters found no evidence of such debates emerging in Brazilian REDD+ institutions. These considerations do not yet include financial transactions specifically directed at safeguards (e.g. respecting indigenous rights) or co-benefits (e.g. biodiversity conservation), which seem unlikely to materialize under the auspices of REDD+. Nonetheless, it is necessary to start considering the establishment of parallel channels for financing emissions reductions, carbon stocks, nature conservation and sustainable forest management, not to mention ecosystem service provision. While it is important to state that this broader approach should not redirect the finite financial resources away from deforestation, it will also require greater efforts of prioritization and strategic resource allocation as well as augmenting available financial resources altogether.

The discussion so far points to the necessity of making substantial changes to current forest governance practices, most notably at the national level, that may only materialize in the long run. Section 6.4 has made abundantly clear, however, that national institutions have tremendous power-over-ideas and push discursive competition into various directions. For REDD+, the insistence on results-based funding may turn a blind eye to the growing critiques on the (lack of information on) the perceived performance of the Amazon Fund and thereby jeopardize future financial support from foreign donating organizations. For forest certificates trading, the suspended operationalization process perpetuates the limited options for landowners to comply with the Forest Code, which may correlate with the more flexible legal requirements for forest conservation on private lands. This bottleneck of national institutions strongly reflects a broader erosion of forest and environmental governance at the national level for which the 2018 elections provide little perspective of a returning political will for improvement. These gloomy prospects increasingly suggest that sustaining and improving Brazilian forest governance may need to circumvent national institutions. Financial support for deforestation reductions could play an important role in this endeavor by seeking cooperation with other policy participants at lower levels of governance, such as state governments or alternative funding organizations. It is important to stress that this does not imply that all financial support should engage in carbon offsetting schemes like the GFC Task Force, but merely denotes that forest finance may need to avoid the concentration of financial resources within national institutions and seek diversification of recipient organizations.

There are, of course, downsides to this approach. Firstly, spreading financial support over multiple recipient organizations with diverging approaches and concerns may not generate the nation-wide results that the REDD+ concept, for example, seeks to attain. Indeed, the findings in chapter 3 included critiques from donor countries that the approach to resource allocation by the Amazon Fund is arbitrary (i.e. reactive evaluation of project proposals) rather than strategic (i.e. proactive targeting of project proposals). Secondly, diversifying the recipient organizations of financial support may also imply an avoidance of addressing driving factors of deforestation (e.g. land tenure, land use planning, law enforcement) that generally pertain to the national level (BUSCH; FERRETTI-GALLON, 2017; DUNLOP; CORBERA, 2016; WEATHERLEY-SINGH; GUPTA, 2015). For instance, CAR may become a powerful monitoring tool if accompanied by increased law enforcement capacity, but would still

require institutional improvements (AZEVEDO; RAJÃO; COSTA; STABILE *et al.*, 2014). A third downside involves an overall weakening of national forest governance in absence of financial resources and political will to invest in nature conservation. These downsides require substantial consideration by donation and investment organizations. The alternative would be to engage in perhaps lingering political debates in order to pressure Brazilian national institutions into increasing efforts for transformational change.

6.7. Final reflections and considerations

Throughout the years of this doctorate research, the most challenging limitation has been the volatility of developments in the research field. As already mentioned in the introduction of this dissertation, political debates on REDD+ in Brazil have been in constant movement and different aspects of forest governance have been in the spotlights at different moments in time. Only in 2018 did political debates start the development of SISREDD+, which has been important for juxtaposing its performance indicators with the foundations for financial transactions to the Amazon Fund and from the Green Climate Fund (see chapters 3 and 4). Moreover, the development of the Brazilian market for forest certificates was shaken up by the introduction of 'ecological identity' in the conclusion of a legislative process on the Forest Code (see chapter 5). These events have made it very challenging to sufficiently focus research activities and find coherence in the chronology. In this sense, the development of this doctorate dissertation is the outcome of an organic research process that slowly took its present form. The discursive-institutional approach has been very helpful in this process, because it allowed for much flexibility for moving with the tumultuous tides of Brazilian forest politics. The difficulty, however, was to find a clear and stable pattern in these tidal developments that would lead to the general conclusions described in this chapter. In order to mitigate this, it has been very important to anchor the conclusions in the initial observations of the research field in the literature, namely the strong appeal of market instruments that are founded in economic theory and the often-claimed Brazilian resistance to such market instruments in relation to REDD+.

The results of these processes have yielded important conclusions on financial instruments for REDD+ and may partially resonate with REDD+ implementation in other countries and regions. For instance,

there is a high probability that the findings related to the epistemic structure of 'ruptured dependence' governs the use of financial instruments more broadly. This conceptualization may therefore inspire further research in understanding why such instruments materialize the way they do. The conceptualization of REDD+ as a common objective that mobilizes financial resources may also be useful for this purpose, since it strips the concept of predetermined interpretations with respect to the use of financial instruments. This allows the researcher to discern the political nature of such instruments. Moreover, a combination with 'ruptured dependence' enables the researcher to detect where interpretations may influence established discourses or even deeper social structures of financial instruments, thereby anticipating outcomes of political processes. At the same time, however, the conclusion on the dissolution of REDD+ into the forest policy nexus may not apply to all contexts. The carbon offsetting approach to REDD+ in Costa Rica, for example, suggests that the REDD+ concept, understood as a common objective of emissions reductions, may penetrate to lower levels of forest governance, since performance indicators of individual projects still refer to it explicitly (CORBERA; ESTRADA; MAY; NAVARRO *et al.*, 2011). A more general theory about REDD+ implementation, if at all possible, would require more research on how the concept becomes embedded within different contexts.

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Annex: List of interviewees

Date	Name	Organization
31/05/2012	Britaldo Soares-Filho	Federal University of Minas Gerais (UFMG)
22/06/2012	David Rojas	Cornell University
28/08/2012	Ronaldo Seroa da Mota	Institute for Applied Economic Research (IPEA)
19/10/2015		
06/08/2012	Fernando Castanheira Neto	Secretariat for Strategic Affairs (SAE/PR)
06/08/2012	Roberto Araújo de Faria	Secretariat for Strategic Affairs (SAE/PR)
10/08/2012	Alexandre Avelino	Ministry of Environment
13/08/2012	Alexandre Olival	Instituto Ouro Verde
11/09/2012	Lucio Pedroni	Carbon Decisions International
04/10/2012	Ciaran Kelly	Green Celestial Ventures
28/08/2014	Britaldo Soares-Filho	Federal University of Minas Gerais (UFMG)
02/12/2014	Gercilene Meira	Environmental Secretariat of Alta Floresta
02/12/2014	Leandro Carlos Paes	Rural Syndicate of Alta Floresta
05/12/2014	Lucelia Avi	Agricultural Federal of Mato Grosso (FAMATO)
05/12/2014	Rangel	Rural Syndicate of Alta Floresta
11/12/2014	Ricardo Arioli	Agricultural Federal of Mato Grosso (FAMATO)

11/12/2014	Edinusa Rodrigues	Amazon Environmental Research Institute (IPAM)
11/12/2014	Ricardo Woldmar	Amazon Environmental Research Institute (IPAM)
11/12/2014	Maurício Phillip	Environmental Secretariat of Mato Grosso (SEMA-MT)
14/10/2015	Juliana Santiago	Brazilian Development Bank (BNDES)
14/10/2015	Guilherme Accioli	Brazilian Development Bank (BNDES)
15/10/2015	Leonel Melo	Bolsa Verde do Rio de Janeiro (BVRio)
19/10/2015	Roberta del Giudice	Bolsa Verde do Rio de Janeiro (BVRio)
0307/2017		Forest Code Observatory (OCF)
18/11/2015	Plínio Ribeiro	Biofílica
19/11/2015	Luciane Chiodi Bachion	Agroícone
26/11/2015	Ana Luiza Champloni	Ministry of Finance (MF)
26/11/2015	Antônio Sanchez	Ministry of Environment (MMA)
04/04/2016	Anahita Yousefi	Norwegian Embassy in Brazil
04/04/2016	Priscilla Santos	Norwegian Embassy in Brazil
04/07/2017		
05/04/2016	Andrea Azevedo	Amazon Environmental Research Institute (IPAM)
05/04/2016	Tiago Reis	Amazon Environmental Research Institute (IPAM)
07/04/2016	Aloisio Lopes Pereira de Melo	Ministry of Finance (MF)

07/04/2016	Antônio do Prado	Ministry of Environment (MMA)
28/11/2017		
08/04/2016	Ronaldo Weigand Jr.	Nave Terra
08/04/2016	Adriana Ramos	SocioEnvironmental Institute (ISA)
19/09/2016	Heliandro Maia	Gesellschaft für Internationale Zusammenarbeit (GIZ)
19/09/2016	Christian Lauerhaß	German Development Bank (KfW)
05/07/2017	Frederico Machado	World Wide Fund for Nature (WWF)
24/07/2017	João Adrien	Brazilian Rural Society (SRB)
25/07/2017	Márcio Astrini	Greenpeace
27/07/2017	Izabela Teixeira	Ministry of Environment (MMA)
11/08/2017	Maarten van den Eynden	Norway's International Climate and Forest Initiative (NICFI)
11/08/2017	Livia Costa Kramer	Norway's International Climate and Forest Initiative (NICFI)
28/06/2018	Gerd Sparovek	University of São Paulo (USP)