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GOVERNANÇA EXPERIMENTALISTA NO FINANCIAMENTO DO CLIMA: O CASO DE REDD+ NO BRASIL

EXPERIMENTALIST GOVERNANCE IN CLIMATE FINANCE: THE CASE OF REDD+ IN BRAZIL

Vanessa Cuzziol Pinsky

Advisor: Prof. Dr. Isak Kruglianskas

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Prof. Dr. Marco Antonio Zago
Rector of University of São Paulo

Prof. Dr. Adalberto Américo Fischmann
Director of School of Economics, Management and Accounting

Prof. Dr. Roberto Sbragia
Chief of Business Management Department

Prof. Dr. Moacir de Miranda Oliveira Júnior
Coordinator of the Post-Graduation Program in Business Management

VANESSA CUZZIOL PINSKY

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To my sons Guilherme and Fernando and to all the young people who can and will make a difference to climate change.

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ABSTRACT

Pinsky, V. C. (2017). Experimentalist governance in climate finance: the case of REDD+ in Brazil (PhD thesis). Faculdade de Economia, Administração e Contabilidade. Universidade de São Paulo, São Paulo.

Climate change is a daunting problem that results in actions-interactions from a number of actors in complex global systems, which require multi-level governance and a myriad of national policies. Academics and policy makers alike have been grappling with how to devise effective strategies on the international coordination of climate change policies. It is challenging because climate change problems involve actors with different positions, interests and motivation to cooperate due to the risks involved, the uncertainty and the high costs of adaptation and mitigation. Deforestation is the second largest source of GHG emissions. Success in this area can have a large impact on mitigation. This study focuses on the case of REDD+, a large scale governance experiment in climate finance and a promising cost-effective mitigation mechanism to motivate developing countries to implement policy approaches to reducing emissions from deforestation and forest degradation. REDD+ is considered a breakthrough mechanism in international cooperation under the UNFCCC regime as it was designed to be performance-based. Brazil is the world's largest recipient and has the most important REDD+ experiment – the Amazon Fund. The lack of developed theory in this domain led to the use of grounded theory methodology to understand the REDD+ governance process in Brazil. The 'REDD+ Governance Theoretical Framework' emerged from the data. It is a substantive theory formed by seven major categories (Governance, Strategy, Financing, Implementation, Participation of stakeholders, Joint action and Collective learning) that are related to each other and explain the phenomenon. This study suggests that the lack of institutional arrangements to stimulate collective learning and incorporate lessons learned from the ground experience has been a major constraint on improving its governance in Brazil. Improving the effectiveness of the policy cycle may depend upon the establishment of specific arrangements focused on peer review processes involving lower-level entities responsible for implementation and experts from civil society. The establishment of a recursive learning system could solve certain policy coordination problems and create new opportunities to improve the effectiveness of the REDD+ governance process and implementation. This theory adds to the limited body of literature in the field by extending the knowledge on climate finance, stimulating discussion, and creating opportunities for further research and theoretical advances. The theoretical framework and lessons learned in Brazil from success and failure can help other developing countries to implement a national REDD+ strategy, system or regime. The theory can contribute to the international debate on the principles of good governance in official development assistance and aid effectiveness. This study provides an opportunity for policy makers and practitioners to learn about the challenges and constraints faced by Brazil when implementing an unprecedented results-based mechanism focused on mitigation.

Keywords: Climate change; REDD+; Climate governance; Climate finance; Climate policy; Amazon Fund; Deforestation; Mitigation; International cooperation; Warsaw Framework for REDD+; Paris Agreement; Grounded theory; Experimentalist governance.

RESUMO

Pinsky, V. C. (2017). Governança experimentalista no financiamento do clima: o caso de REDD+ no Brasil. (Tese de Doutorado). Faculdade de Economia, Administração e Contabilidade. Universidade de São Paulo, São Paulo.

A mudança climática é um problema desafiador resultante de ações e interações entre diversos atores em sistemas globais complexos, o que demanda governança em vários níveis e uma miríade de políticas nacionais. Acadêmicos e *policy makers* vêm se desafiando sobre como elaborar estratégias eficazes na coordenação internacional das políticas em mudança climática. É desafiador porque os problemas relacionados à mudança do clima envolvem atores com diferentes posições, interesses e motivação para cooperar, já que existem riscos envolvidos, alto nível de incerteza e custos de adaptação e mitigação. O desmatamento é a segunda maior fonte de emissões de gases causadores do efeito estufa. Sucesso nesta área pode ter um grande impacto em mitigação. Este estudo enfoca no caso de REDD+, um experimento de governança no financiamento do clima e um promissor mecanismo de mitigação com baixo custo para incentivar os países em desenvolvimento a implementar abordagens políticas que reduzam emissões oriundas do desmatamento e da degradação florestal. O REDD + é considerado um mecanismo inovador em acordos de cooperação internacional sob o regime da UNFCCC, pois foi idealizado para ser baseado em desempenho. O Brasil é o maior receptor do mundo e tem o mais importante experimento de REDD+ – o Fundo Amazônia. A ausência de teorias desenvolvidas nessa área levou ao uso da metodologia *grounded theory* para compreender o processo de governança de REDD+ no Brasil. A partir dos dados primários foi desenvolvido o 'REDD+ *Governance Theoretical Framework*'. Trata-se de uma teoria substantiva formada por sete categorias (Governança, Estratégia, Financiamento, Implementação, Participação de *stakeholders*, Ação coletiva e Aprendizagem coletiva) que se relacionam e explicam o fenômeno. Este estudo sugere que a ausência de arranjos institucionais para estimular a aprendizagem coletiva e incorporar as lições aprendidas durante a implementação tem sido um grande obstáculo para melhorar a governança de REDD+ no Brasil. Melhorar a efetividade do ciclo político pode depender do estabelecimento de arranjos específicos com foco em processos de revisão por pares que envolvam entidades responsáveis pela implementação e especialistas da sociedade civil. O estabelecimento de um sistema de aprendizagem recursiva poderia facilitar a resolução de alguns problemas de coordenação política e criar novas oportunidades para aprimorar o processo de governança de REDD+. Esta teoria contribui para a construção do conhecimento científico focado no financiamento do clima, estimula a discussão, sugere oportunidades para novas pesquisas e avanços teóricos. O *framework* teórico pode ajudar outros países em desenvolvimento a implementar estratégia, sistema ou regime nacional de REDD+. As lições aprendidas no Brasil, baseadas no sucesso e fracasso, podem ser absorvidas por outros países em desenvolvimento. A teoria contribui para o debate internacional sobre os princípios da boa governança nos acordos de cooperação internacional e na eficácia da ajuda financeira. Este estudo oferece uma oportunidade para que os *policy makers* e os profissionais aprendam sobre os desafios e obstáculos enfrentados pelo Brasil ao implementar um inovador mecanismo de financiamento do clima baseado em resultados.

Palavras-chave: Mudança climática; REDD+; Governança do clima; Financiamento do clima; Política do clima; Fundo Amazônia; Desmatamento; Mitigação; Cooperação internacional; Marco de Varsóvia para REDD+; Acordo de Paris; Teoria fundamentada; Governança experimentalista.

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ABC Plan	Low-carbon Agriculture Plan (Plano ABC)
ACTO	Amazon Cooperation Treaty Organization
AF	Amazon Fund
APIB	Articulation of the Indigenous Peoples of Brazil (Articulação dos Povos Indígenas do Brasil)
ARPA	Amazon Region Protected Areas Program (Programa Áreas Protegidas da Amazônia)
BNDES	Brazilian Development Bank (Banco Nacional do Desenvolvimento)
CAR	Rural Environmental Registry (Cadastro Ambiental Rural)
CDM	Clean Development Mechanism
CGD	Center for Global Development
CIFOR	Center for International Forestry Research
CNS	National Council of Rubber Tappers (Conselho Nacional das Populações Extrativistas)
COFA	Amazon Fund Guidance Committee (Comitê Orientador do Fundo Amazônia)
COMIFAC	Central Africa Forests Commission
CONAREDD+	National REDD+ Committee (Comissão Nacional para REDD+)
COP	Conference of the Parties
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CPR	Common-pool Resources
CTFA	Amazon Fund Technical Committee (Comitê Técnico do Fundo Amazônia)
EMBRAPA	Brazilian Agricultural Research Corporation (Empresa Brasileira de Pesquisa Agropecuária)
ENREDD+	Brazil's National REDD+ Strategy (Estratégia Nacional para REDD+)
EU	European Union
FAPESP	São Paulo Research Foundation (Fundação de Amparo à Pesquisa do Estado de São Paulo)
FADESP	Research Development Support Foundation (Fundação de Amparo e Desenvolvimento da Pesquisa do Estado do Pará)
FAO	Food and Agriculture Organization
FAS	Sustainable Amazon Foundation (Fundação Amazonas Sustentável)
FBMC	Brazilian Forum on Climate Change (Fórum Brasileiro de Mudanças Climáticas)
FBOMS	Brazilian Forum of NGOs and Social Movements for the Environment and Development (Forum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento)
FCPF	Forest Carbon Partnership Facility
FEA/USP	University of São Paulo School of Economics, Management and Accounting (Faculdade de Economia, Admistração e Contalibilidade da Universidade de São Paulo)
FIA	Management Foundation Institute (Fundação Instituto de Administração)
FIP	Forest Investment Programme
FREL	Forest Reference Emission Level
FUNCATE	Science, Applications and Space Technology Foundation (Fundação de Apoio para Projetos de Pesquisa de Ciência e Tecnologia Espacial)

FUNAI	National Indian Foundation (Fundação Nacional do Indio)
FUNBIO	Brazilian Biodiversity Fund (Fundo Brasileiro para a Biodiversidade)
GCF	Green Climate Fund
GCF Task Force	Governors' Climate and Forests Task Force
GEF	Global Environmental Facility
GHG	Greenhouse Gas
GIZ	German Agency for International Cooperation
IBAMA	Brazilian Institute of Environment and Renewable Natural Resources (Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis)
IC	International Conservation
ICAO	International Civil Aviation Organization
ICLEI	Local Governments for Sustainability
ICMBio	Chico Mendes Institute for Biodiversity Conservation (Instituto Chico Mendes de Conservação da Biodiversidade)
ICV	Institute of Life Center (Instituto Centro de Vida)
IDESAM	Institute for the Conservation and Sustainable Development of the Amazon (Instituto de Conservação e Desenvolvimento Sustentável da Amazônia)
IDIS	Institute for Democracy and Sustainability (Instituto para o Desenvolvimento do Investimento Social)
IEMA	Energy and the Environment Institute (Instituto de Energia e Meio Ambiente)
ILAR	Laboratory on International Law and Regulation
IMAFLORA	Institute of Agricultural and Forest Management and Certification (Instituto de Manejo e Certificação Florestal e Agrícola)
IMAZON	Institute of Man and Environment of the Amazon (Instituto do Homem e Meio Ambiente da Amazônia)
INCRA	National Institute of Colonization and Agrarian Reform (Instituto Nacional de Colonização e Reforma Agrária)
INDC	Intended Nationally Determined Contribution
INESC	Institute for Socioeconomic Studies (Instituto de Estudos Socioeconômicos)
INPA	National Institute for Amazonian Research (Instituto Nacional de Pesquisas da Amazônia)
INPE	National Institute for Space Research (Instituto Nacional de Pesquisas Espaciais)
IPAM	Amazon Environmental Research Institute (Instituto de Pesquisa Ambiental da Amazônia)
IPCC	Intergovernmental Panel on Climate Change
ISA	Social Environmental Institute (Instituto Socioambiental)
ISFL	BioCarbon Fund Initiative for Sustainable Forest Landscape
KfW	German Development Bank
LARCI	Latin American Regional Climate Initiative
MAPA	Ministry of Agriculture, Livestock and Food Supply (Ministério da Agricultura, Pecuária e Abastecimento)
MCTIC	Ministry of Science, Technology, Innovations and Communications (Ministério da Ciência, Tecnologia, Inovações e Comunicações)
MF	Ministry of Finance (Ministério das Finanças)
MMA	Ministry of the Environment (Ministério do Meio Ambiente)

MRE	Ministry of Foreign Relations (Ministério das Relações Exteriores)
MRV	Measuring, Reporting and Verification
NDC	Nationally Determined Contribution
NGO	Non-governamental Organization
NICFI	Norway's International Climate and Forest Initiative
NORAD	Norwegian Agency for Cooperation Development
OC	Climate Observatory (Observatório do Clima)
ODA	Official Development Assistance
PES	Payment for Environmental Services
PPCDAm	Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (Plano de Ação para Prevenção e Controle do Desmatamento na Amazônia Legal)
PPCerrado	Action Plan for the Prevention and Control of Deforestation and Forest Fires in the Cerrado (Plano de Ação para Prevenção e Controle do Desmatamento e das Queimadas no Cerrado)
PPG7	Pilot Program for Tropical Forest Protection (Programa Piloto para a Proteção das Florestas Tropicais)
PROGESA	Social and Environmental Strategic Management Program (Programa de Gestão Estratégica Socioambiental)
REDD+	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
REM	Germany's REDD+ Early Movers Programme
RFN	Rainforest Foundation Norway
SDM+	Sustainable Development Mechanism
SEEG	System Study Greenhouse Gas Emissions Estimates (Sistema de Estimativas de Emissões de Gases de Efeito Estufa)
SFB	Brazilian Forest Service
SFM	Sustainable Forest Management
TNC	The Nature Conservancy
UCSD	University of California San Diego
UFMG	Federal University of Minas Gerais (Universidade Federal de Minas Gerais)
UFPA	Federal University of Pará (Universidade Federal do Pará)
UFRRJ	Federal Rural University of Rio de Janeiro (Universidade Federal Rural do Rio de Janeiro)
UN-REDD+	United Nations REDD+ Programme
UNB	University of Brasília (Universidade de Brasília)
UNFCCC	United Nations Framework Convention on Climate Change
USP	University of São Paulo
WFR	Warsaw Framework for REDD+
WRI	World Resource Institute

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1 INTRODUCTION

Climate change is a daunting problem and a threat to social and natural systems (IPCC, 2014), which involve a number of actors with different motivations for action and capabilities to contribute to mitigation (Rayner, 2010). Indeed, climate change is considered a multi-level governance problem, which is a "result of complex global systems of natural forces interacting with interrelated and interdependent human behaviors that have evolved over centuries" (Prins & Rayner, 2007, p. 26).

Climate change is also considered a 'wicked problem' due to the high level of uncertainty and complexity involved (Prins & Rayner, 2007). A wicked problem is characterized by the lack of clear path or boundaries, where there is no definitive optimal solution, as per the uniqueness of the problem. The solutions are not true or false as they can be perceived as good or bad, or better or worse (Rittel & Webber, 1973).

The unsustainable use of natural resources and population growth can lead to 'the tragedy of the commons', a term first introduced by Hardin (1968) in which complex global problems such as pollution, food security and waste management require social arrangements to produce responsibility and create mutual coercion agreed by the majority of the individuals involved and imposed by an external authority. According to Ostrom (2008):

> 'The tragedy of the commons' arises when it is difficult and costly to exclude potential users from common-pool resources that yield finite flows of benefits, as a result of which those resources will be exhausted by rational, utility-maximizing individuals rather than conserved for the benefit of all. Pessimism about the possibility of users voluntarily cooperating to prevent overuse has led to widespread central control of common-pool resources. But such control has itself frequently resulted in resource overuse. In practice, especially where they can communicate, users often develop rules that limit resource use and conserve resources. (p. 1)

Smith (1981), as one of the property rights theorists, adds that the tragedy of the commons would be properly resolved by creating private property rights to preserve natural resources and wildlife. On the other hand, Ostrom (1990) argues that neither the government nor the market though the privatization of resources can unilaterally successfully manage the long-term sustainable use of natural resources on a large scale due to the complexity and the diversity of the problems involved in managing common-pool resources (CPR).

CPR is a natural or human-constructed resource system, regardless of property rights, in which the exclusion of beneficiaries is costly, and the use by one individual reduces resource availability (quantity and/or quality) for others. CPR problems require collective actions from interest groups aiming at achieving collective benefits (Ostrom, 1990; Ostrom,

Burger, Field, Norgaard, & Policansky, 1999). However, it is difficult to achieve collective action, even when groups have common interests as this involves different factors such as the group size, cost of the transaction, and the free-riders problem (Olson, 1971).

Climate change is a classic example of a collective action problem. International policy in climate change is characterized by fragmentation of power and divergent interests in highly complex global problems that require cooperation from different actors at international, regional, national, and local levels. Unloading the climate policy agenda by decomposing the global problem into a series of more tractable problems such as deforestation, ocean acidification or short-lived pollutants is emerging as a feasible and more effective strategy to manage this multilevel governance problem (Rayner, 2010; Sabel & Victor, 2015).

This polycentric approach to manage decomposed climate change problems, with a high level of uncertainty, may encourage innovation through experimental efforts in a learning-by-doing approach with the participation of different actors and groups at all levels. New governance arrangements based on a more flexible and effective bottom-up approach might emerge (Ostrom, 2009; Sabel & Victor, 2015).

Anthropogenic greenhouse gas (GHG) emissions have increased in an unprecedented way since the pre-industrial era and have been warming the climate system. Some of the impact on human and natural systems includes the reduction of the amount of snow and ice, a warmer atmosphere and ocean, and the rise in the sea level (IPCC, 2014).

Emissions from fossil fuels and industrial processes contributed about 78% of CO_2 emissions from 1970 to 2010 (IPCC, 2014). Deforestation is considered the second largest source of CO_2 in the atmosphere, accounting for 12% of the total emissions of anthropogenic CO_2 (Van der Werf et al., 2009). Furthermore, several modeling studies on tropical deforestation have concluded that land use change interferes with local, regional, and global climate and agriculture (Feddema et al., 2005; Lawrence & Vandecar, 2014; Mahmood et al., 2014; Medvigy, Walko, Otte, & Avissar, 2013; Nobre, Sellers, & Shukla, 1991; Sampaio et al., 2007; Snyder, 2010; Zhang, Henderson-Sellers, & Mcguffie, 2001).

Deforestation is one of the major drivers of climate change (Lederer, 2012) and is considered a complex global problem whose management requires collective actions of diverse actors and groups with different interests such as national and regional governments, international donors, and civil society organizations (Ostrom, 1990). Actions to reduce deforestation and forest degradation are considered a cost-effective way to curb emissions because large-scale programs can be carried out very quickly (Stern, 2007).

The drivers of deforestation and forest degradation have many causes. Human activities, such as agriculture, cattle ranching, mining, urban expansion, timber extraction and forest fires are considered direct drivers that impact forest cover and carbon stocks. Indirect drivers are the complex interactions with social, economic and political systems, which lead to deforestation or forest degradation. Commodity prices, population growth, market demand, and poverty are examples of indirect drivers (Kissinger, Herold, & Sy, 2012).

Identifying the drivers of deforestation and forest degradation is a critical element of any environmental policy approach. They are specific to regions and country circumstances, as well as the economic importance of activities that motivate deforestation. A number of actors such as local communities, indigenous peoples, civil society entities, governments and companies, and sectors such as forestry, agriculture, energy, transport and consumer goods are involved and impacted by the drivers of deforestation at all levels (Schroeder, 2010).

Forests have a significant potential for climate change mitigation, considering afforestation and reforestation activities, forest management, reduction of the deforestation rate, management of forestry products, use of forestry products for bioenergy production instead of using fossil fuels, and improvement of forest species aiming at increasing biomass productivity (Krug, 2008, p. 49). These examples of productive activities in the forestry sector constitute a powerful lever for social and economic development while promoting sustainable forest management (Ab'Sáber, Goldemberg, Rodés, & Zulauf, 1990).

Indeed, combating deforestation is a fundamental condition for the sustainability of the agribusiness sector due to the effects of tropical deforestation on climate, considering the increase in mean temperature and the decline in mean rainfall, which puts agriculture at risk (Lawrence & Vandecar, 2014).

There has been important progress worldwide in curbing emissions from land use changes over the last decades. According to the Food and Agriculture Organization (FAO, 2016), in 1990 the world had 4,128 million ha of forest, decreasing to 3,999 million ha in 2015. Between 2010 and 2015, the global net forest loss was 3.3 million ha per year. Most of the forest loss took place in the tropics, especially in South America and Africa. Although the extent of forests continues to decline, the net forest loss rate has been cut due to the improvement of sustainable forest management activities, as stated by FAO:

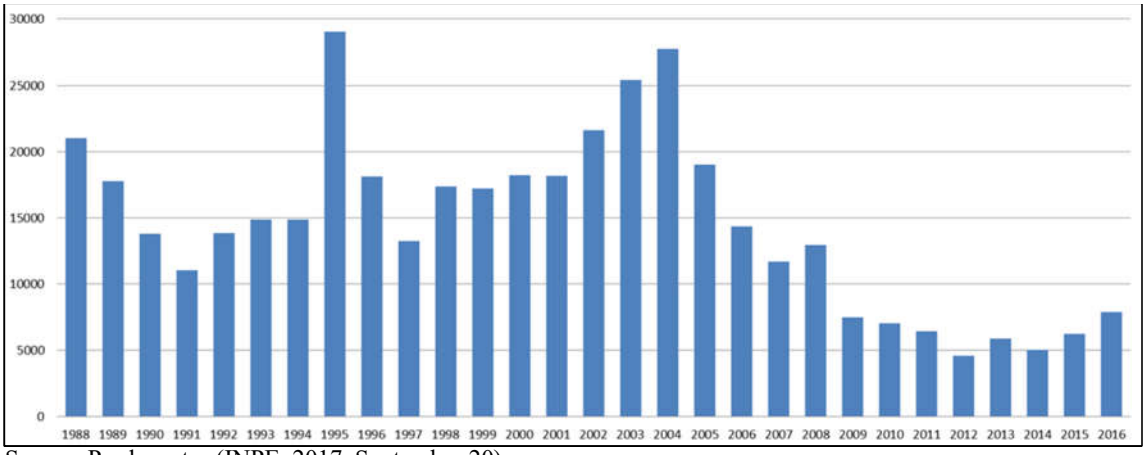
> Sustainable forest management (SFM) has never been higher: More land is designated as permanent forest, more assessment, monitoring, reporting, planning and stakeholder involvement is taking place, and the legal frameworks for SFM are being widely adopted. Larger areas are being designated for conservation of biodiversity while at the same time forests are meeting increasing demands for forest products and services. (p. 3)

Brazil has proven its capacity to dramatically reduce the deforestation rate in the Amazon since 2004 through a set of combined public policies, command and control activities, soy and beef moratoria, civil society interventions and projects, and initiatives supported by the Amazon Fund. According to the Amazon Deforestation Monitoring Project (Prodes in the Portuguese acronym), coordinated by the National Institute for Space Research (INPE in the Portuguese acronym), the deforestation rate in the Brazilian Legal Amazon decreased by 72% in the 2004-2016 period, stabilizing at around 5,000 km^2 in the last years (INPE, 2017, September 20).

The impressive decrease in the deforestation rate in the Brazilian Amazon since 2004 is related to the establishment of protected areas, effective monitoring systems, the drop in commodity prices, and credit restriction mechanisms for landholders who illegally deforest (Aguiar et al., 2016; Moutinho, Guerra, & Azevedo-Ramos, 2016).

However, the fact that the deforestation rate increased by 27% in the 2015-2016 period (INPE, 2017, September 20) suggests that the present public policies and the Amazon Fund have not been enough to address the drivers of deforestation and forest degradation in the Amazon due to current country circumstances. Prodes historical data seems to show an upward trend in the deforestation rate from 2014 to 2016, as seen in Figure 1.

Figure 1: Deforestation Rate in the Legal Amazon



Source: Prodes rates (INPE, 2017, September 20).

In May 2017, a social movement called #Resista, formed by 150 civil society organizations in Brazil, including indigenous peoples and environmental, human rights and community-based entities, published a manifesto letter against the unprecedented social and environmental setbacks resulting from President Temer's government and moves sponsored by ruralist groups in the National Congress (Greenpeace, 2017, September 22; IPAM, 2017, September, 22).

These organizations are reinforcing their position against serious setbacks in the social and environmental policy agendas, including the following initiatives: the reduction and abolition of protected areas; the suspension of the demarcation of indigenous peoples' lands and agrarian reform; the weakening of the environmental licensing process; attempts to deregulate and approve agrochemicals dangerous to human health and the environment; the sale of lands to foreigners; amnesty for environmental crimes and agribusiness debts; the legalization of land grabbing; and environmental licensing in forest areas for mineral exploration in the Amazon (Greenpeace, 2017, September 22; IPAM, 2017, September, 22).

The remainder of this chapter is organized as follows. Section 1.1 presents a brief overview of the international negotiations on climate change. The contextualization of REDD+ is presented in section 1.2. Section 1.3 discusses the gap in the literature. Section 1.4 presents the research problem, including the research objectives and the research question that guided this study. The final section presents the structure of this study with a brief summary of the chapters.

1.1 International Negotiations on Climate Change

Since the late 1980s policy makers and scholars have had increased interest in the governance of complex global problems related to global warming due to the risks involved and high costs of adaptation and mitigation. The 1992 United Nations Framework Convention on Climate Change (UNFCCC), adopted at the Earth Summit in Rio de Janeiro by 197 Parties, and the 1997 Kyoto Protocol, ratified by 192 Parties, are considered landmarks of the international diplomacy on climate change, which places the stabilization of GHG emissions at a 'safe level' as the ultimate objective.

International negotiations on climate change have been taking place for over 20 years. However, global GHG emissions have continued increasing (Prins & Rayner, 2007). The consensus-oriented decision rule system of the United Nations is very complex because it involves many countries with different circumstances and a variety of complex issues. The

Kyoto Protocol settled universal and legally binding commitments on mitigation and adaptation, including internationally binding emission reduction targets for developed countries. On the other hand, it imposed no limits on GHG emissions for developing countries under the principle of common but differentiated responsibilities (Falkner, Stephan, & Vogler, 2010; Victor, 2011).

Some of the challenges related to the top-down approach in the Kyoto Protocol include the lack of political will of some nations, the fact key countries (Australia and the US) refused to ratify the agreement, and political difficulties in the European Union (EU) and Japan to create an international carbon market (Prins & Rayner, 2007).

Furthermore, the Clean Development Mechanism (CDM), created under the Kyoto Protocol, allowed industrialized countries to earn credits by investing in certified emission control projects to comply with part of their emission reduction commitments (UNFCCC, 1998). Some consider that the CDM has not been successful because of constraints on identifying new investments in emission reduction projects from what was business as usual investments that would have taken place anyway due to economic development. These facts allowed a large number of frauds from CDM traders and some developing countries. The result is a lack of meaningful policy reforms to address and effectively govern complex global problems (Victor, 2011).

In November 2016 the Paris Agreement on climate change in which 162 Parties ratified the agreement of 197 Parties to the Convention entered into force (UNFCCC, 2017, September 20). The Paris Agreement, which will replace the Kyoto Protocol by 2020, has three major aims:

> 1) holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; 2) increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and 3) making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. (UNFCCC, 2015, p. 22)

The Paris Agreement is a hybrid international agreement with a mix of bottom-up and top-down architecture. It combines top-down elements for oversight, guidance, and coordination. The new flexible bottom-up approach, instead of setting top-down emission reduction targets, is represented by the Intended Nationally Determined Contributions (INDCs), in which all countries were invited by the UNFCCC to submit their intended national targets and actions (post 2020) to be taken under the new international climate agreement. Countries' individual pledges, except for the EU, which submitted one INDC on

behalf of its 28 Member States, include a range of policy actions based on countries' institutional, economic, political and technological capacities, as per the origin of the bottom-up approach (Rayner, 2010).

Countries that ratified the agreement are committed to reviewing their pledges every five years, hoping to increase their ambition over time with more aggressive mitigation targets (UNFCCC, 2015). Even though agreements do not ensure that countries will act based on their pledges, a report and review mechanism increase confidence, transparency, and willingness to comply with international agreements on climate change (Falkner, Stephan, & Vogler, 2010).

1.2 REDD+

REDD+ stands for "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" (UNFCCC, 2014a, p. 6, Decisions 1/CP.13 and 2/CP.13). It is a performance-based mechanism to mitigate forest-related carbon emissions in which developing countries receive incentives to improve forest management by attributing an economic value to the additional carbon stored in trees or not emitted (Corbera & Schroeder, 2011).

Managing and implementing REDD+ involves a multi-level governance of state and nonstate actors across levels (Skutsch & Van Laake, 2009). Decision making in a multi-level governance system is very complex because solutions do not come from governments unilaterally and require transparency, fairness, and mechanisms legitimated by all stakeholders (Biermann, 2007).

REDD+ governance requires an architecture that includes different institutional arrangements, stakeholders' participation, norms, mechanisms, and decision-marking processes across levels, simultaneously with monitoring and reporting. According to the 2013 Warsaw Framework for REDD+ (WFR), coordination and REDD+ results should be centralized at the national level, with subnational activities implemented by lower-level entities (Corbera & Schroeder, 2011).

The REDD+ rule-making process is influenced by nonstate actors (Corbera & Schroeder, 2011) because it is very difficult to implement REDD+ without the involvement and consent of the local communities that are impacted by the activities. The top-down approach in forest protection often fails due to the lack of legitimacy and social consent. Indeed, governments do not have always the necessary resources to enforce the law (Skutsch & Van Laake, 2009).

It has been negotiated under the UNFCCC regime since 2005 although the international debate on the need to develop financial mechanisms to protect tropical forests under the climate regime has been increasing since 1997, with the adoption of the Kyoto Protocol. In 2003, during COP-9, Brazilian researchers presented the concept of compensated emission reduction (Santilli et al., 2005) to develop a new financial mechanism on a global scale as part of the Convention. However, REDD was officially included in the official UNFCCC agenda only at COP-11 in 2005 when the Coalition of Rainforest Nations, led by Papua New Guinea and Costa Rica, proposed an economic incentive to compensate developing countries for reducing deforestation.

UNFCCC has been providing methodological guidance for the implementation of REDD+ as part of the 2010 Cancun Agreement, the 2011 Durban Platform for Enhanced Action, the 2012 Doha Climate Gateway, and the 2013 WFR (UN-REDD Programme, 2015a). After almost ten years, the international negotiation on REDD+ was concluded in June 2015 in Bonn. The final decisions on methodological guidance for REDD+, which culminated in the adoption of the WFR, were submitted to the negotiators of the Paris Agreement. The mechanism was included in Article 5 of the Paris Agreement:

> Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1(d), of the Convention, including forests. Parties are encouraged to take action to implement and support, including through results-based payments, the existing framework as set out in related guidance and decisions already agreed under the Convention for: policy approaches and positive incentives for activities relating to reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon. (UNFCCC, 2015, pp. 23-24, para. 2)

Within the adoption of the Paris Agreement in 2016, it is expected that by the time the Green Climate Fund (GCF) becomes fully operational, it will be a major channel to provide results-based payments on REDD+ to recipient countries. Industrialized nations assumed the commitment under the UNFCCC regime to mobilize at least USD 100 billion per year by 2020 from a wide variety of sources for mitigation and adaptation actions in developing countries, according to their needs and national priorities (UNFCCC, 2015). REDD+ financing is specified in the Paris Agreement as it

> recognizes the importance of adequate and predictable financial resources, including for results-based payments, as appropriate, for the implementation of policy approaches and positive incentives for reducing emissions from deforestation and forest degradation, and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks; as well as alternative policy approaches, such as joint mitigation and adaptation approaches for the integral and sustainable management of forests; while reaffirming the importance of non-carbon benefits associated with such approaches; encouraging the coordination of support from, inter alia, public and private, bilateral and multilateral sources, such as the Green Climate Fund, and alternative sources in accordance with relevant decisions by the Conference of the Parties. (UNFCCC, 2015, p. 8, para. 55)

At the international level, several bilateral and multilateral agreements such as the UN-REDD Programme, the World Bank's Forest Carbon Partnership Facility (FCPF), and the Forest Investment Program (FIP) have been supporting developing countries to implement REDD+.

REDD+ is a large scale governance experiment (Lederer, 2012), considered by some to be an experiment in transformative climate governance that leads to new perspectives by involving a diversity of actors and groups with different interests in policy implementation (Kaisa et al., 2017). Although REDD+ is not a panacea for climate change, the mechanism is considered a cost-effective approach for mitigation if compared to other alternatives (Angelsen & McNeill, 2012; Lederer, 2012; Phelps, Guerrero, Dalabajan, Young, & Webb, 2010).

The emerging REDD+ regime, which aims at preventing, mitigating and adapting to climate change, is embedded in larger governance architecture across different levels. Institutional arrangements in REDD+ occur at all levels, including the top-down WFR, policies and measures at the national level, combined with bottom-up strategies for implementation, considering the participation of lower levels, such as implementing agencies, civil society entities, and other important stakeholders (Corbera & Schroeder, 2011).

Major donor countries have been investing in REDD+ activities since 2008. Brazil, the largest REDD+ recipient country, has already received more than USD 1 billion from the governments of Norway and Germany through results-based payments channeled into the Amazon Fund (Amazon Fund, 2017, September 21), which is the largest REDD+ program in the world and the most important experiment due to the political importance of its international cooperation agreements with Norway and Germany (Boucher, Elias, Faires, & Smith, 2014).

Brazil is the world's largest and most advanced recipient country and has set new standards for international cooperation in environmental protection and climate change by involving multiple stakeholders in the governance and implementation of REDD+ activities. Brazil has demonstrated the feasibility of the results-based mechanism focused on

mitigation by fulfilling donors' expectations of accountability and transparency of results in cooperation agreements and showing that it is possible to establish goals and metrics to reduce emissions from deforestation and forest degradation.

Indeed, the Brazilian experiment has demonstrated to the international community that it is possible to give autonomy to a developing country to decide on how to manage REDD+ resources according to national priorities and ownership of the implementation agenda based on transparency and verified results before receiving results-based payments.

1.3 Gap in the Literature

The literature focused on REDD+ is very recent and emergent, as per the contemporaneity of the mechanism. A systematic literature review of peer-reviewed articles conducted in November 2015 showed that the first work which indexed the word 'REDD' was published in 2007. From a sample of 863 articles found in the Web of Knowledge database, only three articles were published in 2007, 18 in 2008, and 25 in 2009.

The academic production focusing on REDD+ has consistently increased over the years, with a peak of 218 articles published in 2014. The majority of the works have a quantitative approach, including works on mapping forest carbon emissions and carbon stocks (Asner et al., 2010; Gibbs, Brown, Niles, & Foley, 2007; Mitchard et al., 2014; Saatchi et al., 2011); forest biomass assessments (Danielsen et al., 2011; Henry et al., 2010; West, Vidal, & Putz, 2014); and economic assessments of REDD+ (Bellassen & Gitz, 2008; Busch et al., 2012; Venter et al., 2009).

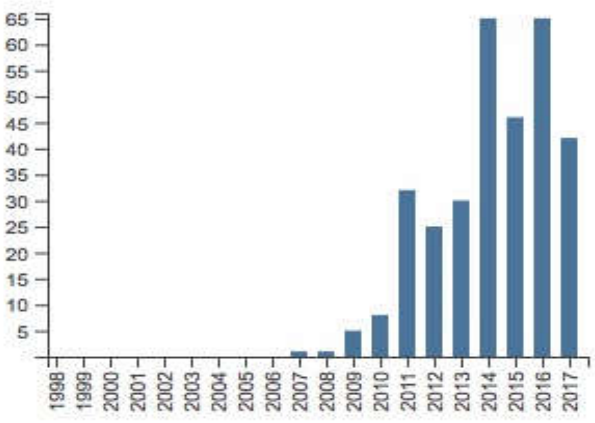
Several qualitative studies are focused on the governance and implementation of REDD+ programs (Bolin, Mustalahti, Boyd, & Paavola, 2012; Hajek, Ventresca, Scriven, & Castro, 2011; Marcovitch & Pinsky, 2014; Peskett, Schreckenberg, & Brown, 2011). Others focus on the political dimensions of REDD+ in light of forest tenure and carbon rights (Larson et al., 2013; Lyster, 2011; Sandbrook, Nelson, Adam, & Agrawal, 2010; Schroeder, 2010), social safeguards (McDermott, Coad, Helfgott, & Schroeder, 2012), major drivers of deforestation (Hansen, Lund, & Treue, 2009), and the implementation of MRV systems (Gupta, Lövbrand, Turnhout, & Vijge, 2012; Herold & Skutsch, 2011).

Previous studies provided important guidelines for the architecture of the emerging international REDD+ regime. Examples are the works of Corbera, Estrada, and Brown (2010), Corbera and Schroeder (2011), Gupta (2012), Hajek, Ventresca, Scriven, and Castro (2011), Kanowski, McDermott, and Cashore (2011), Karsenty (2008), Levin, McDermott, and

Cashore (2008), Park, Choi, and Youn (2013), Phelps, Webb, and Agrawal (2010), and Somorin et al. (2012). Most of these studies have a political economics approach.

A more specific search was performed in June 2017 in the same Web of Knowledge database, using the key words 'REDD' combined with 'governance' and 'forest' for filtering purposes, resulting in 320 articles. The first article was published in 2007, and the first citation was in 2008, as shown in Figure 2.

Figure 2: REDD+ Governance – Total Publications by Year



Source: Extracted from the Web of Knowledge database (2017, June 30).

Despite the growing body of literature on REDD+ governance, academic production is incipient and concentrated on a small number of scholars. It is interesting to note that 24 scholars are responsible for 50% of the actual works on REDD+ governance (see Table 1).

Table 1: REDD+ Governance – Production by Author

#	Authors	Records	% of 320	#	Authors	Records	% of 320
1	Brockhaus, M.	21	6.6	13	Sonwa, D.	5	1.6
2	Di Gregorio, M.	14	4.4	14	Somorin, O.	5	1.6
3	Visseren-Hamakers, I.	11	3.4	15	Pham, T.	5	1.6
4	Van Noordwijk, M.	8	2.5	16	Moeliono, M.	5	1.6
5	Arts, B.	7	2.2	17	Mertz, O.	5	1.6
6	Mustalahti, I.	6	1.9	18	Mcdermott, C.	5	1.6
7	Larson, A.	6	1.9	19	Lund, J.	5	1.6
8	Krause, T.	6	1.9	20	Giessen, L.	5	1.6
9	Herold, M.	6	1.9	21	Gebara, M.	5	1.6
10	Duchelle, A.	6	1.9	22	Gallemore, C.	5	1.6
11	Corbera, E.	6	1.9	23	Vijge, M.	4	1.25
12	Tacconi L	5	1.6	24	Vedeld Po	4	1.25

Source: Adapted by the author from the Web of Knowledge database (2017, June 30).

These 320 papers have been cited 3,759 times from 1,942 citing articles. The most cited articles are listed in Table 2.

Table 2: REDD+ Governance – Most Cited Articles

Authors	Article	Journal	Cited
Phelps, Webb, & Agrawal (2010)	Does REDD + Threaten to Recentralize Forest Governance?	Science	212
Corbera & Schroeder (2011)	Governing and implementing REDD+	Environmental Science and Policy	144
Börner, Wunder, Wertz-Kanounnikoff, Tito, Pereira, & Nascimento (2010)	Direct conservation payments in the Brazilian Amazon: Scope and equity implications	Ecological Economics	99
Larson (2011)	Forest tenure reform in the age of climate change: Lessons for REDD+	Global Environmental Change	83
Beymer-Farris & Bassett (2012)	The REDD menace: Resurgent protectionism in Tanzania's mangrove forests	Global Environmental Change	82

Source: Adapted by the author from Web of Knowledge database (2017, June 30).

The search was refined to articles by researchers from Brazil, resulting in only 19 articles. It is interesting to note that most of these articles have a large number of co-authors, except for the works of Gebara and Agrawal (2017), Roessing Neto (2015), and Cronkleton, Bray, and Medina (2011). This leads us to the conclusion that studies in the REDD+ governance field involving Brazilian scholars have been conducted by research groups. Maria Fernanda Gerbara is the Brazilian researcher that has the highest number of publications, with 26.3% of 19 articles.

1.4 Research Problem

Development aid provided by donors to developing countries in the late 1990s and the early 2000s intended to give budget support, which allowed recipient countries more flexibility. However, this resulted in less performance accountability for donors. This flexible situation has changed over the years because pressure has been exerted on donor countries to become more transparent and accountable for the effectiveness of development aid invested in recipient countries with their constituency, including outcomes and impacts measured against a pre-determined set of indicators. The reasons why this happens are diverse and related to the Paris Declaration on Aid Effectiveness (Angelsen, Brockhaus, Sunderlin, & Verchot, 2012).

The Paris Declaration on Aid Effectiveness (OECD, 2005) is a landmark that offers a roadmap for donor and recipient countries to improve the effectiveness of development aid,

with a specific focus on implementation measures, including monitoring systems to assess results, based on five principles: 1) *ownership* by developing countries to determine their own strategy for implementation, institutional arrangements and mechanisms to eliminate corruption; 2) *alignment* between donors and recipients; 3) *harmonization* between donor countries to share information and avoid overlaps in recipient countries; 4) *results* need to be measured; and 5) *mutual accountability* between donors and recipients for effective results.

REDD+ is a key mitigation strategy (Phelps, Webb, & Agrawal, 2010) and an important policy instrument to reduce emissions from land use changes (Corbera & Schroeder, 2011) in which transactions are based on already achieved mitigation results. Recipient countries have the ownership to make investment decisions according to national priorities and circumstances, which is a complete paradigm shift from the traditional Official Development Assistance (ODA).

The REDD+ mechanism has the greatest fundraising potential for mitigation as its logic is based on verified results submitted to the UNFCCC. The Brazilian Amazon has generated the world's largest reductions in forest-related emission from 2005 to 2014, contributing to international climate change mitigation results. Brazil has already submitted to UNFCCC its verified REDD+ results from the Amazon biome in the 2006-2010 and 2011-2015 periods, based on mitigation outcomes measured against the Forest Reference Emission Level (FREL). These results were technically assessed by UNFCCC experts and are available at the Lima REDD+ Information Hub to potential donors as the results-based payments in REDD+ are calculated upon verified results already achieved by a developing country.

REDD+ activities are critical for Brazil to reach its mitigation commitments assumed in the Paris Agreement. Marcovitch (2011) argues that developed countries should remunerate developing countries for the environmental services provided by their tropical forests based on certain mutually agreed rules. This is not the case of humanitarian aid but rather a case of payment for environmental services (PES). For example, the "rainforests in the Amazon sequester carbon from the global atmosphere, regulate the water balance and flow of the entire Amazon River system, influence the patterns of climate and air chemistry over much of the continent" (Foley et al., 2007). In this sense, Brazil should be financially compensated to maintain its forests stand and provide such a type of environmental services to other countries and regions.

REDD+ is an opportunity for transformational changes that, combined with structuring policies, instruments and incentives, may improve sustainable development in forest areas in Brazil. Understanding the REDD+ governance process is a critical field of

study as the alteration of a nation's internal land use policies is one of the greatest challenges in climate change, and if successful, this could have a very large impact on GHG emissions. Indeed, the importance of this study is justified by the fact that REDD+ is expected to be one of the major financial mechanisms focused on mitigation, as per the commitments assumed by the Parties to the Paris Agreement, which agreed on the joint goal to provide a floor of USD 100 billion annually by 2020 for mitigation and adaptation of activities in developing countries.

REDD+ has become a major results-based mechanism focused on climate change mitigation. Since 2008, several developing countries have been receiving financial and technical support to implement REDD+ activities. However, the effectiveness of international cooperation remains a central issue due to the challenges faced by developing countries in achieving results-based finance through REDD+ activities.

The REDD+ experiment in Brazil is a unique case. Systematizing the Brazilian experience is important for policy makers and practitioners, and recipient and donor countries. Lessons learned from the largest and most important REDD+ governance experiment in the world are important to understand the challenges imposed within the paradigm shift to move from traditional ODA to a performance-based approach in climate finance.

1.4.1 Research Objectives

The main purpose of the study is to understand the governance process to implement a national approach for REDD+ in Brazil. The specific objectives are listed below:

a. systematize the governance experiment in Brazil to implement the national approach for REDD+, according to the perception of policy makers and experts from civil society;
b. develop a theoretical framework from grounded data that explains the governance process in Brazil, which can be tested in other developing countries aiming at implementing national strategies, systems or regimes in REDD+;
c. contribute to the international debate on climate finance focused on the challenges, constraints on and opportunities to improve the effectiveness of development aid in a move to a performance-based approach in cooperation agreements that can be tested in different policy domains;
d. present suggestions for practitioners and academics in the REDD+ and climate finance arenas.

1.4.2 Research Question

Therefore, the research question to guide this study is: How has been the governance process to implement a results-based mechanism focused on mitigating forest-related carbon in Brazil since 2008?

1.5 Thesis Structure

This study is organized into seven chapters. The first chapter introduces the context of the research problem, including an overview of international negotiations on climate change and the importance of the phenomenon studied. The gap in the literature is presented, including a brief bibliometric analysis of the existing studies on REDD+. The research objectives and research question are presented in the final section.

Chapter 2 presents the methodology used in the study with an overview of the method. Methodological decisions on data collection and analysis are described in detail to explain the research process and technics that facilitated the interpretation of the data and the integration of the theoretical framework.

Chapter 3 frames the literature on REDD+ governance. In grounded theory studies, the literature review made before data collection and analysis should guide the development of the research objectives, research question, and interview questions.

Chapter 4 presents the data analysis, including the storyline of the phenomenon studied according to the perception of participants. Categories and subcategories emerged from the data and were described in terms of their properties and dimensions.

Chapter 5 describes the integration of the theory. First, theory building research is discussed to define the type of theory that emerged. Second, the paradigm model used to support data collection and analysis is presented. Third, the process to integrate the major categories is explained through categorical relationships. And fourth, the substantive theory that emerged from the data is presented.

Chapter 6 discusses and compares the theoretical framework with existing literature on REDD+ governance and experimentalist governance theory to reinforce major findings, and enrich the emerging theory.

Chapter 7 presents the conclusion and recommendations, including implications for policy makers and academics, and suggestions for further studies and research limits.

2 METHODOLOGY

The main purpose of the study is to understand the governance process to implement a national approach for REDD+ in Brazil. The fact that there is a considerable lack of knowledge on performance-based approach to climate finance justifies the need for such a study.

The study is qualitative and exploratory, with an open and flexible design in which data is collected and analyzed, based on a dynamic, interpretative, and free-flowing process, whose aim is to generate a new theory rather than test hypotheses from existing theories (Corbin & Strauss, 2015). The qualitative method was chosen because the phenomenon studied is very contemporary and dynamic, and requires a holistic approach (Creswell, Hanson, Clark, & Morales, 2007).

Among different qualitative research design types, grounded theory was the most suitable approach as it develops comprehensive explanations on why and how something happens by taking a social constructionist approach to a real-world problem (Charmaz, 2008; Corbin & Strauss, 2015). The method adopted is the grounded theory developed by Glaser and Strauss (1967).

This chapter is organized as follows. Section 2.1 presents the fundaments of grounded theory methodology. Section 2.2 explains the theoretical sampling technic used in data collection and analysis, followed by the sampling procedures in section 2.3. Data collection is presented in section 2.4. Dada analysis is described in details in section 2.4. The procedures used to integrate the theory are explained in section 2.6. The final section discusses some technics used to draw and confirm conclusions in the integration of the theoretical framework.

2.1 Grounded Theory

Grounded theory is a methodology developed by Glaser and Strauss (1967) to generate theory grounded in data, which is systematically obtained and analyzed. According to Suddaby (2006), grounded theory is based on two major processes: ‘constant comparison’, in which data is simultaneously collected and analyzed, and ‘theoretical sampling’, where data collection is guided by the theory that is being developed.

The initial statement of Glaser and Strauss on grounded theory caused an entire qualitative revolution by providing a strong justification for inductive qualitative research, with flexible guidelines to encourage innovation. Their seminal *The Discovery of Grounded*

Theory (1967) democratized the theory building method in qualitative research, even though a number of theorists and researchers argued for the need of specific analytical guidelines (Charmaz, 2008).

An interactive cycle of data collection and analysis is a major feature of this theory building method. Concepts are generated during the research process through constant comparisons of different types of data, aiming at finding similarities and differences. Variation across data source is essential. Concepts based on different data sources are developed and integrated, and data collection techniques such as interviews, observations, journals, internet information, and audiovisuals are used. During data analysis, concepts become categories or themes that are linked to each other and integrated into a core category to form the structure of a theory. The core category captures the essence of the study through the linkages between categories and provides theoretical explanations of why and how something happens (Corbin & Strauss, 2015).

Comparative analysis is the major strategy in grounded theory and it places considerable importance on the process of building the theory. Evidence collected from comparative groups is used to confirm initial results and generate conceptual categories – the research units of analysis. Indeed, the purpose of comparative analysis may be to verify a theory when the analysis leads to theoretical concerns to test hypotheses, with the aim of generating theories based on the modification of an original theory, as in the results of tests (Glaser & Strauss, 1967).

The uniqueness of grounded theory among other qualitative methods is in its systematic ongoing cycle of data collection and analysis until the researcher reaches a robust and integrated theory through the saturation of categories (or constructs). Indeed, concepts that form categories are developed from the actual data and not chosen a priori. This is the main difference from theory development and descriptive studies (Corbin & Strauss, 2015).

However, description is part of theory development, used to explain the emerging theoretical structure (Corbin & Strauss, 2015). As pointed out by Charmaz (2008), “grounded theory is not only a method for understanding research participants’ social constructions but also is a method that researchers construct throughout inquiry” (p. 397).

Since the 1990s several different approaches to grounded theory have emerged. Strauss and Corbin presented procedures and techniques for developing grounded theory in their *Basics of Qualitative Research* (1990), which, rather than developing a new method opposed to the original approach of Glaser and Strauss (1967), provided practical advice through a step-by-step research process to build theory. This work “became something of a

bible for novices, who often interpreted the method in concrete ways that muted the social constructionist elements in the method" (Charmaz, 2008, p. 398).

Grounded theory has evolved significantly during recent decades, with different approaches, including divergences in paradigms, philosophical perspectives, variation of interpretations, approaches, and methodologies becoming part of the ongoing debate (Ralph, Birks, & Chapman, 2015). Although grounded theory was first proposed by Glaser and Strauss (1967), the method adopted in this study follows that of Strauss of doing analysis and working with data, centered on pragmatism as a philosophical worldview (Corbin & Strauss, 2015; Strauss & Corbin, 1990, 1998).

Creswell (2009) points out that "pragmatism opens the door to multiple methods, different worldviews, and different assumptions, as well as different forms of data collection and analysis" (p. 11), and characterizes the pragmatic worldview as a set of beliefs to guide action in research, including the consequences of actions, which are problem-centered, pluralistic, and whose practice is oriented by the real-world.

2.2 Theoretical Sampling

Theoretical sampling is a process to generate theory in which data gathering, coding and analysis take place simultaneously. The researcher decides during the process what data will next be collected and its source as the data collection process is guided by the emerging theory. Comparison groups are chosen according to theoretical criteria established by the researcher in light of the joint data collection and the analysis process (Glaser & Strauss, 1967).

According to Glaser and Strauss (1967), "since accurate evidence is not crucial for generating theory, the kind of evidence, as well the number of cases, is not crucial. A single case can indicate a general conceptual category; a few more cases can confirm the indication" (p. 30). In this sense, theoretical sampling does not require the researcher to know the whole field or have all the facts from a significant sample. In fact, Glaser and Strauss's grounded theory requires the development of a theory that includes a sample of relevant behaviors as a perfect description of the phenomenon studied is not expected.

The REDD+ policy arena involves a diversity of actors and groups. It is important to mention that there is a diversity of key stakeholders involved, including, but not limited to, government (national, subnational, and local levels), policy implementing agencies, donors,

civil society organizations, indigenous peoples, traditional communities, smallholders, academia, and the private sector.

Although all these stakeholders may be equally important depending on the actual context, this study focused only on two major comparison groups due to limitation of time and resources. The first group is called ‘policy makers’, with state representatives from the national and subnational levels. The second group is called ‘civil society’, including representatives from social and environment NGOs, and academia. In some parts of the analysis, the participation of indigenous people and traditional communities in the REDD+ governance structure was incorporated into the civil society group.

These two comparison groups were selected because of their importance and their political power to implement and/or influence the policy making and implementation of REDD+ initiatives. This decision was taken after the analysis of some in-depth interviews.

Empirical results from these two comparison groups helped the construction of the theoretical framework within the development of concepts and categories in terms of their properties and dimensions. Theoretical sampling was used until saturation was found in the categories. In grounded theory studies, sample size is determined by the point of saturation in the development of the main categories. Theoretical saturation is reached when neither new concepts are emerging nor additional data is found to further develop properties and dimensions of categories (Corbin & Strauss, 2015; Glaser & Strauss, 1967).

Evidence was compared within and between the two comparison groups, leading to the full development of the conceptual categories (or constructs), and subcategories (or indicators). High variation in data is important to discover categories as the sampling is formed by people with different positions and views on the same subject. Maximizing differences and similarities within and between groups is crucial for the development of theoretical properties of categories and the identification of relationships (Glaser & Strauss, 1967).

It is important to mention that theoretical sampling does not require gathering as much data as possible of the whole group. Instead, “theoretical sampling requires only collecting data on categories, for generation of properties and hypotheses” (Glaser & Strauss, 1967, p. 69). Knowing everything is not necessary to reach theoretical saturation of categories. The depth of theoretical sampling is determined by the sensitivity of the researcher to the saturation of categories.

Saturation of concepts was achieved at 30 total in-depth interviews with 29 participants (one participant was interviewed twice in different times), complemented by participatory and non-participatory observations, speeches, and documental analysis.

2.3 Sampling Procedures

In grounded theory studies, concept saturation determines sample size by following analytic leads to build density and variation (Corbin & Strauss, 2015). Sampling by convenience was not a strategy used. Participant inclusion criteria was determined by the importance of specialists or institutions they represent, and variation in data (different positions, perspectives, and interests).

Prior to data collection, a preliminary list of potential participants was consolidated, including important experts and policy makers involved within the national REDD+ policy domain. The goal was to get a qualitative assessment from knowledgeable people deeply involved in the REDD+ policy making and implementation process. This list of potential participants was first validated and complemented by an academic and two experts.

The snowball method was used to determine further potential participants in the initial phase of data collection and analysis. Snowball or chain referral sampling is a method used in qualitative studies in which “referrals are made among people who share or know of others who possess some characteristics that are of research interest” (Biernacki & Waldorf, 1981, p. 141).

Members of the National REDD+ Committee (CONAREDD+ in the Portuguese acronym) were interviewed, except the representatives from the Ministry of Science, Technology, Innovations and Communications (MCTIC in the Portuguese acronym) and the Office of the Chief of Staff of the Presidency, because their representatives have changed so many times, and they do not have a background in the REDD+ policy agenda over the past years..

2.4 Data Collection

The study used different sources of data, including interviews, participant and non-participant observations, public speeches, document reviews, newspapers and internet articles. Triangulation on data source seeks convergence and corroboration of empirical results, as well as a more trustworthy study (Greene, Caracelli, & Graham, 1989; Johnson & Turner, 2003).

Interviews and observations were the primary source of data. Primary data was collected and analyzed from September 2016 to September 2017. Previously collected research data was used as secondary data to reinforce and validate the findings, as recommended by Glaser and Strauss (1967). This secondary data refers to in-depth interviews conducted in 2013 with experts on the Amazon Fund (Marcovitch & Pinsky, 2014).

A preliminary literature review was made to support the formulation of questions that guided the initial interviews and observations. According to Corbin and Strauss (2015), "previous theory provides insights, guidance, and initial concepts to use as starting point for developing new concepts and expanding old ones" (pp. 52-53). However, these authors recommend that the researcher should remain open to new concepts as previous constructs may or may not fit into the new data.

2.4.1 Interview

A semi-structured questionnaire to guide the interviews was developed and revised by Dr. Isak Kruglianskas, the PhD advisor, and Dr. David Victor from the University of California, San Diego (UCSD). Two pilot interviews were conducted for the purpose of testing the consistency and understanding of the open-ended questions and identifying further interview questions. Results of these two pilots were considered for analysis.

In order to refine the data collection instrument, several in-depth interviews with knowledgeable people and policy makers were conducted in a location convenient for the participant, or by Skype. Questions were revised and adjusted throughout data collection and analysis, as new information and concepts emerged from the data.

Indeed, participants were invited to bring up any topic they though relevant, and the researcher could ask additional questions to further develop specific topics. This flexibility is needed for theory building (Corbin & Strauss, 2015).

The process to contact potential research participants and get their consent to schedule the interviews took almost a year as they are senior experts and very busy. Indeed, theoretical sampling requires simultaneous data collection and analysis. Table 3 lists all research participants that were interviewed. It is important to note that participants' titles and affiliated institutions mentioned in this study refer to the period the data was collected. Any changes in titles or organizations after data collection are not found in the tables.

All of the interviews were recorded with the previous consent of the participants. Notes were taken during all interviews and used as evidence in the analysis. As per research protocol, confidentiality was assured with participants before the interview. A complete list of research participants with their mini biographies can be found in the Appendix A.

A group interview with the Amazon Fund team was conducted at the Brazilian Development Bank (BNDES in the Portuguese acronym) headquarters in Rio de Janeiro. Policy makers from the Ministry of the Environment (MMA in the Portuguese acronym), Ministry of Foreign Relations (MRE in the Portuguese acronym), and Ministry of Agriculture, Livestock and Food Supply (MAPA in the Portuguese acronym) were interviewed in their offices in Brasília. Civil society representatives from the Socio Environmental Institute (ISA in the Portuguese acronym), the National Council of Rubber Tappers (CNS in the Portuguese acronym), and the University of Brasília (UNB in the Portuguese acronym) were also interviewed in person in Brasília. The other interviews conducted in person were held in São Paulo at locations convenient for the participants.

Table 3: List of Research Participants

#	Name	Title	Organization	Date	Duration	Interview
1	Maria Bucheli	Researcher	IDESAM	5/15/2013	35 min	Skype
2	Adriana Ramos	Coordinator	ISA	5/20/2013	51min	Skype
3	Valmir Ortega	Consultant	Geoplus	5/29/2013	46 min	In person
4	Angela Skaf	Manager	BNDES	6/3/2013	240 min	In person
5	Bernando Braune	Lawyer	BNDES	6/3/2013	240 min	In person
6	Daniel Soeiro	Manager	BNDES	6/3/2013	240 min	In person
7	Andre Guimarães	Executive director	IPAM	6/7/2013	26 min	Skype
8	Marte Nordseth	Senior adviser	Gov. of Norway	6/7/2013	25 min	Skype
9	Adalberto Val	Senior researcher	INPA	6/3/2013	25 min	In person
10	Fabio Feldmann	Consultant	FF Consultant	9/28/2016	48 min	In person
11	Alexandre Prado	Consultant	WRI	9/27/2016	69 min	In person
12	Peter May	Full Professor	UFRRJ	10/4/2016	27 min	Skype
13	Pedro Soares	Program manager	IDESAM	10/10/2016	30 min	Skype
14	Erika Pinto	Coordinator	IPAM	10/11/2016	34 min	Skype
15	Paulo Moutinho	Senior researcher	IPAM	10/13/2016	63 min	Skype
16	Carlos Klink	Scholar	UnB	10/24/2016	95 min	In person
17	Adriana Ramos	Coordinator	ISA	10/24/2016	56 min	In person
18	Magaly Medeiros	Director	State of Acre	11/7/2016	41 min	Skype
19	Mariano Cenamo	Executive secretary	IDESAM	11/8/2016	43 min	Skype
20	Felipe Ferreira	Secretary	MRE	11/23/2016	78 min	In person
21	Thelma Krug	Director; Vice chair	MMA | IPCC	11/23/2016	92 min	In person
22	Everton Lucero	Secretary	MMA	11/24/2016	34 min	In person
23	Leticia Guimarães	Program manager	MMA	11/24/2016	83 min	In person
24	Sidney Medeiros	Project manager	MAPA	11/24/2016	61 min	In person
25	Ana Champloni	Financial analyst	MF	12/9/2016	33 min	Skype
26	Edel Moraes	Vice President	CNS	3/22/2017	25 min	In person
27	Maurício Philipp	CC Coordinator	Mato Grosso State	6/22/2017	29 min	Skype
28	Carlos Rittl	Coordinator	OC	6/26/2017	93 min	In person
29	Iara Pietricovsky	Director	INESC	7/7/2017	16 min	Skype
30	Pedro Telles	Coordinator	Greenpeace	7/11/2017	15 min	Skype

Source: Elaborated by the author (2017).

2.4.2 Observation

Observation was another important source of data for this study, because it "places researchers into the center of action where they can see as well hear what is going on" (Corbin & Strauss, 2015, p. 41). Through participatory and non-participatory observation it was possible to identify similarities and differences, contradictions, and divergent positions within and between the two comparison groups, as well validate research findings. Indeed, the combination of interview-observation-interview was important to validate the researcher's interpretations of the facts.

The participatory and non-participatory observation technique was used to collect primary data in important events and meetings, as described in Table 4. Some of the important speeches during meetings and presentations were recorded and transcribed to facilitate analysis. Notes were taken.

Table 4: Participatory and Non-participatory Observations

Event	Organization	Description	Date	Location
COP-21 preparatory meeting	MRE	Preparatory meeting with policy makers and civil society actors	11/12/2015	Brasília
Global Landscape Forum	CIFOR	2-day seminar, several presentations and meetings	Dec 5-6, 2015	Paris
COP-21	UNFCCC	Several REDD+ side events	Dec 4-9, 2015	Paris
Soy moratorium technical seminar	Soy Working Group	10-year moratorium, results and advances	10/19/2016	São Paulo
COP-22 preparatory meeting	MRE	Preparatory meeting with policy makers and civil society actors	10/24/2016	Brasília
Inputs for economic and normative axis of the PPCDAm and PPCerrado	MMA and IPAM	Closed event to discuss the new economic pillar plans with invited specialists	11/25/2016	Brasília
Payment for Environment Services Workshop	Coalizão	Organized by the Valuation and Ecosystem Services WG	11/28/2016	São Paulo
4th Plenary Meeting	Coalizão	Annual meeting	12/8/2016	São Paulo
Economic Instruments Meeting	Coalizão	Organized by Valuation and Ecosystem Services WG	12/15/2016	São Paulo
5th Plenary Meeting	Coalizão	Annual meeting	6/7/2017	São Paulo

Source: Elaborated by the author (2017).

The initial observations that took place during COP-21 in Paris were very important to get to know the major players in REDD+ in Brazil, as well as to understand the dynamics of international negotiations on climate change that included issues related to REDD+. Several side events focusing on REDD+ were organized during COP-21, and the important Global Landscape Forum was organized by Center for International Forestry Research (CIFOR) in the same period. Observation in the preparatory meeting with civil society members organized by MRE was important to start understanding the major points of conflict between the two comparison groups.

Another major observation source took place at the Brazilian Coalition on Climate, Forests and Agriculture (Coalizão in short) meetings through data collection and analysis. Coalizão, launched in June 2015, is currently the major multi-sectorial movement formed by leading organizations in Brazil, including private sector, civil society, sectorial associations, and academia. It is a political platform that aims to address issues from climate change to low-carbon economy by advocating concrete proposals for public policies to reduce emissions and promote the sustainable use of forests, agriculture, and livestock farming in the land use sector (Coalizão, 2016, December 19).

The researcher participated as a Coalizão member in the 'Valuation and Ecosystem Services' working group, which aims to advocate concrete proposals for REDD+, PES, and carbon pricing. The institutional membership was made through the University of São Paulo Administration Foundation Institute (FIA in the Portuguese acronym) where the researcher is associated with the Social and Environmental Strategic Management Program (PROGESA in the Portuguese acronym).

Public speeches were another source of primary data, including presentations at specific events, class lectures, and webinars with experts and knowledgeable people, as described in Table 5. Most of those public speeches were recorded and transcribed to facilitate analysis. Notes were taken.

Table 5: Class lectures, Presentations, and Webinars

Name	Title	Org.	Date	Duration	Event	Trans-cribed
João Paulo Capobianco	President	IDIS	3/20/2013	60 min	Class lecture at FEA/USP	No
Roberto Smeraldi	Executive director	Friends of the Earth	4/24/2013	60 min	Class lecture at FEA/USP	No
Virgílio Viana	Executive director	FAS	5/8/2013	60 min	Class lecture at FEA/USP	No
Paulo Moutinho	Senior researcher	IPAM	9/30/2016	20 min	INCT Intl Conference on Climate Change	Yes
Fabio Feldmann	Consultant	FF Consultant	10/5/2016	37 min	Advances and Setbacks in the Environment Seminar (USP)	Yes
Angelo Gurgel	Coordinator	FGV	11/21/2016	49 min	Webinar – Dialogue about ABC Plan (Coalizão)	No
Érika Pinto	Coordinator	IPAM	11/28/2016	18 min	Payment for Environmental Services Workshop (Coalizão)	Yes
Pedro Soares	Program manager	IDESAM	11/28/2016	34 min	Payment for Environmental Services Workshop (Coalizão)	Yes
André Guimarães, Pedro Soares, Alexandre Carvalho		Coalizão	12/6/2016	51 min	Webinar – Dialogue with Valuation and Ecosystem Services WG (Coalizão)	Yes
Thelma Krug	Director; Vice chair	MMA IPCC	3/15/2017	38 min + 62 min of Q&A	The Paris Agreement: Human Competences and Job Market in Brazil	Yes

Source: Elaborated by the author (2017).

2.4.3 Document review

Non-technical literature was reviewed to complement data gathering and analyses of interviews and observations, including, but not limited to reports, policy briefings, laws, decrees, minutes of meetings, newspaper and webpage articles. Indeed, social media postings from three highly influential experts were monitored on a daily basis.

2.5 Data Analysis

Prior to describing the analytical tools and procedures adopted in this study, it is important to define some key terms to facilitate the understanding of the analysis process. Table 6 describes the operational definition of key terms related to the data analysis approach adopted in this study.

Table 6: Operational Definition of Key Terms

Term	Definition
Coding	Attributing concepts to stand for meaning; codes are attributed to quotations
Quotation	Segments of data (interview or speech transcripts)
Concepts	Words used to stand for interpreted meaning
Open coding	Breaking data apart and delineating concepts to stand for interpreted meaning of raw data; concept identification and exploration
Axial coding	Categories are related to their subcategories, and the relationships tested against data; coding for concept development and elaboration
Categories	Higher-level concepts able to group a number of lower-level concepts, denoting the main themes of the research
Subcategory	Lower-level concepts that define and provide explanations of the categories; they provide the foundation of the theory. Once placed under a category, lower-level concepts become the properties and dimensions that specify and differentiate categories and variation within the categories
Properties	Characteristics or qualities of concepts that define, give specificity, and differentiate one concept from another
Dimensions	The range over which a property can vary; an important concept in grounded theory because it accounts for differences and brings density to the theory
Memos	Written records of analysis
Conceptual saturation	The process of acquiring sufficient data to fully develop each category or theme in terms of its properties and dimensions and to account for variation
Theoretical sampling	Data collection based on concepts that appear to be important to the evolving story line

Source: Adapted from Corbin and Strauss (2015, pp. 57, 106, 216, 239); Corbin and Strauss, 1990, p. 13).

As required in grounded theory studies, data collection and analysis in this study occurred concomitantly through a general comparative method in which theoretical sampling guided the extent and depth of data collection (Corbin & Strauss, 2015; Glaser & Strauss, 1967).

Triangulation of data source was used, considering multiple viewpoints, perspectives, positions, and standpoints from qualitative data (Johnson, Onwuegbuzie, & Turner, 2007). Triangulation is the integration and comparison of the mixed methods approach, using data sources, technical analysis, and inferences in order to analyze the same phenomenon from a variety of perspectives in a new or deeper dimension to improve the validity of research findings (Jick, 1979; Mathison, 1988; Tashakkori & Teddlie, 2003).

Constant comparison was a major analytical tool used throughout analysis. Primary data were constantly compared within and between the theoretical research groups – policy makers and civil society participants. Corbin and Strauss (2015) recommend the use of constant comparison to reduce data to concepts and differentiate one concept from another in

terms of their properties and dimensions. Indeed, finding similarities and differences around concepts facilitated the integration of the theory.

Raw data was processed before starting the analysis (Miles, Huberman, & Saldaña, 2013). All audio recordings from the interviews and important speeches were literally transcribed into texts. The only exception was the interview conducted in group with the Amazon Fund team that could not be recorded due to the BNDES no recording policy. Instead, notes were taken during the interviews. Filed notes, interviews and speeches transcriptions were reviewed, and gaps in understanding were completed or revised.

Data was managed using Atlas.ti, a qualitative data analysis software program. The use of software to support the qualitative analysis improves the researcher's ability to be creative (Corbin & Strauss, 2015), and enables data encryption through coding rules and filters (Sampieri, Collado, & Lucio 2006). Processed transcripts and field notes files were uploaded into the Atlas.ti project, then classified and grouped according to document type. Interview and speech transcripts were separated according to the theoretical group they belonged to – policy maker or civil society. Secondary data was also grouped, including newspaper and webpage articles, and reports. These document groups were important for filtering purposes and to compare results from different groups.

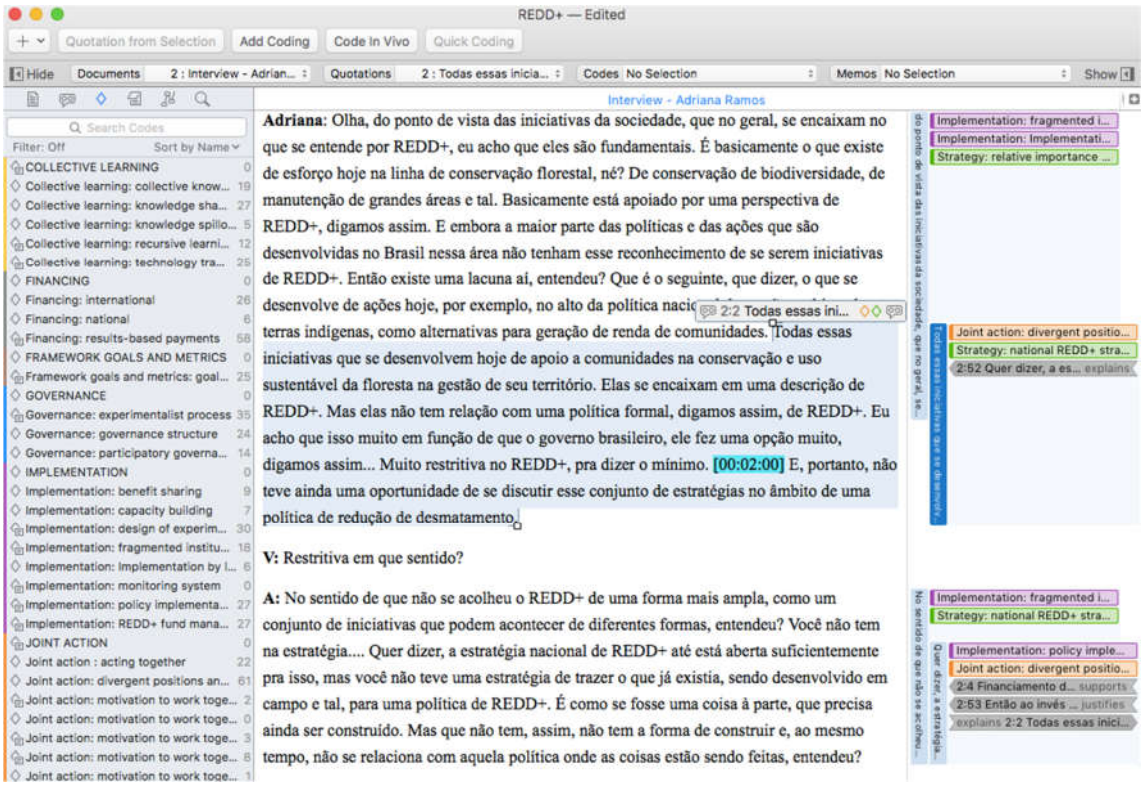
The first cycle of analysis is coding, which is a reflection on and interpretation of the meaning of the data, a method of discovery through data condensation (Corbin & Strauss, 1990, 2015). Initial data analysis started with the manual creation of quotations, which is a part of a document, like a sentence or paragraph that was important or interesting for the context of the study.

Open coding process, defined as "the interpretative process by which data is broken down analytically" (Corbin & Strauss, 1990, p. 12), was systematically conducted in each document. Codes were created concomitantly with the quotation process, and assigned to each quotation. Code is defined as a "label that assigns symbolic meanings to the descriptive or inferential information compiled during a study" (Miles et al., 2013, p. 71).

Most of the quotations were given two or more different codes. This was done line-by-line coding of all transcripts throughout the analysis to extract meaning from the data. Empirical evidence was compared to find similarities and differences, and then coded with the conceptual labels.

A screenshot of Atlas.ti project is presented in Figure 3. The column on the left shows the partial list of codes. The text in the center is an interview transcript with quotations (such as the part of the text highlighted in light blue), and assigned codes on the left.

Figure 3: Demonstration of Quotations and Assigned Codes – Interview Transcript



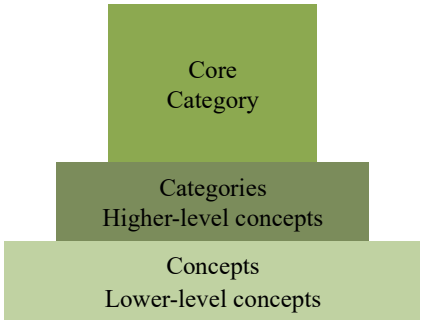
Source: Atlas.ti project screenshot (2017, June 16).

There are several coding approaches. For the purpose of this study two types of coding were used, including 'descriptive coding', in which labels were assigned to data to summarize in a word or a few words the meaning of the content, and 'in-vivo coding' in which the participant's own words were used to determine a code. The creation of codes was an inductive process as they emerged during data collection and analysis (Miles et al., 2013). Codes were not previously developed or proposed before the analysis of empirical data.

Although there are several versions of doing analysis in grounded theory, this study adopted the Corbin and Strauss (2015) approach that includes a set of techniques and procedures for theory building. Concepts are the basis of analysis, which are "names placed on data based on a researcher's interpretation of the meaning of data" (Corbin & Strauss, 2015, p. 26).

Concepts were developed in terms of their properties and dimensions, and then integrated around a core category. They vary in levels of abstraction. Lower-level concepts derived from codes attributed to quotations (segments of data) from raw data during the open coding process. Higher-level concepts are called categories, which are more abstract and may group related lower-level concepts. While lower-level concepts provide the foundation of a theory, higher-level concepts are the structure of the theoretical framework (Corbin & Strauss, 2015). Figure 4 illustrates the concepts level of abstraction in grounded theory.

Figure 4: Level of Concepts in Grounded Theory



Source: Adapted from Corbin & Strauss (2015, p. 77).

The open coding process resulted in a set of 71 codes as listed in Table 7. This first cycle coding started on November 5, 2016, with the analysis of the first interviews. An inductive approach was used to create the codes based on grounded data. This first analysis was open and exploratory. Open coding was conducted line-by-line within interview and speech transcripts. Several new codes emerged from the analysis of the first transcripts.

Table 7: Open Coding Process – First Cycle Coding

1	Additionality and innovation	37	Involvement - civil society
2	Advocacy	38	Involvement - private sector
3	Aid effectiveness	39	Jurisdictional REDD+
4	Amazon Fund	40	Knowledge sharing
5	Barriers	41	Knowledge transfer
6	Benefit sharing	42	Lack of transparency
7	Bottom-up approach	43	Mitigation potential
8	Broad network	44	Monitoring and assessment - civil society
9	Capacity building	45	Monitoring and assessment - donors
10	Cause and effect	46	Monitoring and assessment - linkage
11	Collective action	47	Monitoring and assessment - national level
12	Collective building of the REDD+ agenda	48	Monitoring and assessment - permanence
13	Collective learning	49	Motivation to work together - among donor counties
14	Country circumstances and capability	50	Motivation to work together - among NGOs
15	Deforestation	51	Motivation to work together - among recipients
16	Design of experiments	52	Motivation to work together - donor and recipient
17	Divergent positions and interests	53	New proposals
18	Diversity of actors	54	Nudging
19	Diversity of experiments	55	One-size-fits-all
20	Effective participation of different actors	56	Openness to discuss REDD+ strategy
21	Exchange experience	57	Origin of the concept
22	Experimentalist process	58	Outcomes
23	Expertise	59	Participatory governance structure
24	Financial mechanism	60	Political Power Game
25	Financing - international	61	Political will
26	Financing- national	62	Private sector
27	Forest governance	63	Problem
28	Fragmented institutional environment	64	Readiness
29	Framework goals and metrics - AF level	65	Recursive learning process
30	Framework goals and metrics - international	66	Relative importance of REDD+
31	Framework goals and metrics - national	67	Results-based finance
32	Fund management	68	Safeguards and people's rights
33	Governance - CONAREDD+	69	Shared responsibility
34	Governance - ENREDD+	70	Stakeholder engagement
35	Implementation by lower levels	71	Top-down approach
36	International cooperation		

Source: Extracted by the author from the Atlas.ti project (2017).

Codes and concepts created at the beginning of the analysis are considered provisional as they were compared with further data, added, reused, discarded, or modified, depending on the interpretation of the new data (Corbin & Strauss, 2015).

In the case of this study, memos were written during the coding processes, including methodological notes (step-by-step of the data analysis process), a ‘to do’ list, questions and doubts to guide next data collection. Ideas and new interpretations that came up during data collection and analysis were written in analytical memos. Some of them resulted in the development of higher-level concepts (categories), and supported theory integration.

Indeed, some quotes led to the search for secondary material to explain new elements that showed up during the interview. These additional materials were uploaded into the Atlas.ti project, coded, and linked to the respective quotation that required additional explanation.

Diagrams were hand drafted to facilitate think through the process focused on the development of the concepts and categories, including their properties, dimensions and types of relationships. Atlas.ti network assistant, Power Point, and Word were used to further development of diagrams as some of them became more dense and complex.

The first saturation point was reached when no new code was emerging from data in the analysis of six interviews and three speeches. From this point on, codes turned into concepts systematically elaborated through axial coding in which “categories are related to their subcategories, and the relationships tested against data” (Corbin & Strauss, 1990, p. 13). The axial coding process took place in three steps. First, the resulting list of codes was extracted from Atlas.ti into an Excel file. Codes were sorted by their groundedness, which is the number of quotations linked to a code. The analysis on the frequency of codes showed the most cited ones.

Second, a process of merging and replacing codes was carried out. Codes with two or less linked quotations were individually revised according to their relevance. Some of them were eliminated due to the lack of groundedness and power of explanation. Others presented similar meanings with different names. Synonymous codes were merged into a target code. As recommended by Corbin and Strauss (2015), similar codes were grouped into smaller units to generate concepts and categories by reducing the amount of data during analysis. Lower-level and higher-level concepts were constantly updated and revised throughout the study.

Various codes were eliminated during this process, including: Barriers; Broad network; Forest governance; Framework goals and metrics: Amazon Fund level; Framework goals and metrics: international; Monitoring and assessment: civil society; Monitoring and assessment: donors; Monitoring and assessment: linkage; Monitoring and assessment: permanence; New proposals; Origin of the concept; Safeguards and people's rights. Linked

quotations from these codes were analyzed individually: some were merged into a similar code, others were discarded.

This second cycle coding resulted in a condensed list of codes, as described in Table 8. Codes were reviewed, consolidated, or eliminated during the joint data gathering and analyzing processes.

Table 8: Axial Coding Process – Second Cycle Coding

Original concept	Change	Final concept
Bottom-up approach	renamed to	Policy implementation
Governance - CONAREDD+	renamed to	Governance structure
Governance - ENREDD+	renamed to	National strategy
Monitoring and assessment: national level	renamed to	Monitoring system
Top-down approach	renamed to	Policy implementation
Additionality and innovation	merged into	Design of experiments
Aid effectiveness	merged into	Results-based finance
Amazon Fund	merged into	REDD+ fund management
Benefit sharing	merged into	Mechanism
Cause and effect	merged into	Design of experiments
Collective action	merged into	Acting together
Collective learning	merged into	Collective knowledge development
Country circumstances and capacity	merged into	National circumstances
Deforestation	merged into	National circumstances and deforestation
Diversity of experiment	merged into	Fragmented institutional environment
Exchange experience	merged into	Knowledge sharing
Expertise	merged into	Collective building of the REDD+ agenda
Financial mechanism	merged into	Results-based finance
International cooperation	merged into	Motivation to work together
Jurisdictional REDD+	merged into	Design of experiments
Knowledge transfer	merged into	Technology transfer
Lack of transparency	merged into	Political power game
Mitigation potential	merged into	Motivation to work together
Motivation to work together among donors	merged into	Motivation to work together
Motivation to work together among NGOs	merged into	Motivation to work together
Motivation to work together among recipients	merged into	Motivation to work together
Motivation to work together - donors and recipients	merged into	Motivation to work together
Nudging	merged into	Motivation to work together
Outcomes	merged into	International cooperation
Participation of different actors	merged into	Collective building of the REDD+ agenda
Political will	merged into	Openness to discuss REDD+
Private sector	merged into	Diversity of actors
Problem	merged into	Divergent positions and interests
Readiness	merged into	Capacity building
Shared responsibility	merged into	New proposals and benefit sharing

Source: Elaborated by the author (2017).

The third phase of axial coding included the development of the research categories or constructs, based on the concepts that emerged from the data, by making use of code groups. Similar codes or concepts were grouped into a code family that was labeled with a conceptual name, the main theme, as shown in capital letters in Table 9.

Table 9: Code Families and Sub-codes

Code Families	Sub-codes
COLLECTIVE LEARNING	Collective learning: collective knowledge development
	Collective learning: recursive learning process
FINANCING	Financing: international level
	Financing: national level
	Financing: results-based payments
GOVERNANCE	Governance: experimentalist process
	Governance: governance structure
	Governance: participatory governance structure
IMPLEMENTATION	Implementation: benefit sharing
	Implementation: capacity building
	Implementation: design of experiments
	Implementation: fund management
	Implementation: Implementation by lower-levels
	Implementation: monitoring system
	Implementation: policy implementation
JOINT ACTION	Joint action : acting together
	Joint action: divergent positions and interests
	Joint action: motivation to work together
	Joint action: political power game
PARTICIPATION OF STAKEHOLDERS	Participation of stakeholders: advocacy
	Participation of stakeholders: collective building of the REDD+ agenda
	Participation of stakeholders: diversity of actors
	Participation of stakeholders: openness to discuss REDD+ strategy
STRATEGY	Strategy: country circumstances
	Strategy: framework goals and metrics
	Strategy: national REDD+ strategy
	Strategy: one-size-does-not-fit-all
	Strategy: relative importance of REDD+

Source: Extracted from Atlas.ti project by the author (2017).

In some cases the conceptual name was taken from an already-existing code such as collective learning'. In others, a new conceptual name was created, such as 'implementation'. These code groups became the main research categories created from the bottom-up (grounded data). Codes or concepts under a main category label became subcategories as they explain data variation to build their properties and dimensions.

After the refinement in the development of main categories and related subcategories, a procedure to recode the labels in the Atlas.ti project was made to reorder the sub-codes (sub-categories) under the main code (category) to facilitate further analysis using the software functionalities. Prefixes were added in the sub-code names to build a code hierarchy in the Atlas.ti project, as shown in Table 9.

From this point on, as recommended by Corbin and Strauss (2015), theoretical sampling guided the development of concepts and categories. Data collection was followed by analysis. Data analysis led to the development of concepts. Gaps in the explanations of the concepts guided additional data collection. This cycle only ended when the saturation point was reached with the main categories fully developed in terms of density and variation, and integrated into the theoretical framework.

Concepts and categories, including their properties and dimensions, were refined and integrated throughout the analysis, resulting in a set of seven categories, 28 subcategories, and 25 dimensions. The analysis in the Atlas.ti project comprehended 55 documents that resulted in 508 quotations, and 39 memos written as evidenced in Appendix B.

2.6 Theoretical Integration

According to Corbin and Strauss (2015), theoretical integration is the final analysis in grounded theory, which consists of "linking categories around a central or core category to form a theory". A list of concepts and categories alone do not make a theory and must be linked and integrated into a theoretical framework with explanatory power around the core research category. The 'final theory' is constructed by the researcher through the integration of categories that have emerged from empirical evidence.

The Corbin and Strauss (2015) paradigm model, an analytical tool to assist the organization of concepts, was used in this study to enrich analysis during the axial coding process, identification of relationships between categories, and theoretical integration. They point out that "the logic behind the paradigm is that analysts can use it to sort out and arrange concepts by asking questions and thinking in terms of possible linkages" (p. 157).

The paradigm model includes three categories: conditions, actions-interactions, and consequences. Conditions are the perceived reason why, when and how something happens. Actions-interactions are the actual responses individuals or groups give to an event or problem based on actual circumstances. Consequences are the expected or resulting outcomes of actions-interactions (Corbin & Strauss, 2015).

Research participants were asked to answer questions related to these three paradigm categories during the interviews. The paradigm classification was used to assist the theoretical integration of the core phenomenon and associated categories. Indeed, this tool was very useful to help the explanation of the resulting theory.

Besides the paradigm tool, there are several analytical techniques to aid the integration of findings around the core category. This study combined the use of some other techniques proposed by Corbin and Strauss (2015) throughout the integration of the theory process, as summarized in Table 10.

Table 10: Techniques Used to Aid Theoretical Integration

Technique	Action
Descriptive memo	Descriptive summary memos were written about concepts that presented great explanatory power during data collection and analysis. The storytelling approach was used to write these memos.
Conceptual memo	Conceptual memos were written, such as summaries of research findings focused on the explanation of the relationship between concepts.
Integrative diagram	Integrative diagrams were made using the Atlas.ti network assistant and Power Point. It was an excellent tool for sorting out the relationships between categories. Several versions of diagrams were drafted concomitantly with writing the conceptual story.
Talking with professor	Several meetings with the PhD advisor were needed in this phase to integrate the theory. Successive revisions were essential to push the researcher to rearrange the categories, review the types of relationship that explained the action-interaction between categories, and refine the integration of the emerging theoretical framework.

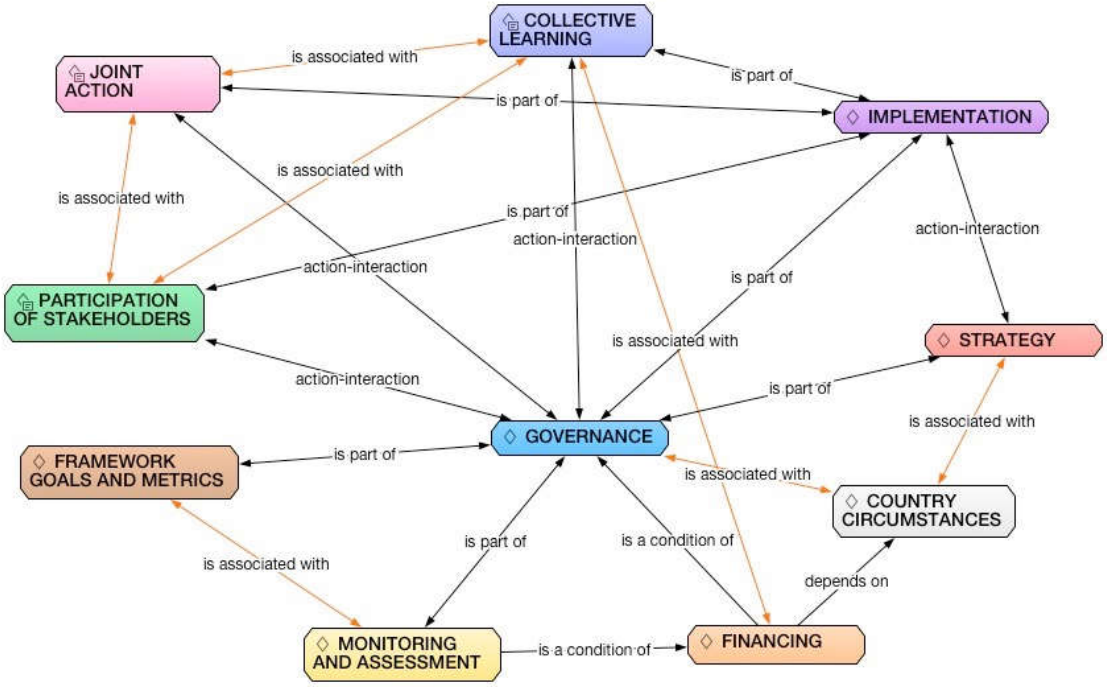
Source: Elaborated by the author, based on techniques recommended by Corbin and Strauss (2015).

Writing memos and making diagrams were key tools used during the analysis to facilitate the integration of concepts. Memos were very helpful to keep a record of partial analysis, thoughts, and questions throughout data collections and analysis. Nevertheless, the most powerful technique during theoretical integration was the use of integrative diagrams as they helped to organize or clarify think through the process about the logic of the relationships between categories and integrate the theory.

As pointed out by Corbin and Strauss (2015) “diagrams are helpful because they force analysts to work with data at the category level rather than focus on the details or all of the properties and dimensions pertinent to each category” (p. 195). While writing memos was simple and most of the time descriptive, making diagrams was complex and theoretical. Both techniques were helpful and very time consuming.

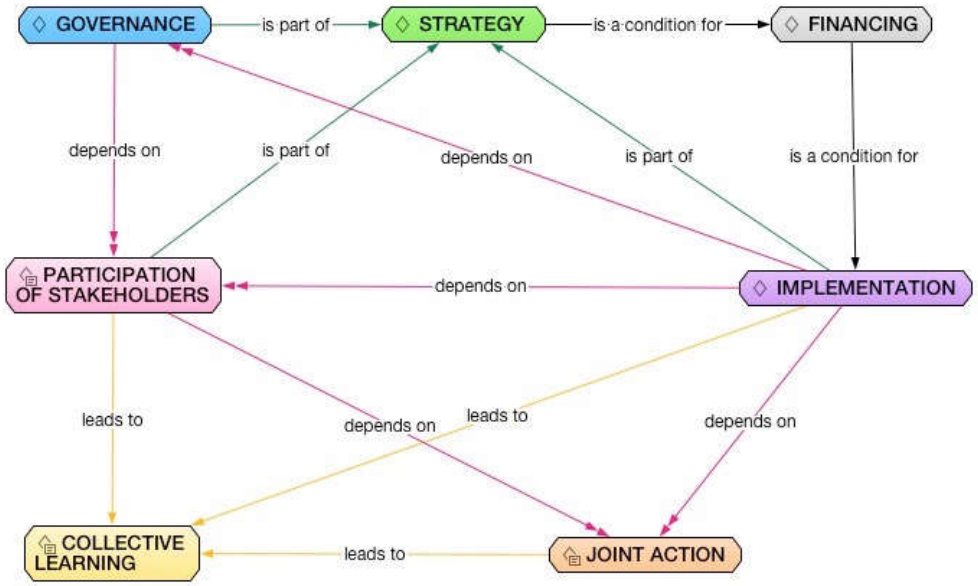
Figures 5 and 6 show the evolution of the interactive diagrams used to integrate the categories. The first is a preliminary diagram drafted in the initial phase of the integration process. The second is the final diagram that supported the explanation of the theory.

Figure 5: Theoretical Integration – First Draft



Source: Elaborated by the author using the Atlas.ti network assistant (2017, March 1).

Figure 6: Theoretical Integration – Final Version



Source: Elaborated by the author using the Atlas.ti network assistant (2017, June 21).

The explanation of the following diagram in Figure 6 and the theoretical integration process will be detailed in Chapter 5. It is important to mention that using interactive diagrams to support the integration of the categories was very helpful. Making and revising diagrams forced the researcher to explain the different types of relationship among the categories. Indeed, the integration process showed the need to collect additional data to fill certain gaps in the explanation of the theory.

2.7 Drawing and Confirming Conclusions

The implementation of verification strategies is recommended to ensure the attainment of rigor in qualitative research. Morse, Barrett, Mayan, Olson, and Spiers (2002) point out that "verification is the process of checking, confirming, making sure, and being certain. In qualitative research, verification refers to the mechanisms used during the process of research to incrementally contribute to ensuring reliability and validity and, thus, the rigor of a study" (p. 17).

A large body of literature discusses different strategies to build reliability and validity of results in qualitative research, including, but not limited to the works of Golafshani (2003), Hammersley (1987), Morse et al. (2002), Silverman (2005), Kirk and Miller, (1986), and Winter (2000). Reliability and validity are briefly conceptualized by Golafshani (2003) "as trustworthiness, rigor and quality in qualitative paradigm" (p. 604).

Morse et al. (2002) recommend certain strategies to build reliability and validity in a qualitative study, including methodological coherence, appropriate sample, collecting and analyzing data concurrently, thinking theoretically, and developing theory instead of using a pre-existing framework. Corbin and Strauss (2015) evaluate the use of Morse's strategies as 'reasonable', because these strategies only consider the scientific aspects rather than the creative aspects involved in doing qualitative research.

The intention of this section is not to make a literature review on these theoretical concepts but rather to discuss some of the strategies or approaches proposed by theorists and adopted in this study throughout the data collection and analysis to improve the quality of research findings.

Certain analytical tools were used to generate meaning from data and confirm major findings. As per the basis of the grounded theory method, constant comparison and theoretical sampling were the major strategies used throughout the whole data gathering and analyzing process. Data collection and analysis occurred concomitantly. Comparisons were made within

and between different groups. The development of concepts and categories guided data collection until conceptual saturation was perceived (Corbin & Strauss, 2015; Glaser & Strauss, 1967; Morse et al., 2002).

Sampling was considered appropriate as it involved a number of participants who have knowledge of the phenomenon studied and have been deeply involved in the REDD+ policy arena and/or implementation of important initiatives. Actually, all of the most important senior policy makers involved within REDD+ in Brazil were interviewed, as well some of the most important civil society representatives. An appropriate sample ensures "efficient and effective saturation of categories, with optimal quality data and minimum dross" (Morse et al., 2002, p. 18).

Triangulation of data was used to enhance the analysis and confirm findings. Different data collection technics were used, including: 1) data collection method: interview, participatory and non-participatory observation, document review; 2) data source: people with different ideologies, interests, and professional background were interviewed and observed; and 3) data type (audio recordings from interviews and speeches, webinars, field notes, qualitative texts (Golafshani, 2003; Greene et al., 1989; Jick, 1979; Johnson & Turner, 2003; Mathison, 1988; Tashakkori & Teddlie, 2003).

As recommended by Corbin and Strauss (2015), the analysis and the resulting theory were reviewed several times to check gaps, internal consistency, and logic. During reviews, some subcategories were found to be poorly developed. In these cases, memos and quotations linked to the concepts were reviewed to fill up the gaps in terms of their properties and dimensions.

Although some categories were more developed than others in terms of their dimensions, the theoretical framework that emerged from data was built with considerable variation and by using a relevant sample, including "participants with multiple perspectives add insight, richness, depth, and variation" (Corbin & Strauss, 2015, p. 308). Theoretical saturation of the main categories was reached with sufficient variation to develop their properties.

3 LITERATURE REVIEW

The purpose of this chapter is to frame the literature on REDD+ governance, the core phenomenon of this study. In grounded theory studies, the literature review conducted before data collection and analysis is intended to guide the initial research question and interview questions, because "it is not until late in the study that the researcher knows for certain which concepts will be categories or which concepts will be important" (Corbin & Strauss, 2015, p. 371). This chapter is organized as follows. In the next sections 'REDD+' and 'governance' are individually conceptualized. In the final section the 'REDD+ governance' concept is discussed in light of relevant existing literature.

3.1 REDD+

Reducing Emissions from Deforestation and Forest Degradation (REDD+) is a results-based mechanism in which developing countries receive incentives to improve forest management by attributing an economic value to the additional carbon stored in trees or not emitted. Since 2007, UNFCCC has provided guidance on REDD+ as a policy instrument to curb emissions from land use changes in developing countries (Corbera & Schroeder, 2011).

This study considers the operational definition of REDD+ adopted by the UNFCCC Parties. According to Decision 1/CP.16 from the Cancun Agreement, REDD+ is defined as "policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries" (UNFCCC, 2014a, p. 8). REDD+ comprehends five activities focused on mitigation, which are described below:

a. *Reducing emissions from deforestation*: "the slowing or reversal of human-induced conversion and an increase in canopy cover" (UN-REDD Programme, 2015a, p. II-7). Deforestation is the "direct human-induced conversion of forested land to non-forested land" (UNFCCC, 2001, p. 122).
b. *Reducing emissions from forest degradation: "*a direct, human-induced loss of forest carbon stocks, which does not qualify as deforestation. In terms of changes in carbon stocks, degradation therefore would represent a direct human-induced anthropogenic decrease in stocks, with measured canopy cover remaining above the threshold for definition of forest and no change in land use. Accordingly, reducing emissions from

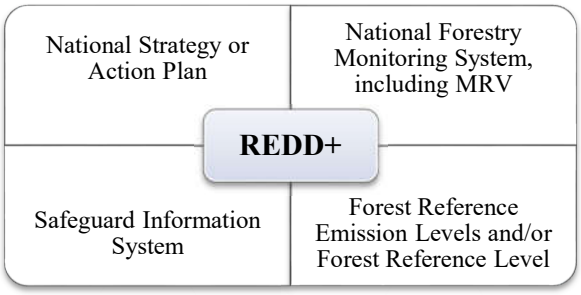
forest degradation is the slowing or reversal of human-induced decreases in carbon stocks" (UN-REDD Programme, 2015a, p. II-7).

c. *Conservation of forest carbon stocks*: "the conservation of forests, their carbon pools and reservoirs and their ability to sequester and capacity to store carbon. Conservation is generally considered as an emissions neutral activity as it preserves a status quo, and can hence be considered as actively maintaining a carbon stock" (UN-REDD Programme, 2015a, p. II-8).
d. *Sustainable management of forests*: "addresses forest degradation and deforestation while increasing direct benefits to people and the environment. At the social level, sustainable forest management contributes to livelihoods, income generation and employment. At the environmental level, it contributes to important services such as carbon sequestration and water, soil and biodiversity conservation" (FAO, 2015, November 9).
e. *Enhancement of forest carbon stocks*: "creation or improvement of carbon pools, reservoirs and their ability to sequester and capacity to store carbon. It includes forest management activities such as restoring existing but degraded forests and increasing forest cover through afforestation and reforestation on lands that were previously not classified as forests (UN-REDD Programme, 2015a, p. II-8).

Results-based payments on REDD+ are based on mitigation outcomes such as emission reductions or increase of forest carbon stocks measured against a national forest reference emission level and/or forest reference level (FREL and/or FRL) expressed in tonnes of carbon dioxide equivalents per year (Voigt & Ferreira, 2015). FREL and/or FRL are benchmarks for assessing each country's performance in implementing REDD+ activities (UNFCCC, 2014a).

The REDD+ architecture, approved by Parties at the COP-16 in Cancun, requires recipient countries to implement four elements in order to access results-based payments from donor countries (UNFCCC, 2011), as described in Figure 7.

Figure 7: Elements for REDD+ Implementation



Source: Adapted by the author from UN-REDD Programme (2015a, p. II-6).

UNFCCC recommends a phased approach to implement these elements through a flexible and interactive approach (UN-REDD Programme, 2015a), because of the complexity involved in the process that depends on developing countries' circumstances and capacities (Voigt & Ferreira, 2015). Given the political and technical difficulties, UNFCCC Parties decided that REDD+ should be implemented in phases, as described below:

> Activities undertaken by Parties referred to in paragraph 70 above should be implemented in phases, beginning with the development of national strategies or action plans, policies and measures, and capacity-building, followed by the implementation of national policies and measures and national strategies or action plans that could involve further capacity-building, technology development and transfer and results-based demonstration activities, and evolving into results-based actions that should be fully measured, reported and verified. (UNFCCC, 2011, p. 13, paragraph 73)

The initial discussion on the need to develop a incentive mechanism focused on mitigation of forest-related carbon took place during the Kyoto Protocol negotiations in 1997 (Holloway & Giandomenico, 2009). In 1998, the UNFCCC requested from the Intergovernmental Panel on Climate Change (IPCC) a report examining the scientific and technical implications of carbon sequestration strategies related to land use, land-use change, and forestry activities. This report consolidated important information on the scientific and technical aspects of carbon sequestration in agricultural and forestry sectors, as well as its implications for resource management, and socioeconomic development issues (IPCC, 2000).

The first commitment period of the Kyoto Protocol allowed industrialized countries to achieve their reduction target by acquiring offsets from projects eligible for certified emission reductions, through three different market-based mechanisms: CDM, international emissions trading, and joint implementation. Article 12 of the Kyoto Protocol states that only afforestation and reforestation projects could generate credits for trading under the CDM mechanism (UNFCCC, 2006).

However, the Marrakesh Accord, negotiated at the COP-7, only considered afforestation and reforestation activities, and reductions of emissions from tropical deforestation were not be eligible for carbon credits (UNFCCC, 2001).

In 2003, a group of Brazilian and American scholars first suggested the concept of 'compensated reduction' (Santilli et al., 2005) as a large-scale incentive to reduce emissions from tropical deforestation by compensating developing countries committed to reducing deforestation to below previously historical levels and to stabilize the reduced deforestation rate. The mechanism would also facilitate the participation of important developing counties in the Kyoto Protocol. The proposal was presented at the COP-9 in Milan in 2003 (IPAM, 2015, October 29).

Following this, a similar proposal, 'Reducing emissions from deforestation in developing countries: approaches to stimulate action', was formally presented at the COP-11, held in Montreal in 2005, by the governments of Papua New Guinea and Costa Rica, on behalf of the Coalition of Rainforest Nations. The coalition recommended two proposals to address emissions from deforestation: 1) an optional protocol under the UNFCCC, or 2) a set of decisions under the Kyoto Protocol to allow emissions from tropical deforestation to be considered in market-based schemes (UNFCCC, 2005).

REDD became a formal global mechanism only in 2007 at the COP-13. The Bali Action Plan (Decision 1/CP.13) established an international call for action on the mitigation of climate change, including "policy approaches and positive incentives on issues relating to reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries" (UNFCCC, 2008, p. 3). This REDD concept was called REDD plus (REDD+) due to the additional inclusion of the sustainable management of forests, the role of conservation, and the enhancement of forest carbon stocks.

Since COP-13, key important decisions on REDD+ have been made, including a road map to insert the mechanism into a future global climate agreement (Seymour & Forwand, 2010). The Copenhagen Accord, established at the COP-15 in 2009, expressed strong support for REDD+ as a financial mechanism to mobilize financial resources from developed countries.

It was decided that "the Copenhagen Green Climate Fund shall be established as an operating entity of the financial mechanism of the Convention to support projects, programs, policies and other activities in developing countries related to mitigation including REDD+, adaptation, capacity-building, technology development and transfer" (UNFCCC, 2010, p. 7).

The WFR, adopted by UNFCCC Parties at the COP-19 in 2013, designed a robust and comprehensive framework for REDD+ implementation, including guidance on measurement, reporting and verification (MRV) to certify emission reduction as a critical element to access results-based payments through tangible results (UNFCCC, 2014a; Voigt & Ferreira, 2015).

3.2 Governance

Governance is a broad construct that has been conceptualized and discussed in a large body of literature. In the IPCC Fifth Assessment Report, Allwood, Bosetti, Dubash, Gómez-Echeverri, and Stech (2014) propose the following definition for governance:

> A comprehensive and inclusive concept of the full range of means for deciding, managing, and implementing policies and measures. Whereas government is defined strictly in terms of the nation-state, the more inclusive concept of governance recognizes the contributions of various levels of government (global, international, regional, local) and the contributing roles of the private sector, of nongovernmental actors, and of civil society to addressing the many types of issues facing the global community. (p. 1263)

The World Bank has facilitated the discussion on governance since the 1990s and more recently talks on good governance, concerned with effectiveness of aid in developing countries. The following definition was proposed with emphasis on the public sector: "governance is the manner in which power is exercised in the management of a country's economic and social resources for development" (World Bank, 1992, p. 3). This definition is complemented by Kaufmann, Kraay, and Mastruzzi (2009):

> Governance is the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. (p. 5)

Even with the dynamic discussion on governance around policymakers, practitioners, and scholars, there is no common understanding of a single operational definition (Kaufmann, Kraay, & Mastruzzi, 2010). This study does not intend to review the large body of works on governance. Instead, the recent definition from the World Bank (2017) has been adopted:

> Governance is the process through which state and nonstate actors interact to design and implement policies within a given set of formal and informal rules that shape and are shaped by power […] Depending on the context, actors may establish a government as a set of formal state institutions (a term used in the literature to denote organizations and rules) that enforce and implement policies. Also depending on the context, state actors will play a more or less important role with respect to nonstate actors such as civil society organizations or business lobbies. In addition, governance takes place at different levels, from international bodies, to national state institutions, to local government agencies, to community or business associations. These dimensions often overlap, creating a complex network of actors and interests. (p. 3)

3.3 REDD+ Governance

As governance drives policy effectiveness (World Bank, 2017, p. 43), governance-related processes on REDD+ require coordination between public policies at national, subnational, and local levels aiming at effectiveness in emission reduction from deforestation and forest degradation, quantified and integrated at a national level (Gomes et al., 2010).

Thompson, Baruah, and Carr (2011) point out that REDD+ is more than a mitigation mechanism. In fact, "REDD+ is already functioning as a form of governance, a particular framing of the problem of climate change and its solutions that validates and legitimizes specific tools, actors and solutions while marginalizing others" (p. 100).

The REDD+ governance architecture is based on a national level coordination led by governments, with subnational activities implemented in cooperation with government agencies (Corbera & Schroeder, 2011). Although governments have increased the decentralization of forest policies and management to reduce costs and increase efficiency, the implementation of REDD+ may reverse this trend due to requirements under the UNFCCC regime to have a centralized REDD+ at the national level, including a national strategy, and a centralized MRV system (Agrawal, Chhatre, & Hardin, 2008; Phelps et al., 2010). While the national level centralizes the REDD+ policy-making process and governance, subnational governments and lower-level agents are responsible for policy implementation (Luttrell, Sills, Aryani, Ekaputri, & Evnike, 2016).

According to the WFR, results-based mechanism for REDD+ embraces a centralized national level approach by linking MRV processes to reporting obligations of developing countries under the UNFCCC. A national entity or national focal point for REDD+ should be responsible for coordination, safeguards and MRV, while subnational agencies or institutions are responsible for implementing activities. This has increased the transparency of the implementation process, aiming to access results-based finance as the national government assumes accountability for the results. The centralized approach also avoids the double counting of REDD+ results (Voigt & Ferreira, 2015).

In a state-centric REDD+ approach, national governments are accountable for establishing national strategies and policies for land use and forest sectors, including land and carbon tenure, MRV system, provision of funds, and safeguards. Actors at the subnational level (private landholders, local governments, and communities) may be responsible for implementing activities and receive incentives to reduce emissions (Phelps et al., 2010).

At the international level, it is argued that REDD+ is the most important carbon governance mechanism to address the global warming problem as deforestation is a major driver of climate change, and REDD+ is considered an effective mitigation approach (Lederer, 2012). Others stress that an integrated approach involving international, national and subnational governance levels is required for REDD+ to progress (Korhonen-Kurki, Brockhaus, Duchelle, Atmadja, & Thuy, 2012). Some go further and believe that the implementation of REDD+ should be consistent with principles of good forest governance (Kanowski et al., 2011).

At the national level, Korhonen-Kurki et al. (2012) contribute to the discussion on the challenges and opportunities of multilevel governance. Risks of conflict between actors can be reduced with a REDD+ multilevel governance system since it matches incentives and interests in a transparent way. This is corroborated by Corbera et al. (2010), who argue that "governance of land use change is a multi-sectorial issue, which requires coordination and institutional adaptation by all the agents involved" (p. 379).

Forsyth (2009) also points out the benefits of a multilevel participatory governance structure in REDD+ to build new political processes based on participation, consensus building and collective learning. Despite the divergent views and interests of stakeholders, if the processes are collectively deliberated, chances for long-term efficiency and effectiveness of REDD+ results are more likely to happen by overcoming divergent interests between actors and institutions.

According to Corbera and Schroeder (2011), national strategies for REDD+, including policies and measures, very much depend on a country's circumstances, taking into account its economic, political, historical and environmental contexts. In light of this context, the authors point out the following definition for REDD+ governance:

> REDD+ is a governance process with multiple actors, interests and activities, involving several sources of formal and informal power and authority (UN bodies, multilateral organizations, governments, but also community and indigenous organizations), which all influence each other and may or may not coincide in their interests and vision regarding how such strategy of forest and climate governance should actually look like in the near future. REDD+ exemplifies how a scientifically informed policy idea (i.e. land-use change related emissions contribute significantly to climate change and biodiversity loss) permeates through multiple spheres of decision-making and organization, creates contested interests and claims, and translates into multiple implementation actions running ahead of policy processes and state-driven decisions. (p. 90)

Korhonen-Kurki et al. (2012) list some of the REDD+ elements that require a multilevel governance for implementation, including monitoring, measuring and reporting, forest reference levels, leakage, permanence, benefit sharing and financial mechanisms, participation and rights of indigenous people and traditional communities, non-carbon benefits, and land tenure. All these elements have multilevel governance challenges related to the integration of actions at different levels.

According to Vatn and Angelsen (2009), the national governance structure for REDD+ defines the capabilities and responsibilities of actors, the rules and procedures for interactions, and distribution of power. Indeed, effective REDD+ implementation requires synergy between government at all levels and the communities involved, based on an institutional long-term strategy; "the circumstances of each country form unique constraints and opportunities for instituting REDD+ that must be taken into account when forming the specific national systems" (p.58).

The full and effective participation of key stakeholders in REDD+ governance and implementation processes is required by UNFCCC, in particular indigenous peoples and local communities (UNFCCC, 2011, Decision 1/CP.16, Appendix I, para 2). National governments are responsible not only for trying to make different lower-level units work together during REDD+ implementation (Phelps et al., 2010) but also have to negotiate with important stakeholders so they can fulfill their forest subsistence needs (Doherty & Schroeder, 2011).

Relevant stakeholders on REDD+ are those who have interests or rights in the forest, and will be affected by REDD+ activities, including indigenous peoples, forest-dependent communities, government agencies, civil society organizations, and the private sector (UN-REDD Programme, 2015b).

Cronkleton et al. (2011) highlight the importance of establishing community forest management systems at the local level as a critical component in REDD+ governance at multiple levels. This is corroborated by Roessing Neto (2015), who argues that the involvement of local actors through the establishment of local governance arrangements is a key for the implementation of REDD+ activities, in consonance with national policy instruments.

Gebara, Fatorelli, May, and Zhang (2014) point out that an effective involvement of key actors such as local communities and indigenous communities, willing to cooperate within REDD+ implementation, is critical in order to reach the aims of REDD+. On the other hand, the lack of coordination between state and nonstate actors is a constraint for the governance and implementation of a national strategy for REDD+.

4 DATA ANALYSIS

The main purpose of the study is to understand the governance process to implement a national approach for REDD+ in Brazil. Grounded theory methodology was used to explain a real-word problem. This chapter provides an overview of the theoretical categories (or constructs) that emerged from the data. The development of the categories was sustained by concepts that emerged from the data during open and axial coding processes. The qualitative data analysis was supported by Atlas.ti qualitative data analysis software. Interviews, speeches, participatory and non-participatory observations from 2015 to 2017 were considered primary data in the analysis. Data collected in 2013, including interviews, speeches and documents, were considered secondary data to reinforce data analysis and research findings.

Comparative data analysis was made whenever possible between policy makers and civil society groups. Theoretical sampling was an important technic used to develop the categories in which data was collected and analyzed until the researcher found saturation in the development of the higher-level concepts that turned out to be major categories. High variation in data through comparative analysis between groups was fundamental to support the development of the categories in terms of properties and dimensions.

The following narrative of data analysis and cited quotes do not identify participants, as previously agreed with research participants. The analysis was grouped into policy makers and civil society theoretical groups.

4.1 Theoretical Categories

REDD+ is a results-based mechanism in which developing countries receive incentives to improve forest management by attributing an economic value to the additional carbon stored in trees or not emitted. Since 2007 UNFCCC has provided guidance on REED+ as a policy instrument to curb emissions from land use changes in developing countries (Corbera & Schroeder, 2011).

Data analysis resulted in a set of categories and related subcategories that explain the REDD+ governance process in Brazil. Categories were developed in terms of properties and dimensions based on grounded data. Although all the categories reached saturation, some presented more groundedness than others. Table 11 presents the resulting set of categories, subcategories, and dimensions.

Table 11: Categories, Subcategories, and Dimensions

Categories	Subcategories	Dimensions
1. Governance	1.1 Governance structure	
	1.2 Participatory governance structure	
	1.3 Experimentalist process	
2. Strategy	2.1 Country circumstances	- National circumstances and deforestation - Environmental integrity
	2.2 Relative importance of REDD+	
	2.3 One-size-does-not-fit-all approach	
	2.4 National REDD+ Strategy	
	2.5 Framework goals and metrics	
3. Financing	3.1 Results-based payments	
	3.2 International level	
	3.3 National level	
4. Participation of stakeholders	4.1 Diversity of actors	- Civil society - Government
	4.2 Advocacy	
	4.3 Collective building of the REDD+ agenda	
	4.4 Openness to discuss the REDD+ strategy	
5. Joint action	5.1 Acting together	
	5.2 Motivation to work together	- Ministries - Subnational governments - Governments and civil society - NGOs - Donor countries - Recipient countries - Donor and recipient countries - Donor countries and subnational governments
	5.3 Divergent positions and interests	- Market-based approaches for REDD+ - National vs jurisdictional approach to REDD+ - Stock-and-flow approach to benefit sharing - Brazil's National REDD+ Strategy - Conflicts at COP-22 in Marrakesh
	5.4 Political power game	
6. Implementation	6.1 Policy implementation	
	6.2 Implementation by lower-levels	- National agencies - States and municipalities - Civil society organizations
	6.3 Monitoring system	
	6.4 Design of experiments	- REDD+ experiments - Fragmented institutional environment
	6.5 Fund management	
	6.6 Benefit sharing	
	6.7 Capacity building	
7. Collective learning	7.1 Collective knowledge development	- Knowledge sharing - Knowledge spillover - Technology transfer
	7.2 Recursive learning process	

Source: Elaborated by the author (2017).

The theoretical framework includes seven major categories, 28 subcategories, and 25 dimensions. Some of the subcategories did not have sufficient groundedness to develop dimensions. However, their properties achieved saturation through conceptual density and further integration into the theoretical framework, as will be shown in the next chapter.

The following analysis includes the conceptualization of the categories and a narrative of the phenomenon studied according to the perception of research participants. The storytelling approach was used to describe some categories, including participants' quotes to reinforce findings, especially when the researcher found contradictory or divergent positions between policy makers and civil society actors on an important issue. As systematizing the Brazilian experience in REDD+ is one of the aims of this study, storytelling is a suitable technic to describe the phenomenon. Indeed, describing how important issues were or were not addressed by actors is a significant contribution with practical implications for other REDD+ recipient and donor countries.

It is important to mention that the conceptualization of all categories and subcategories described below was based on empirical data collected in this study, and not from existing literature. Although some of the arguments used to conceptualize categories and related subcategories may be perceived as repetitive in specific cases, the researcher decided to keep them as they were built according to the perception of research participants, and form a historical narrative of the case studied.

4.1.1 Governance

Governance in REDD+ is a process that involves international and national legal frameworks, participation of state and nonstate actors, institutions, and groups. Establishing a REDD+ governance aims at transparency, accountability, effectiveness, and stakeholder engagement. A governance structure is fundamental for the implementation and monitoring of REDD+ processes, policies and measures within a multilevel and multi-actor approach. Multilevel governance involves state actors at the international, national, subnational, and local levels. Multi-actor or participatory governance structure includes state actors at all levels, and representatives from civil society, indigenous peoples, traditional communities, academia, and the private sector.

Its management structure includes a national committee, an executive secretariat, three thematic advisory boards, and a technical working group. A number of functions are distributed through the management structure in order to implement the strategy, interaction

of laws, rules and procedures, as well as monitoring and report results. This participatory governance structure throws light on the different interests and beliefs of institutions and actors, who all take part in a political power game in decision-making and the implementation processes.

Governance is the core category of this study, which is related to three subcategories: governance structure, participatory governance structure, and the experimentalist process.

4.1.1.1 The governance structure

The Brazil's National REDD+ Strategy (ENREDD+ in the Portuguese acronym) established a governance structure formed by a National REDD+ Committee (CONAREDD+ in the Portuguese acronym), an executive secretariat, a technical working group, and three thematic advisory boards. This management structure supports participatory governance in REDD+.

CONAREDD+ is responsible for coordinating, overseeing and monitoring the implementation of the national strategy. It is formed by representatives from eight ministries (environment; finance; foreign affairs; agriculture, livestock and food supply; agrarian development; science, technology, innovation, and communications; the government secretariat, and the office of the chief of staff of the presidency), two from the Amazonian states, one from the municipality, and two from civil society. The MMA chairs the committee, serves as the UNFCCC focal point for REDD+, and coordinates the executive secretariat (MMA, 2016a).

The executive secretariat is responsible for preparing and submitting all technical documents to UNFCCC, implementing the safeguard system and reporting information about it, proposing annual fundraising limits and the minimum price per tonne of CO_2e for results-based payments, issuing certificates to donors, and reporting results and payments on the UNFCCC Lima Information Hub (MMA, 2016a).

The technical working group, formed by experts from academia and federal agencies, provides inputs in MRV, FREL, and other technical submissions to UNFCCC on forest and climate change in order for to Brazil be eligible to receive REDD+ results-based payments.

Three thematic advisory boards, which are the major stakeholder engagement platform for REDD+, were established to support CONAREDD+ decisions. Each advisory board contains 30 members from civil society, academia, public and private organizations (MMA, 2016a). Table 12 presents a summary of the advisory boards' aims.

Table 12: Ad Hoc Thematic Advisory Boards in REDD+

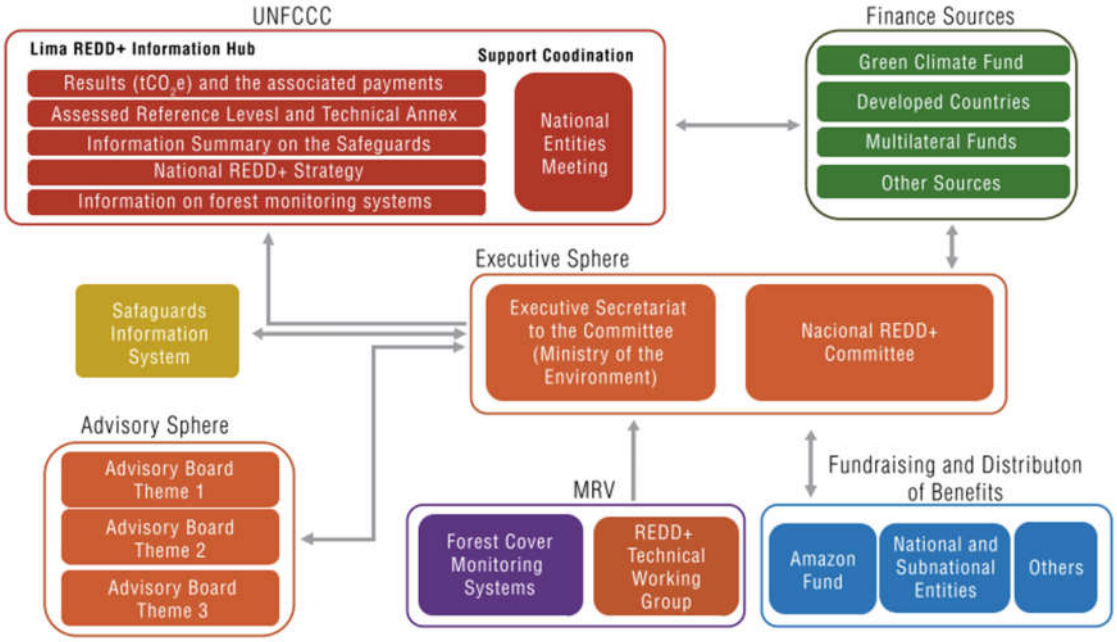
Boards	Aims	Major Plans
Federative Relations	Promoting convergence and complementarity between climate change and forests related public policies at the federal, state and municipal levels	1) Developing a capacity building plan for state and municipal public servants; 2) Mapping all REDD+ initiatives implemented by the states; 3) Defining guidelines to promote coherence between jurisdictional REDD+ programs and the national strategy, and 4) Preparing progress reports on REDD+ at all levels and proposing measures to promote convergence and complementarity between the relevant public policies
Fundraising and Distribution of Non Reimbursable Resources	Developing inputs related to fundraising of results-based payments for REDD+ and benefit sharing	Supporting the definition of criteria and guidelines related to: 1) Eligibility to access results-based payments under UNFCCC achieved by Brazil; 2) Fundraising strategy, and 3) Use of results-based payments resources
Safeguards	Developing inputs to support overseeing whether safeguards are being addressed and respected through implementation of REDD+ initiatives	1) Conceptualizing REDD+ safeguards in the Brazilian context; 2) Developing the safeguards information system; 3) Reviewing the summary of information; 4) Defining a procedure to report safeguard violations, and 5) Developing a safeguards capacity building plan.

Source: Adapted by the author from MMA (2017, March 31).

The implementation of REDD+ activities started in Brazil in 2008 with the launch of the Amazon Fund. BNDES, the financial executor of the Fund, established a governance structure, including the Amazon Fund Guidance Committee (COFA in the Portuguese acronym) and the Technical Committee (CTFA in the Portuguese acronym). As the national strategy was only launched in 2015, some overlaps within the management structure of the Amazon Fund were expected.

CTFA is responsible for certifying the REDD+ results and issuing certificates to donors, and this became a CONAREDD+ responsibility. However, the MMA is facing resistance from donor countries, because they want to maintain the Amazon Fund technical committee. Another conflict is that the reference level used in the Amazon Fund is different from the FREL submitted to UNFCCC. These issues remain to be solved, as the Amazon Fund has now become one of the financial executors of the national strategy. Figure 8 describes the governance structure and institutional arrangements for the implementation of the ENREDD+.

Figure 8: National REDD+ Strategy Implementation Arrangements



Source: Brazilian Ministry of the Environment (2016, p. 29).

Some of the implementation arrangements are fully operational while others are not. The governance structure of the national strategy is represented in orange. Elements in red are UNFCCC requirements, which are under the responsibility of the MMA executive secretariat. Purple represents the forest monitoring system, coordinated by the INPE. The safeguards information system, in yellow, is still in development and will be carried out by the MMA at the national level, aiming to provide transparency in the implementation of REDD+. Entities that may carry out fundraising are represented in blue. Potential finance sources are represented in green.

4.1.1.2 The participatory governance structure

Participatory governance is an institutional strategy adopted by the federal government to operationalize the governance of the ENREDD+. The MMA has established a formal engagement platform to involve key stakeholders in the policy making, implementation, and monitoring processes in REDD+.

The REDD+ governance structure was based on a participatory approach by involving a variety of state and nonstate actors. Indeed, a participatory governance structure in REDD+ is strongly recommended by the UNFCCC. On the one hand, participatory processes give a voice to key stakeholders involved in governance in a transparent and democratic way to

ensure that benefit sharing and safeguards have been fulfilled. On the other hand, it makes the policy making and the implementation processes very complex.

According to one policy maker, REDD+ requires a participatory governance structure to address the deforestation problem that considers the diversity of perspectives, especially from those who will be affected by the implementation of public policy. Harmonious work involving state and nonstate actors is the most effective approach to address highly complex environmental problems.

It is worth noting that the participatory governance approach at the national level is not limited to REDD+. On the tactical-operational level, the Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm in the Portuguese acronym), and the Action Plan for the Prevention and Control of Deforestation and Forest Fires in the Cerrado (PPCerrado in the Portuguese acronym) are the main policy instruments to coordinate REDD+ initiatives.

For the 2016-2020 cycle, these plans were revised based on participatory consultation by involving the private sector, civil society, and government at the national and subnational levels. These groups were consulted in separated sessions to discuss the fundamentals of the plans, considering all different perspectives and interests. Bilateral meetings with ministries were also held. Plans were revised by policy implementing agencies, including the Chico Mendes Institute for Biodiversity Conservation (ICMBio in the Portuguese Acronym), the National Institute of Colonization and Agrarian Reform (INCRA in the Portuguese Acronym), and the National Foundation of Indigenous People (FUNAI in the Portuguese Acronym).

Indeed, technical seminars were jointly organized by the MMA and civil society entities to discuss these plans. For example, the MMA and the Amazon Environmental Research Institute (IPAM in the Portuguese acronym) promoted a technical seminar with experts and policy makers to help with the new fourth pillar of the plans, ‘economic and normative instruments’. The national government’s openness to discuss the elements of these plans is considered an inclusive approach in the policy making process. The joint effort intended to promote informal discussions and brainstorms to generate new ideas with key stakeholders.

A different perspective was brought up by one policy maker, who argued that the governance structure for REDD+ is too participative, thereby making it very difficult to manage. The participant explained that in one of the thematic advisory board meetings, there were more than 60 representatives from different organizations, backgrounds, with divergent points of view. Some representatives do not focus on the discussion of the proposed agenda as

they see the meetings as the only space to position themselves on any important environmental issue. On one hand, participatory governance is very positive from the point of view of openness to discussion, inclusion of different stakeholders, transparency, and accountability. On the other, an effective decision-making process within such high-level participation is a great challenge.

Another policy maker complemented this by saying that there is no any other interministerial committee in Brazil with such a high level of stakeholder participation as CONAREDD+ and the thematic advisory boards. However, the participatory process cannot condition national government decisions on the views of nonstate actors, as the ultimate responsibility for the policy making process remains within the federal government.

It is worth mentioning that, despite the participatory processes described above, most civil society participants do not agree with the perception of policy makers and complain about the lack of openness to discuss REDD+ policy making and the implementation processes at the national level. This point of conflict will be further described in the category *Participation of stakeholders*.

4.1.1.3 The experimentalist process

The implementation of REDD+ is considered an experiment in Brazil because it was the first developing country in the world to launch a national REDD+ fund (the Amazon Fund) in 2008, even before the establishment of international and national legal frameworks. Since then, donors have been supporting pilot and demonstration projects through different financial channels, resulting in a fragmented institutional environment. Subnational governments, such as the states of Acre and Mato Grosso, have implemented jurisdictional REDD+ initiatives due to the lack of a legal framework, as the WFR was adopted in 2013, and the ENREDD+ was launched in December 2015.

This study suggests that the governance process to implement the national strategy is based on an experimentalist process through a learning-by-doing approach. Lessons learned from this process may help to improve the governance process in light of what has worked or not in practice. The federal government has been challenged to deal with the participatory governance structure due to the divergent positions and interests of actors, resulting in a political power game.

For example, there is no consensus between civil society organizations, indigenous peoples, and traditional communities on certain issues discussed at the CONAREDD+ level.

There is lack of consensus even at the ministerial level regarding market mechanisms for REDD+. NGO networks have tried to annul each other. The private sector is not sufficiently involved. Important decisions have been postponed at CONAREDD+ due to various disagreements between state and nonstate actors who are part of the governance structure.

Indeed, the national strategy to move from a subnational to a national approach in REDD+ is unique, highly dependent on country circumstances and capacities. The execution of results-based payments channeled to the Amazon Fund has been poor. One of the reasons is the BNDES low capacity of execution to evaluate proposals and make disbursements to implementing partners as the bank is the financial executor and not responsible for implementation. Indeed, lower-level entities that had proposals approved by the Amazon Fund, especially state entities (subnational governments and national agencies), have also shown a low capacity of execution.

The governance structure and operationalization of the national strategy are rooted in an experimentalist approach as exceptions were accepted, and decisions discussed. However, the study did not find any institutional arrangement with a focus on a recursive learning process to improve the policy making and implementation of REDD+ initiatives in light of the implementation experience.

The performance-based approach to REDD+ is a breakthrough mechanism at national and international levels. Brazil in leading the way by showing the international community that it is possible to establish a national goal to reduce deforestation, and operationalize cooperation agreements in REDD+, based on verified results audited by third party. REDD+ results are based on the deforestation rate measured by the satellite monitoring system and forest carbon emissions, two powerful indicators.

Some policy makers pointed out that the results-based approach in REDD+ is a complete paradigm shift for international cooperation on climate change because donor countries are moving from traditional ODA to performance-based agreements focused on mitigation. Recipient countries need to systematically measure and report their results to UNFCCC, which is technically assessed by experts. REDD+ payments are made upon verified results.

Even though the focus of this study is not on the international REDD+ governance, empirical evidence also showed an experimentalist approach at the international level. Before the adoption of the WFR by UNFCCC Parties in 2013, which set guidelines for implementation under the international regime, there was uncertainty about the ideal approach to financing. As a result, donor countries have used multiple channels to support REDD+

activities, including results-based finance, development aid, technical assistance, and direct grants to civil society.

This experimentation aimed at piloting new ideas, methods, and approaches to reduce emissions from deforestation and forest degradation in developing countries. In Brazil, bilateral agreements were signed with Norway and Germany. Indeed, cooperation agreements were signed directly with subnational governments, such as the case of Acre, enabling the development of the first jurisdictional REDD+ program in the world. Some states have developed their own legal framework, systems and processes to implement REDD+ initiatives. It was clearly a bottom-up movement where donor countries have nudged the federal government for not having a national strategy for REDD+ in place by supporting jurisdictional REDD+ programs in Brazil, instead of concentrating on the national level.

4.1.2 Strategy

Strategy, in the context of this study, is the formalization of the ENREDD+ through a plan, including goals, means of implementation, institutional arrangements, and governance structure. *Strategy* is one of the six categories related to *Governance*, the core category of this study. The category is made up of five related subcategories: country circumstances, relative importance of REDD+, one-size-does-not-fit-all approach, national REDD+ strategy, and framework goals and metrics.

4.1.2.1 Country circumstances

Empirical evidence suggests that country circumstances significantly influence the governance process in REDD+. According to one civil society participant, all governance structures based on a multi-stakeholder approach have been impacted by ethical, political and economic crises in Brazil, reducing the power of nonstate actors to influence the decision-making process. Governance structures have become a space for public debate with very little deliberation and many setbacks in several areas. In this sense, some interest groups perceive market mechanisms as the salvation for budget constraints. Some public policies, such as the environment and human rights, have been deconstructed over the past years. The ability of civil society and its power to influence public policies has decreasing due to country circumstances.

According to civil society participants, CONAREDD+ is neither discussing advances nor raising the debate of important themes that would be necessary to build a new pact based on sustainability, social and environmental justice. In light of this, the REDD+ governance structure has been more a public space for debates between state and nonstate actors than a deliberative body. The development of the subcategory Country circumstances was grounded in two dimensions: national circumstances and deforestation, and environmental integrity.

4.1.2.1.1 National circumstances and deforestation

Although this study did not intend to analyze the implications of country circumstances on REDD+, the concept clearly emerged during interviews. All participants mentioned diverse aspects of country circumstances to explain the governance process and implementation of REDD+ initiatives. In fact, the concept Country circumstances helped to explain some of the major deforestation and forest degradation drivers as part of the context that explains the core phenomenon in this study.

Brazil is a country of continental dimensions, highly dependent on natural resources. According to a civil society participant, one third of Brazil's economy is directly linked to land use in agriculture, cattle ranching, and commercial forests. In light of this, protection of the soil and natural resources is essential for climate change mitigation, agricultural and forest productivity, as well as social well-being. However, another civil society participant argued that Brazil still has the same challenges of 30 years ago on how to develop an economy of non-timber services that combines forest conservation with economic development.

According to one policy maker, the increase in the deforestation rate in the Amazon over the past three years is related to two major factors: 1) the perception of the absence of the state due to the political context, and 2) the lack of structural changes over the past years. The participant points out that law enforcement is the most effective way to curb deforestation. It is interesting to note that, according to this participant, there is no direct correlation between the increase in the deforestation rate and the gross domestic product in Brazil.

The situation is complex and requires structural changes in the occupation of the Amazon and land use regulation. According to participants, deforestation is a transversal problem across ministries in the sense that governments need to discuss and define an economic development approach to the Amazon region, including reforms in public policies related to land use that guarantee livestock and agriculture production in already degraded areas.

These views corroborated with the understanding of some civil society participants on the causes of the increase in the deforestation rate in the Amazon: PPCDAm has to be cascaded into local action plans as the Amazonian states are responsible for policy implementation. However, state action plans to combat deforestation are out-of-date. The severity of the situation in the Amazonian is aggravated by financial crises at the subnational level, budget constraints, unsatisfactory monitoring systems, and ineffective policies to simultaneously curb deforestation and promote sustainable development. It seems that the majority of the Amazonian states lack of capacity to implement and sustain effective public policies to protect the environment.

Another civil society participant pointed out that structuring policies were not implemented during the period the deforestation rate was dropping; neither governance nor market instruments were developed to encourage sustainable development in the Amazon region. In fact, governments at all levels have been unable to improve social and economic indicators in the Amazon region over the last years as the deforestation problem is rooted in economic aspects and subsistence.

This study suggests that the political and economic crises in Brazil have impacted the effectiveness of command and control activities. However, the perceived absence of the state has resulted in the presence of illegal companies and individuals more liable to carry out to deforestation actions, illegal occupation, and land grabbing (‘grilagem’ in Portuguese). Law enforcement activities have been reduced over the past years due to budget constraints, impacting the MMA and the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA in the Portuguese acronym).

According to participants, the situation is aggravated by the fact that the MMA is one of the weakest ministries, if not the weakest at all historically. Indeed, the ruralist group has increased its bargain power in the Brazilian Congress in the last years, especially in President Temer’s government. The situation is very complex and requires collective actions to address the drivers of deforestation and forest degradation.

4.1.2.1.2 Environmental integrity

Environmental integrity was an in vivo code that emerged from several interviews. An in vivo code is used in grounded theory when words or terms mentioned by research participants are so important that they become a code during data analysis (open coding process), and may become a concept or category in further analysis (axial coding process). All

policy makers against market mechanisms for REDD+ have mentioned the environmental integrity concept. It is interesting to note that no other participant in favor of offsettings mentioned the concept without having been asked during interviews and public speeches.

This concept is very important for the context of this study because it explains Brazil's views against offsettings in REDD+. One policy maker pointed out that, from the legal perspective, Brazil does not recognize forest credit in Article 6 of the Paris Agreement as the use of internationally transferred mitigation outcomes should be voluntary and authorized multilaterally by countries. The term environmental integrity is defined below by Kreibich and Hermwille (2016):

> The term 'environmental integrity' is used to describe a situation where the individual elements or mechanisms of an overarching instrument do not undermine the environmental goals of this instrument. In the case of climate change mitigation, the overarching environmental goal is to stabilize greenhouse gas concentrations "at a level that would prevent dangerous anthropogenic interference with the climate system" (UNFCCC, Art. 2)". (p. 1)

A policy maker further explained the concept in light of the risks associated with international transfer of mitigation outcomes:

> The forest and land use sectors pose particular challenges when it comes to the environmental integrity of market-based approaches that include the transfer of mitigation outcomes, such as higher uncertainty of emission estimates and risks related to carbon leakage, reversals and non-permanence of carbon stocks. Furthermore, climate feedback may over time compromise the capacity of natural sinks to absorb carbon. Because a transfer of mitigation outcomes amounts, in fact, to an additional emission allowance, the net result would actually increase emissions to the atmosphere if such challenges are not solved, for example, if Parties cannot ensure environmental integrity, as legally bound by Article 6.2 in the Paris Agreement. (Research participant, 2017, October)

As per the Paris Agreement, 'dangerous anthropogenic interference' is based on the temperature goal at which the increase in the global average temperature is to be kept below 2°C above pre-industrial levels, and efforts are to be made to limit the increase to 1.5 °C. In order to preserve environmental integrity, any mechanism adopted by UNFCCC as legally binding should not compromise the goals of climate change mitigation. This also applies to market-based approaches (Kreibich & Hermwille, 2016).

Article 6.2 of the Paris Agreement establishes a legally binding obligation to 'promote sustainable development and ensure environmental integrity' when using international transfers of mitigation outcomes. Hence, the net result of mitigation activities and the use of market mechanisms should amount to an overall reduction of global emissions.

Indeed, the policy maker pointed out some other concerns related to environmental integrity that represent the views of Brazil regarding any offsetting mechanism for REDD+:

> Environmental integrity does not, however, capture the full range of concerns of Brazil with regards to REDD+ and markets. There are equally important issues such as preserving current financial arrangements and the national scale of REDD+ activities, avoiding transfer of responsibility to developing countries, prioritizing the fulfillment of our own mitigation commitments, as well as avoiding oversupply of carbon credits. Even if, for the sake of argument, environmental integrity could be ensured, these issues are reason enough to exclude forests and REDD+ from offsetting approaches (Research participant, 2017, October).

Participants that defend offsetting approaches for REDD+ have their reasons in favor of taking advantage of the potential opportunities at the international level to finance sustainable development activities in the Amazon and thus curb deforestation. On the other hand, the Brazilian national government clearly stated that if the incentive is at the cost of worsening the problem of the atmosphere (increasing emissions) is better not to follow this path.

The participant also explained that some entities in favor of offsettings for REDD+ may have limited responsibility, considering the fact they receive financial resources and implement conservation activities, thus ending in a transaction. However, the equation is greater for the national government and the international regime, as REDD+ needs to fit into the entire atmosphere conservation regime by maintaining the environmental integrity of the system as a whole.

4.1.2.2 Relative importance of REDD+

Several participants pointed out the relative importance of the REDD+ mechanism compared to other mitigation incentives. The results-based payments Brazil has received so far are relatively low in light of the annual investments needed to implement fundamental public policies for the environment, including the PPCDAm, the rural environmental registry (CAR in the Portuguese acronym), the Low-carbon Agriculture Plan (ABC Plan), and law enforcement activities.

Empirical evidence suggests that REDD+ emerged as the most important financial instrument for climate change mitigation because of its innovative design based on performance. Financial resources are transferred to recipient countries a posteriori based on performance as results-based payments are made according to results verified against a benchmark. According to policy makers, results-based financing is more appropriate for international cooperation agreements on climate change, especially in highly complex

problems related to land use changes. Indeed, this is more respectful to country circumstances and national processes.

Some of the policy makers and civil society participants argued about the international importance of the incentive as a UNFCCC official mechanism. Even though REDD+ cannot be considered a panacea for climate change, Brazil has shown the feasibility of the results-based mechanism focused on mitigation by fulfilling donors' expectations for effectiveness, accountability, and transparency of results in cooperation agreements. The implementation of REDD+ experiments has raised Brazil to a stronger position in the international negotiations on climate change. Indeed, at the national level, results-based payments in REDD+ is recognition of Brazil's efforts to have drastically reduced the deforestation rate in the Amazon over the last decade.

Indeed, REDD+ is considered a breakthrough mechanism in Brazil with the operationalization of the Amazon Fund, the first and largest REDD+ experiment based on results-based payments in the world. The Brazilian experience has shown the international community that it is possible to give autonomy to a developing country to decide on how to manage REDD+ resources according to national priorities and ownership of the implementation agenda based on transparency and verified results by external auditors a priori.

According to some policy makers and civil society participants, the incentive to develop a safeguard system was another critical REDD+ element that brought innovation into the policy making and implementation processes in Brazil by integrating a full and effective participatory governance structure.

The safeguards in REDD+ are a set of principles, rules, and procedures, adopted by UNFCCC Parties in the 2011 Cancun Agreement, aiming at social and environmental benefits while avoiding risks in REDD+ implementation. The Cancun safeguards set a broad guidance for REDD+ implementation, including stakeholder engagement, respect for indigenous peoples and local communities, transparency in the forest governance structure, biodiversity protection, and ecosystem services (UNFCCC, 2011, Decision 1/CP.16, Appendix I, paragraph 2). REDD+ countries are required to have an operational safeguard information system and submit current information on safeguards to the UNFCCC in order to be eligible for results-based payments. International donors are particularly interested in the development of transparent safeguard systems by developing countries.

A policy maker brought up another interesting perspective in which the most important takeaway of this breakthrough process in Brazil is the paradigm shift in the very foundation of policies for climate and environmental protection at country level. For example, the ABC Plan, a major low-carbon platform focused on the agriculture and livestock sectors, has received high investment and subsidies from the federal government. However, it does not contain any measurement of results through impact assessments. Effectiveness is not an indicator measured in the ABC Plan. A public policy program without an impact assessment can neither indicate to what extent an initiative works nor how effective it is. This is not the case of REDD+.

The MRV system in REDD+ differs from other mitigation mechanisms. Some participants mentioned the lack of measuring related to the implementation of certain public policies in land use changes. For example, the Brazilian government does not know how much was invested in the implementation of the PPCDAm – the major policy in the Amazon – since 2004. Over the years, the investment was classified in different rubrics, which makes it impossible to assess the total amount invested at the national and subnational levels. There are only estimates. REDD+ mechanism was designed with a completely different approach to metrics established a priori, and cooperation agreements based on performance.

A civil society participant explained that the REDD+ mechanism presents the greatest fundraising potential for mitigation because of its logic based on verified results. The Brazilian Amazon generated the largest worldwide reductions in forest emission from 2005 to 2014, contributing to climate change international mitigation results.

Another civil society participant pointed out that the importance of REDD+ is based on benefit sharing in which communities that are historically responsible for forest conservation would benefit from the results-based approach, unlike other usually more bureaucratic instruments. Indeed, REDD+ is a promising broad mechanism for benefit sharing that could help protect some 160 million hectares of forest. There is no other incentive that could reach the scale needed to cover the extension of Amazon in order to distribute benefits.

In summary, there is a consensus among civil society participants on the importance of REDD+ as a unique financial incentive for mitigation and benefit sharing for forest-dependent communities. Policy makers pointed out the importance of the mechanism at the international level, its innovation in cooperation agreements, and the positive spillovers based on the MRV system in the policy making process at the national level. The REDD+ spillovers will be detailed in the *Collective learning* category.

4.1.2.3 One-size-does-not-fit-all approach

REDD+ is considered a one-size-does-not-fit-all approach because its policy making and implementation process depend on individual countries' circumstances and national capacities. In this sense, a top-down system implemented in one country may not work in another. The implementation of REDD+ activities is based on local needs, land use practices, indigenous people's and traditional community rights, and the economic development approach.

Some policy makers argued that REDD+ is a one-size-does-not-fit-all solution justified by the construction process of the FRELs that are specific to national circumstances. FREL is the benchmark for assessing each country's performance to implement REDD+ activities. On the other hand, the results-based payments in REDD+, as a type of mechanism for international cooperation, may be considered one-size-fits-all. In theory, any developing countries with forest cover might be eligible to access results-based finance under the UNFCCC regime if they comply with the WFR guidelines for implementation and minimum requirements for MRV.

According to one policy maker, the implementation process of REDD+ is broad, but some principles, such as stakeholder engagement processes, safeguards system, and the forest monitoring system may be applied to other developing countries. However, how to implement a full and effective stakeholder engagement process or a safeguards system depends on country circumstances. Another policy maker pointed out that the state of Acre's jurisdictional REDD+ program could be suitable for any other Amazonian state, despite the local circumstances. The same is not true for states outside the Amazon basin.

A civil society participant explained that there is no a 'ready formula' for successful forest management. In the 1970s, the World Bank was leading a discussion to show that the decentralization of financial resources would be more effective with an international cooperation focus on environmental protection since local entities could work better with autonomy to make decisions in their own territory. Nowadays, the case of Indonesia shows that the decentralization of forest governance has contributed to a chaotic situation, with conflicts out of control. In this sense, what has worked in one country may not work in another due to country circumstances, national capacity, timing of implementation, and diversity of actors involved.

4.1.2.4 National REDD+ Strategy

Brazil's National REDD+ Strategy (ENREDD+ in the Portuguese acronym) was launched in December 2015 by the MMA, with a planned review process in 2020. Its objectives are summarized in Table 13.

Table 13: National REDD+ Strategy

Overall objective	Contributing to the mitigation of climate change by eliminating illegal deforestation, promoting conservation and rehabilitation of forest ecosystems and the development of a low-carbon sustainable forest economy, generating economic, social and environmental benefits
Specific objectives	1) Improving the monitoring and impact assessment of public policies for REDD+ in order to maximize their contribution to global climate change mitigation, observing the social and environmental safeguards agreed under the UNFCCC 2) Integrating the governance structures of climate change, forest and biodiversity related policies, seeking to promote consistency and synergies between them at the federal, state and municipal levels 3) Contributing to the mobilization of resources on a scale that is compatible with the voluntary national commitments to mitigate greenhouse gas emissions in the Brazilian biomes by 2020, as established by the National Policy on Climate Change

Source: MMA (2016, p. 21).

The construction of the ENREDD+ was based on the major environmental public policies, including the National Policy on Climate Change (PNMC in the Portuguese acronym), and the Forest Code. These policies have provided strategic guidelines for the national strategy. On the tactical-operational level, PPCDAm and PPCerrado are the main instruments to implement the PNMC and the ENREDD+. Their purpose is to articulate and integrate current policies within REDD+ initiatives.

ENREDD+, also called the national strategy in this study, has three major action lines: 1) coordination of climate change, biodiversity, and forest related public policies, including safeguards; 2) measuring, reporting and verification of REDD+ results, including FREL and other technical submissions, and 3) fundraising and benefits sharing, including economic instruments to further activities that produce REDD+ results (MMA, 2016).

The national strategy took about five years to be launched after the initial public consultation process. According to policy makers, the federal government had carried out an extensive consultation process through stakeholder engagement to develop the strategy. Indeed, the MMA had waited for international guidelines for REDD+ because of the considerable uncertainty on how the mechanism would be operationalized at the international and country levels. Policy makers explained that the national government decided not to take

risks to operationalize a national strategy before UNFCCC decisions on rules and guidelines for REDD+ implementation were taken. UNFCCC Parties adopted the WFR only in 2013.

Indeed, Brazil was experimenting through the implementation of pilot and demonstration projects and programs financed by the Amazon Fund. Lessons learned from these experiments have contributed to the development of the national strategy as well as the dialogue and contributions of several key stakeholders. This consultation process took about five years and led some Amazonian states to implement jurisdictional REDD+ programs, financially supported by NGOs and international donors through a very experimentalist bottom-up approach.

Despite this extensive consultation process, all civil society participants criticized the resulting ENREDD+. A civil society participant pointed out that the ENREDD+ is very restrictive because most of the current ongoing initiatives in Brazil are coherent with the REDD+ principles, but as they are not under the umbrella of the national strategy, they cannot be benefited from it. In this sense, the federal government is missing the opportunity to show the international community, especially donor countries, that Brazil has a very broad and integrated REDD+ strategy with a variety of experiments in different levels and funding sources.

Policy makers explained that the federal government only recognizes REDD+ initiatives at the national level that are financed by the Amazon Fund. “We do not recognize any REDD+ initiatives at the subnational or project levels that have received direct finance as Brazil has a national approach for REDD+ in line with UNFCCC decisions”, explained one of the policy makers. The federal government can only endorse Amazon Fund initiatives in order to assure environmental integrity, safeguards, and avoid double counting of emission reductions.

4.1.2.5 Framework goals and metrics

Framework goals in REDD+ involve national policies and international commitments at strategic and tactic-operational levels. In REDD+, these goals are established before the country receives results-based payments.

PPCDAm and PPCerrado are the main national instruments to promote integration and coordination of REDD+ initiatives. The subnational level is responsible for the implementation of the policy through local plans, which have an interface with other sectorial plans integrated into the National Policy on Climate Change (MMA, 2016a). They provide

guidelines for REDD+ implementation, including a new comprehensive set of indicators to measure the effectiveness of specific actions in light of the deforestation rate. According to one policy maker, the improvement of the plans with indicators to be assessed in the actual cycle (2016-2020) was influenced by the performance approach to REDD+, in which indicators have been established a priori to measure outcomes.

The legal framework at the national level is summarized in Table 14. Some Amazonian states developed legal frameworks for REDD+ before the establishment of the ENREDD+, resulting in a great challenge for the government to coordinate and integrate all REDD+ related public policies.

Table 14: REDD+ Legal Framework at the National Level

Level	Policy or Commitment	Goal	Specific to REDD+ actions
Strategic	National Policy on Climate Change (Law 12.187/2009)	Reducing GHG emissions by 36.1% to 38.9% in relation to the projected emissions by 2020	1) Reducing by 80% the deforestation rate in the Amazon biome, to be measured against the historical average between 1996 and 2005 (19,625 km^2) 2) Reducing by 40% in the Cerrado, to be measured against the average between 1999 and 2008 (15,700 km^2) 3) In other biomes, it should seek to stabilize emissions at 2005 levels.
	Forest Code (Law 12.651/2012)	Imposed restrictions on land use changes in private properties. Landholders must maintain a part of Permanent Preservation Areas (PPA) and Legal Reserves (LR)	1) Amazon biome: 80% of the LR in properties located in forest regions, 35% of those situated in savanna-like regions, and 20% of those in native grass covered regions 2) All other biomes: 20% of the LR
	National System of Conservation Units (Law 9.985/2000)	Includes 12 conservation unit categories at the federal, state, and local levels with specific objectives based on full protection and sustainable use	
Tactic-operational	National Climate Change Plan (Since 2008)	Two of five objectives are related to forest, as described below: 1) Aiming at sustained reduction deforestation rates, in all Brazilian biomes, in order to reach zero illegal deforestation 2) Eliminating the net loss of forest coverage in Brazil by 2015	Reduction of 40% in the average deforestation rate of the 2006-2009 period in relation to the average rate of the ten years reference period used in the Amazon Fund (1996-2005). For each of the next two periods of four years, increase reduction by 30% in relation to the previous period. In the case of the Amazon biome, avoiding emissions of 4.8 billion tons of carbon dioxide between 2006 and 2017, considering a biomass carbon stock of 100 tC/ha. Doubling the area of forest plantation from 5.5 million ha to 11 million ha in 2020, of which two million ha with native species

PPCDAm (Since 2004) PPCerrado (Since 2010) Both plans have the same objectives with distinct expected outcomes by 2020	Reducing deforestation rates by: 1) Promoting land regularization 2) Promoting territorial planning, strengthening protected areas 3) Promoting accountability for environmental crimes / infractions 4) Implementing shared forest management 5) Preventing and combating the occurrence of forest fires 6) Improving and strengthening the monitoring of forest cover 7) Promoting sustainable forest management 8) Promoting sustainable agricultural production systems 9) Implementing normative and economic instruments to control illegal deforestation	
Rural Environmental Registry – CAR (Article 29, Law 12.651/2012)	Forest Code established mandatory registration in CAR for all rural landholders in which rural properties that have environmental liabilities relating to the insufficiency of PPA, and LR shall present recovery project to environmental (Decrees n. 7.830/2012 and 8.235/2014)	Registering approximately 5.5 million existing rural properties by 2017
ARPA Programme (Decree 8.505/2015)	Promoting the protection of at least 60 million hectares of forests in Amazonia by supporting the creation, consolidation, maintenance and financial sustainability of conservation units. Indeed, it aims to maintain the environmental services provided by the region, including those related to climate change mitigation and adaptation	

Source: Adapted by the author from Federative Republic of Brazil (2015a), Government of Brazil (2008), MMA (2016a), and MMA (2016b).

At the international level, Brazil adopted the Paris Agreement in September 2016. Brazil's Nationally Determined Contribution (NDC) aims to reduce GHG by 37% below 2005 levels by 2025, and 43% below 2005 levels by 2030. Measures were adopted for land use change and forests, and agriculture sectors as described in Table 15. REDD+ is considered a means of the implementation of Brazil's NDC.

Table 15: Brazil's NDC Commitments

Land use change and forests
1. Strengthening and enforcing the implementation of the Forest Code; 2. Strengthening policies and measures to achieve zero illegal deforestation in the Amazon by 2030 and compensating for GHG emissions from legal suppression of vegetation by 2030; 3. Restoring and reforesting 12 million ha of forests by 2030, for multiple purposes; 4. Enhancing sustainable native forest management systems, through geo-referencing and tracking systems applicable to native forest management, with a view to curbing illegal and unsustainable practices.
Agriculture sector
1. Strengthening the Low-carbon Emission Agriculture Program (ABC Plan) as the main strategy for sustainable agriculture development; 2. Restoring an additional 15 million hectares of degraded pasturelands by 2030; 3. Enhancing 5 million hectares of integrated cropland-livestock-forestry systems by 2030.

Source: Federative Republic of Brazil (2015a).

Brazil's NDC aims were considered very ambitious because of the absolute economy-wide target assumed, including all types of gases considered by the UNFCCC. Instead of estimating future emissions and working with hypotheses on how the country will develop, Brazil decided to establish its emissions reduction target based on concrete numbers from its 2005 emissions inventory. The UNFCCC requested an absolute reduction target only for developed countries. In this sense, Brazil caused some discomfort for developed countries that submitted their NDC based on future projections.

Even though Brazil was the only developing country to adopt economy-wide goals with absolute mitigation targets, all civil society participants criticized the goals established for the forest sector, especially the target to achieve zero illegal deforestation in the Amazon by 2030. They believed Brazil should have established a target to curb legal or illegal deforestation. Although they consider the absolute targets ambitious, the 2030 timeframe is not compatible with the urgency to control deforestation in the Amazon. With a different point of view, all policy makers pointed out that Brazil's NDC is very ambitious in light of country circumstances, capacity building, and required technology that will need financial resources to implement policies and action plans. Other countries were pleased with Brazil's NDC and its absolute targets.

Measuring illegal deforestation is a major challenge for Brazil. The Forest Code allows rural landholders up to 20% of legal vegetation suppression, which is not categorized as deforestation. However, the national government does not have accurate data that distinguishes legal vegetation suppression from illegal deforestation because subnational governments do not provide the local data. As per the decentralized forest governance in Brazil since 2004, subnational governments are responsible for issuing authorization for vegetation suppression according to the limits established in the Forest Code. Permits are issued to suppress vegetation (legal deforestation) by states and should be registered in the national forest system.

However, not all states have the capacity to control and report vegetation suppression and illegal deforestation in the system. Due to the lack of accurate data, the government at the national level considers as illegal deforestation everything that is not registered in the national forest system as legal vegetation suppression. This is a huge capacity building problem with subnational governments as Brazil does not have the accurate big picture as to what is legal or illegal deforestation, thereby compromising the transparency of progress reports on framework goals and metrics in REDD+.

4.1.3 Financing

REDD+ is a financial mechanism designed to recognize developing countries for verified emission reductions measured against an established benchmark, FREL, which is submitted to the UNFCCC *a priori*. Recipient countries need to tackle the drivers of deforestation and provide mitigation outcomes, ideally results ex post, to access results-based payments. Some recipient countries may not have mitigation results although they have developed policies and measures to be implemented in order to access REDD+ finance.

REDD+ financing is part of the international negotiations under the UN climate regime and intends to support a phased approach to REDD+ implementation, including: 1) readiness, 2) implementation; and 3) results-based actions. Developing countries need to show progression towards results-based actions according to national circumstances and capacity in order to access REDD+ financing. Brazil was the first country to reach the third phase by complying with UNFCCC requirements to be eligible to access results-based payments.

The category *Financing* is formed by three subcategories: results-based payments, the international level, and the national level. Indeed, *Financing* and its related subcategories were developed through dimensions based on different financial sources or channels, which are summarized in Table 16.

Table 16: Dimensions of the Category Financing

Dimension	Modality	Donor
International public finance	Bilateral agreement	- Norway International Climate Forest Initiative (NICFI), Germany International Climate Initiative, UK International Climate Fund
	Multilateral agreement	- Under the UNFCCC: Green Climate Fund (GCF), Global Environmental Facility (GEF) - Under the World Bank: Forest Carbon Partnership Facility (FCPF), United Nations REDD+ Programme (UN-REDD+), BioCarbon Fund Initiative for Sustainable Forest Landscape (ISFL) - Multilateral development banks: Forest Investment Programme (FIP)
International private finance	Private funding	- Companies and foundations - Potential agreements under discussion, such as the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)
Country public finance	Local funding	BNDES; government's budget at the national, state, and local levels; Petrobras (state owned company)

Source: Elaborated by the author (2017).

4.1.3.1 Results-based payments

According to UNFCCC Parties decisions (9/CP.19, 12/CP.17, 13/CP.19, 14/CP.19), a developing country should comply with the following REDD+ elements in order to access results-based finance: 1) national strategy or action plan; 2) assessed FREL and/or forest reference level (FRL); 3) a national forest monitoring system, including an MRV system, and 4) a safeguards information system.

MRV for REDD+ activities includes two phases. First, the recipient country needs to develop a technical assessment of the proposed FREL. Second, actual results are compared to the benchmark and submitted in a technical annex to the biennial update report. UNFCCC technical experts analyze data and information submitted by checking whether the "technical annex is transparent, consistent, complete and accurate; consistent with the assessed FREL and guidelines for technical annexes with REDD+ results; and that results are accurate, to the extent possible" (UNFCCC, 2017, March 28, para. 2).

Brazil was the first recipient country in the world to receive results-based payments at the national level, a reward for mitigation outcomes as a result of the implementation of REDD+ actions and policies, fully measured, reported, and verified according to UNFCCC guidelines. Through the Amazon Fund, Brazil has received more than USD 1 billion in results-based payments since 2009 from the governments of Norway and Germany, and Petrobras. Table 17 details the accumulated amount received per donor.

Table 17: Amazon Fund – Results-based Payments

Donor	Amount in USD
Government of Norway	1,100,276,320.84
Government of Germany	28,323,207.40
Petrobras	6,788,152.85
Total	*1,135,387,681.09*

Source: Amazon Fund (2017, March 27).

4.1.3.2 International Level

REDD+ financing at the international level occurs through public and private finance. Public finance is based on bilateral agreements between donor and recipient countries and multilateral agreements supported by donor countries through multilateral funds under the UNFCCC, the World Bank, and multilateral development banks. Major donors and funds were previously listed in Table 16. Norway is a major REDD+ donor.

The Green Climate Fund (GCF), established by UNFCCC, has a key role in REDD+ financing, taking into account country circumstances and diverse policy approaches. The GCF is developing the methodology, indicators, and the necessary internal processes to operationalize REDD+ payments to developing countries (MMA, 2017, March 27). Indeed, there is an ongoing GCF public consultation to develop a request for proposals for results-based payments in REDD+ (GCF, 2017, March 27).

According to one policy maker, the GCF will probably have different financial lines for international cooperation focused on forests. It is expected that the one of the investments will be focused on results-based payments in REDD+. Another category will be the support for developing countries to implement a minimum structure for REDD+ readiness in order to access results-based payments in the future, including the development of a national strategy or action plan; implementation of a monitoring system, including a MRV system; the development of a safeguard information system; and the submission of a FREL.

Private finance is still at the beginning. According to a civil society participant, some international private foundations have financed a few demonstration or pilot projects in Brazil with NGOs. This modality is called grants direct to civil society, without the involvement of the national government. Norway still has this modality of financing based on a three-year-cycle.

Some sectorial commitments at the international level may be in place by the time the Paris Agreement becomes operational in 2020, such as the case of the promising offset initiative of the International Civil Aviation Organization (ICAO), which has decided to implement a global market-based measure scheme called Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) to address any annual increase in total CO_2 emissions from international civil aviation above 2020 levels, thereby representing a carbon neutral growth target from 2020 (ICAO, 2016).

It is worth noting that many developing countries are against the performance based approach in REDD+ financing at the national level, as they want to keep the ODA at the project scale approach. According to a policy maker, the traditional ODA is called ‘vanilla project’ – business as usual financial aid – among negotiators and diplomats at the GCF negotiations. A central point of this discussion is based on the effectiveness of the financial aid through verified results and impact assessments, which leads to transformational programs that should be funded by the GCF. This discussion is further developed in the subcategory Political power game.

4.1.3.3 National level

A civil society participant pointed out that domestically there is neither public nor private finance for REDD+. BNDES has financially helped to lower the fixed costs of the Amazon Fund by allocating employees to operate the fund. As of March 2017, Petrobras has contributed with 0.6% of the Amazon Fund. Brazil does not have either financial or fiscal incentives for REDD+. Directives for a PES policy have been under discussion for years, but they are not in place.

The MMA has included in the 2016-2020 PPCDAm and PPCerrado a new pillar called normative and economic instruments, but discussions and proposals are still at an initial stage. These plans provide tactical and operational guidelines to combat deforestation, helping to make the country eligible to receive results-based payments. Indeed, they are considered the major instrument to implement the ENREDD+ by articulating and integrating initiatives (MMA, 2016b).

The Ministry of Finance is developing a carbon pricing mechanism, which is still very preliminary and not yet operational. REDD+ may be considered in this policy as an alternative for domestic offsettings that do not contradict Brazil's position in the UNFCCC against forest offsets. In this sense, the proposed carbon pricing mechanism should become another financial channel for REDD+.

REDD+ financing based on market approaches is a major point of disagreement and conflict between actors and groups in Brazil. Some are against offsettings because of the environmental integrity risks. Others say that REDD+ finance is means of implementing Brazil's NDC. Some others defend market-based approaches in REDD+ due to the promising international finance that could make a significant contribution to implementing actions to combat deforestation and promote sustainable development in the Amazon.

According to the WFR (decision 2/CP.17, para. 66 and 67), suitable market-based and non-market-based approaches could be developed to support results-based activities in developing countries. However, this discussion is still very polarized even at the UNFCCC level. Brazil has a historical position against offsettings in forests. Voigt and Ferreira (2015) point out the views of Brazil regarding offsettings, which "upon the adoption of the WFR, Brazil made an interpretative statement of Decision 9/CP.19, paragraphs 16–18, underlining that in order to ensure environmental integrity of REDD+, results-based payments are not to be used to offset mitigation commitments by Annex I Parties (Decision 9/CP.19, supra note 3)" (p. 123, note 66).

A policy maker complemented this by stating that there is misinformation among some actors and groups on what was agreed at the UNFCCC level. Market mechanisms are a valid mitigation tool in specific modalities such as landfill projects but do not prevent deforestation. On the other hand, some actors, especially civil society and the private sector, do not agree with Brazil's interpretation of the WFR and demand politicians review the national position on offsettings. However, market-based mechanisms for REDD+ is an issue still under discussion at the UNFCCC and will be concluded by 2018.

Other participants pointed out the importance of expanding the national strategy for REDD+ by creating the Brazilian Emission Reduction Market to access different financial sources that are not under the UNFCCC, including promising opportunities such as the ICAO scheme and the Californian carbon market. Independent projects that are not integrated into the national strategy will not be able to access funds or results-based payments within the GCF.

4.1.4 Participation of stakeholders

In the context of REDD+, stakeholders are actors or groups which have interest or are affected by the implementation of REDD+ initiatives. There are many stakeholders in REDD+, including, but not limited to, government agencies, civil society organizations, private sector, academia, smallholders, indigenous peoples, traditional communities, and other forest-dependent communities.

Several decisions under the UNFCCC have emphasized the importance of ensuring full and effective participation of key stakeholders, in particular indigenous peoples and traditional communities, including, for example, the following activities: development of the national strategy and action plans (1/CP.16 para. 72), safeguards (1/CP.16, Appendix I), monitoring and reporting (4/CP.15) (UN-REDD Programme, 2015a).

Empirical evidence has shown that stakeholder engagement in REDD+ is very complex. The diversity of actors and groups can generate positive effects and opportunities by bringing transparency, improving forest governance, promoting collaboration between different groups, and fomenting innovation. The *Participation of stakeholders* category was grounded in four subcategories: diversity of actors, advocacy, collective building of the REDD+ agenda, and openness to discuss the REDD+ strategy.

4.1.4.1 Diversity of actors

There is a consensus between civil society and policy makers on the importance of having a diversity of actors in the governance structure to further the collaborative construction of the REDD+ policy agenda. This concept is further developed in two major dimensions: civil society and government.

The REDD+ governance structure established within the national strategy has involved key stakeholders. CONAREDD+ has permanent seats for government and civil society entities, with members and deputy members for each seat. The thematic advisory boards have a diversity of actors and groups in which representatives had to apply and be accepted, according to criteria established by CONAREDD+. Table 18 shows the diversity of actors and groups in the governance structure of REDD+ at the national level.

Despite the diversity of actors, there is a consensus between civil society participants on their underrepresentation at the CONAREDD+ level. The same consensus is not perceived among policy makers. Some argue that the participatory governance structure is well-balanced between actors. Others agree with civil society actors about their underrepresentation. A policy maker pointed out that civil society is overrepresented on the thematic advisory boards. An interesting perspective was pointed out by a further policy maker on a misunderstanding of some civil society actors about representativeness and decision-making as participation does not mean the right to veto power.

Table 18: REDD+ Governance Structure – Diversity of Actors and Groups

Management Body	Members
The National REDD+ Committee (CONAREDD+)	Government – Ministries of the Environment (chair); Finance; Foreign Affairs; Agriculture, Livestock and Food Supply; Agrarian Development; Science, Technology, Innovation, and Communications; Government Secretariat, and Office of the Chief of Staff of the Presidency. Two representatives from state governments, one from municipalities Civil society – CNS and National Articulation of the Indigenous People of Brazil (APIB) as members, and Carta de Belém Group and Climate Observatory as respective deputy members
Working Group of Technical Experts on REDD+	Government – INPE; National Institute of Amazon Research (INPA); Brazilian Agricultural Research Corporation (EMBRAPA); Science, Space Applications and Technology Foundation (FUNCATE) Academia – Federal University of Goiás (UFG); University of Brasília (UNB); University of São Paulo (USP); Federal University of Minas Gerais (UFMG)
Advisory Board on Fundraising and Distribution of Non Reimbursable Resources	Government – Ministries of the Environment; Finance; Foreign Affairs; Agriculture, Livestock and Food Supply; Agrarian Development; Science, Technology, Innovation, and communications; National Council of Indigenous Policy (CNPI); Acre Environmental Services Development Company (CDSA); Strategic Affairs Office (GAE/MT); Institute for Applied Economic Research (IPEA); Caixa Econômica Federal; Acre State Secretary for the Environment; Amazon Fund; Brazilian Biodiversity Fund (FUNBIO); FUNAI; Tocantins Secretary of the Environment; Amazon Cooperation Treaty Organization (ACTO) Civil society – Institute for Socioeconomic Studies (INESC); Center for Alternative Agriculture in the North of Minas (CAANM); WWF-Brasil; Institute of Environmental Protection of Amazonas (IPAAM); Levante Popular da Juventude; Carta de Belém Group; Institute for the Conservation and Sustainable Development of the Amazon (IDESAM); Indigenous Committee on Climate Change (CIMC); Roraima Indigenous People Council; APIB; Sustainable Amazon Foundation (FAS); Bank of Brazil Foundation Private sector – Ecoa Socioambiental Consultancy; National Confederation of Industry (CNI); Biofilica Academia – Pontifical Catholic University of Rio de Janeiro (PUC-Rio); State University of Rio de Janeiro (UERJ)
Advisory Board on Federative Relations	Government – MMA; Government Secretariat; states of Acre, Amazon, Paraíba, Pernambuco, Roraima, Rondônia, Rio Grande do Norte, Paraná, Federal District, Mato Grosso, Amapá, Rio de Janeiro, São Paulo, and Goiás; FUNAI Civil society – IPAM; Matchmaking Brazil; Union of Indigenous Women in the Brazilian Amazon (UMIAB); Brazilian Institute of Ecology and Sustainable Development (IBEDS); Brazilian Institute of Research and Carbon Management – Zero CO2 Institute; Center for International Forestry Research (CIFOR); IDESAM; Maranhão Center for Black People's Culture (CCN-MA); Center of Life Institute (ICV) Academia – Amapá Public Administration School; UFMG Private Sector – Arandu Training and Development

Advisory Board on the Safeguards	Government – MMA, MRE; Santa Teresa City Hall; States Secretaries from Acre, Para, Rondônia, Mato Grosso, Tocantins, Paraíba; BNDES; Embrapa; FUNAI
	Civil society – ICV; IPAAM; Natural Capital Institute of the Amazon (ICNA); Associação de Manejadores de Recursos Florestais in Acre; Nature, Society and Conservation Group; Pantanal Traditional Communities Network; Indigenous People Articulation of the Northeast, Minas Gerais and Espírito Santo (APOINME); WWF-Brazil; IPAM; Carta de Belém Group; Terreiro de Umbanda Caboclo Sete Flechas; Terra de Direitos; Wayana and Aparai Indigenous People Association (APIWA); Amazon Working Group (GTA Network); National Council of Extractive Populations; APIB
	Academia – PUC-Rio; Federal University of Amazon, Finatec DF
	Private Sector – Quality Max; Trench, Rossi & Watanabe Lawyers

Source: Adapted from MMA (2017, April 7)

Besides the representativeness of key stakeholders in the governance structure, research findings suggest that some groups are in a minority at CONAREDD+ due to their lack of technical capacity in REDD+ to contribute effectively within the governance process, such as the case of indigenous peoples and traditional communities. The only certainty these groups have is that any decision related to REDD+ will impact all forest-dependent communities. However, their contribution in the policy arena may be limited due to their lack of capacity and knowledge of REDD+.

What seems to be a consensus between policy makers is the high complexity of managing the decision-making process that involves such a level of diversity (different expertise, backgrounds, interests, affiliations), considering the high number of representatives involved in the governance structure. Indeed, the consensus rule was adopted by MMA at both deliberative and advisory levels. In light of this context, decision-making turned out to be very time-consuming.

Although this study is not focused to evaluate the Amazon Fund, it is worth noting the diversity of actors and groups in its governance structure, and recipient entities, as seen in Table 19.

Table 19: Amazon Fund – Diversity of Actors and Groups

Management Body	Actors
Amazon Fund Recipients (implementing partners)	*National government* – IBAMA, EMBRAPA, Ministry of Defense, Ministry of Justice, INPE, FUNCATE, Brazilian Forest Service (SFB)
	Subnational government – states of Paraná, Roraima, Ceará, Mato Grosso do Sul, Bahia, Rondônia, Amazonas, Mato Grosso, Para, Amapá, Acre, and Tocantins
	Municipalities – Cotriguaçu, MT; Alta Floresta, MT; Jacunda, PA; Carlinda, MT; Marcelândia, MT; Porto dos Gauchos, MT
	International government – ACTO
	Civil Society - Eliseu Alves Foundation, Imaflora, Vale Sustainable Development Association, FAS, IMAZON, Ashaninka Association of Amonnia River (APIWTXA), Center for Indigenous Work (CTI), Amazon Conservation Team (ECAM), Bank of Brazil Foundation, TNC Brazil, WWF Brazil, Ouro Verde Institute, Center for Studies on Culture and the Environment in the Amazon (Rioterra), Mamirauá Sustainable Development Institute (IDSM), Brazilian Institute of Municipal Administration (IBAM), Society, Population and Nature Institute (ISPN), IPAM, FUNBIO, Amazon Museum (Musa), Federation of Organs for Social and Educational Assistance (FASE), Tropical Forest Institute (IFT), International Institute for Education in Brazil (IEB), ISA, Native Amazon Operation (OPAN), Association in Defense of Ethno-environmental Kanindé, Institute of Research and Indigenous Education (IEPE), Acre Pro-Indigenous Peoples' Commission (CPI-Acre), Brazilian Union of Education and Teaching (UBEE), SOS Amazon Association, OPAN, Association of Small Agro-farmers in the RECA Project, Extraction Commercialization Central Cooperative for the State of Acre (COOPERACRE), Association of Settlement Areas in the state of Maranhão (ASSEMA), Alternative Technology Center Association (CTA), IMAFLORA, Jari Foundation, Peabiru Institute, Vale Amanhecer Farmers' Cooperative (COOPAVAM)
	Academia – Federal University of Pará (UFPA), Research Development and Support Foundation (FADESP), Amazonas State University (UEA), and Muraki Institutional Support Foundation
Amazon Fund Guidance Committee (COFA)	*National government* – Ministries of the Environment; Industry, Foreign Trade and Services; Foreign Affairs; Agriculture, Livestock and Supply; Science, Technology, Innovation and Communications; President's Office; Justice; FUNAI, and BNDES
	Subnational government – the nine states of the Brazilian Amazon hold seats on the Committee, but only those that have prepared their PPCDAm have voting rights: states of Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Para, Rondônia, Roraima, and Tocantins
	Civil society – Brazilian Forum of NGOs and Social Movements for the Environment and Development (FBOMS); Coordination of Indigenous Organizations in the Brazilian Amazon (COIAB); Brazilian Confederation of Agricultural Workers (CONTAG);
	Academia – Brazilian Association for the Advancement of Science (SBPC)
	Private sector – Brazilian Confederation of Industry (CNI); Brazilian Forum of Forestry Activities (FNABF)
Amazon Fund Technical Committee (CTFA)	Leading specialists with renowned technical/scientific knowledge, appointed by the MMA, after consulting the FBMC

Source: Amazon Fund. (2017, May 28).

The remaining section describes the dimensions of the sub-category diversity of actors. It is important to mention that even though evidence showed several key stakeholders who might be equally important in the context of REDD+, this study will only focus on two major groups, Civil society and Government, due to limitation of time and resources.

4.1.4.1.1 Civil society

One policy maker explained that the composition of civil society in Brazil is not as clearly defined as it is in some other countries. In general, civil society organizations with projects or presence in the Amazon region are categorized in three major groups: 1) community-based organizations; 2) national NGOs / project developers, and 3) international NGOs with local offices in Brazil. Indeed, major networks and coalitions have been active in the REDD+ policy arena, including, but not limited to, the Carta de Belém Group, the Climate Observatory, and the Brazilian Coalition on Climate, Forests and Agriculture. Table 20 briefly describes these key groups and networks, including their views on REDD+.

Table 20: Major Groups and Networks Involved on REDD+

Groups and Networks	Position on REDD+
Community-based Organizations Carta de Belém, a group of 56 social-environmental institutions and movements (as of February 2017), was formed in 2009 with the objective of analyzing ongoing REDD+ proposals for policies and programs in the Amazon. It includes a variety of actors, such as family and peasant agriculture workers, agro-extractivists, quilombolas, women's organizations, urban organizations, fishermen, students, traditional communities, and indigenous peoples.	A cohesive group against REDD+ and any market-based mechanisms (offsettings) as it advocates against the commoditization of nature and forests. The group does not consider REDD+ an effective mitigation mechanism to address the deforestation problem
National NGOs | Project Developers There are some very important organizations developing robust projects in the Amazon in partnership with local and state governments, communities and other civil society entities. Some institutions have a strong presence in specific states or territories, such as the case of FAS and IDESAM in the state of Amazonas, ICV in the state of Mato Grosso, IPAM in the Mato Grosso e Pará states. The state of Acre is working with different NGOs, and leading the implementation of the first jurisdiction REDD+ program in Brazil. ISA works in indigenous peoples' territories. IDESAM is also the national coordinator of the Governor's Climate and Forest Task Force (GCF Task Force), a subnational collaboration between 35 states and provinces from Brazil, Colombia, Indonesia, Ivory Coast, Mexico, Nigeria, Peru, Spain, and the United States, focused on further developing REDD+ jurisdictional programs.	In favor of market-based mechanisms for REDD+ (offsettings), although with some divergent positions on how the mechanism should work at the national level
International NGOs Organizations have developed and implemented REDD+ projects and programs, researches, and advocacy on REDD+, including TNC, International Conservation (IC), World Resource Institute (WRI), and WWF-Brasil.	Lack of consensus on REDD+, even between experts from the same organization
Brazilian Coalition on Climate, Forests and Agriculture A multi-sector movement formed by leading organizations in the private sector, civil society, academia, and sectorial associations. The Coalition is very active in REDD+ advocacy.	In favor of market-based mechanisms for REDD+ (offsettings), although with some divergent positions on how the mechanism should work at the national level
Climate Observatory A network of national and international civil society organizations based in Brazil with 35 member and six observer institutions (as of February 2017), with the objective of discussing climate change issues in the Brazilian context. Its secretary is very active in the REDD+ policy arena.	Its members are in favor of REDD+, although there is a lack of consensus regarding offsettings

Source: Developed by the author (2017).

On July 11, 2017, a group of NGOs sent a letter to the Minister of the Environment and the Secretary of the Environment, Energy, Science, and Technology of the MRE demanding the national government sustain its historical positioning against forest carbon offsets as it is a false solution to the climate crisis due to environmental integrity risks and the fact it jeopardizes the goals taken on by developed countries in the Paris Agreement. Table 21 lists the organizations that endorsed the letter against offsettings.

Table 21: Civil Society Organizations and Social Movements

Amigos da Terra Brasil; Alternativas para Pequena Agricultura no Tocantins (APA-TO); Articulação de Mulheres Brasileiras (AMB); Articulação Nacional de Agroecologia (ANA); APIB; Articulação dos Povos e Organizações Indígenas do Nordeste, Minas Gerais e Espírito Santo (APOINME); Associação Agroecológica Tijupá; Associação para o Desenvolvimento da Agroecologia (AOPA); Associação Gaúcha de Proteção ao Ambiente Natural (AGAPAN); Cáritas Brasileira; Central de Movimentos Populares (CMP); Central Única dos Trabalhadores (CUT); Centro de Apoio a Projetos de Ação Comunitária (CEAPAC/Santarém/PA); Centro de Estudos e Defesa do Negro do Pará (CEDENPA); Conselho Indigenista Missionário (CIMI); Comissão Pastoral da Terra (CPT); CONTAG; CNS; Coordenação Nacional de Articulação das Comunidades Negras Rurais Quilombolas (CONAQ); Engajamundo; Fórum da Amazônia Oriental (FAOR); FASE; Fórum Brasileiro de Segurança e Soberania Alimentar e Nutricional (FBSSAN); Fórum de Mulheres da Amazônia Paraense (FMAP); Fórum Mudanças Climáticas Justiça Social (FMCJS); Greenpeace Brasil; Grupo Carta de Belém; Iniciativa Internacional da Carta da Terra (Leonardo Boff); Instituto Brasileiro de Análises Sociais e Econômicas (IBASE); Instituto de Estudos Socioeconômicos (INESC); Instituto de Políticas Alternativas para o Conesul (PACS); Jubileu Sul Brasil; Movimento dos Atingidos por Barragens (MAB); Movimento de Mulheres Camponesas (MMC); Marcha Mundial das Mulheres (MMM); Movimento dos Pequenos Agricultores (MPA); Movimento dos Trabalhadores Rurais Sem Terra (MST); Núcleo de Estudos e Pesquisas em Desastres (NEPED/UFSCar); Pastoral da Juventude Rural (PJR); Rede Ecovida de Agroecologia; Sindicato dos Trabalhadores Rurais Agricultores e Agricultoras Familiares de Santarém (STTR/STM); Sindicato dos Trabalhadores Rurais Agricultores e Agricultoras Familiares de Mojuí dos Campos (STTR-MC/PA); Sindicato dos Trabalhadores Rurais Agricultores e Agricultoras Familiares de Alenquer (STTR/ALQ); Sempreviva Organização Feminista (SOF); Sindicato dos Trabalhadores Rurais Agricultores e Agricultoras Familiares de Belterra (STTR/Belterra); Sociedade Paraense de Defesa dos Direitos Humanos (SDDH); Sociedade Civil da Comissão Nacional de Desenvolvimento Sustentável dos Povos e Comunidades Tradicionais (CNPCT); Terra de Direitos; 350.org; Via Campesina Brasil; Vigência!

Source: Greenpeace (2017, August 1).

According to these organizations, REDD+ offsets would benefit a small group of actors (those who would continue to emit greenhouse gases or receive mobilized resources) but would have serious consequences for Brazil and the world. They discuss the false equivalence between the carbon from underground fossil fuels and the carbon accumulated in forests in terms of its vulnerability (risks of deforestation and forest fires). Indeed, offsets would bring financial resources to REDD+ activities and also weaken the international climate architecture to combat global climate change. This transfer of finance is thus not worthwhile as it puts the planet's climate actions at risk because offsets do not reduce net emissions.

4.1.4.1.2 Government

The MMA is the focal point for REDD+, responsible for the policy making process and coordination to implement the ENREDD+. It is also accountable for ensuring Brazil is following all UNFCCC requirements and guidelines for REDD+ in order to access results-based payments.

REDD+ is a transversal policy that requires coordination and integration with multiple sectors and government at all levels. The policy making and implementation processes involve several ministries, including Finance; Foreign Affairs; Agriculture, Livestock and Food Supply; Agrarian Development; Science, Technology, Innovations, and Communications; the Government Secretariat, and the Office of the Chief of Staff of the Presidency. All Amazonian states are involved as implementation requires a solid coordination between national and subnational levels. Indeed, BNDES, national agencies and municipalities are important stakeholders.

4.1.4.2 Advocacy

Advocacy is a powerful tool to influence the REDD+ political agenda and implementation strategies. This study has discussed some evidence of how civil society entities and coalitions have influenced the REDD+ agenda in Brazil through, but not limited to, scientific research, lobbying, and interest-group advocacy.

At the international level, with positive results for Brazil, the NGOs Rainforest Foundation Norway, and Friends of the Earth Norway influenced Norway's International Climate and Forest Initiative (NICFI) strategy in 2007 by convincing a broad majority in the Norwegian parliament to make large-scale investment in REDD+ as it is a cost-effective mechanism for mitigation. These two NGOs took advantage of the political pressure from powerful emission-intensive business lobbies in Norway in 2007 (Hermansen & Kasa, 2014).

At the national level, important NGOs such as IPAM, ISA, and IDESAM have significantly contributed to the development of the REDD+ agenda in Brazil through scientific research, policy papers, participation in discussion forums, and occupying positions in national agencies. ISA has been contributing to the development and enhancement of the Amazon Fund since its conception. IPAM has been a major contributor by joining efforts with the MMA and producing high quality studies.

The Coalizão is leading advocacy efforts in REDD+ at the national level, with representatives from civil society, academia, and the private sector. This study identifies Coalizão as the most important and active group in REDD+ as it brings together a diversity of nonstate actors to discuss proposals for REDD+ and PES through advocacy, position papers, and public events.

4.1.4.3 Collective building of the REDD+ agenda

Civil society actors and entities have significantly contributed to building the REDD+ agenda over the years. A civil society participant explained that NGOs and social movements have been engaged in implementing the REDD+ agenda in Brazil for over seven years. This process is historically explained through empirical evidence in four different aspects.

First, since 2003 some leading NGOs have been providing specialized and scientifically grounded information to take up positions against certain federal government positions and views, provoking a public debate on the need to develop economic incentives for forest protection. Second, social movements, indigenous peoples, rubber tappers, small rural farmers, and settlers have started positioning themselves in favor of forest protection and absorbing the highly specialized information that these NGOs have been producing. A new mentality is emerging based on the premise that the deforestation problem could be addressed through the development of economic instruments. Third, subnational governments in the Amazonian biome and some private sector players have started perceiving forest conservation as an opportunity and have started putting pressure on the national government to develop economic instruments and a national strategy for REDD+. Finally, the crucial reason to develop the REDD+ agenda is political will.

All these four elements have been fundamental to start a joint effort to build the REDD+ political agenda in Brazil based on political will and openness to discuss the feasibility of the mechanism since 2003, culminating with the creation of the Amazon Fund in 2008. The MMA was the protagonist of the discussion and made great advances with concrete proposals.

Some policy makers recognized the robust and specialized work of a select group of civil society entities that have developed important studies on combating deforestation, which have greatly contributed to building the REDD+ agenda. These organizations have been providing high quality information to guide the policy making process as well as fundamentals for the public debate. On the other hand, participants stressed the difficulty to deal with a specific group of civil society entities that only criticize whatever the federal government is doing in REDD+, complaining or making abstract requests and never making any concrete and feasible proposal on how to solve problems.

A different perspective was pointed out by civil society participants about constraints that have limited joint efforts to build the REDD+ agenda, including the delay in establishing a legal framework for REDD+, lack of articulation between donors, low institutional capacity of national agencies and subnational governments to implement initiatives, limited resources, and land regularization problems.

At the international level, some Brazilian experts from government and civil society have been influencing the REDD+ policy making process at the UNFCCC level. For example, a major contribution was made in 2000 by Brazilian and American researchers that first proposed the concept of compensated reduction, the root of the REDD concept. Santilli et al. (2005) proposed a novel concept of compensated reduction, "whereby countries that elect to reduce national level deforestation to below a previously determined historical level would receive post facto compensation, and commit to stabilize or further reduce deforestation in the future" (p. 267).

The compensated reduction proposal was publicly launched in 2003 at the COP-9 in Milan in a side event. It was the first time Brazil had admitted that emissions from deforestation in the Amazon could be considered in further negotiations under the UNFCCC regime. This became the stepping-stone for the development of the new REDD+ mechanism officially adopted by UNFCCC Parties. This was a truly bottom-up initiative led by Brazilian environmentalists, who have influenced a top-down policy making process. Indeed, some policy makers at the national level in Brazil were very important in several negotiations on REDD+, especially those related to the construction and adoption of the WFR in 2013.

A civil society participant pointed out another major contribution in which a group of civil society entities launched in 2007 a commitment called 'Pact for the Forest Enhancement and the End of Deforestation in the Amazon', that aimed at establishing measures to combat deforestation and create payment for an environmental service mechanism in the Amazon. The Pact was a joint effort between nine civil society organizations: ISA, Greenpeace, IVC, IPAM, TNC, IC, Brazilian Amazon Friends of Earth, IMAZON, and WWF-Brasil. An external consultant was hired by these organizations to prepare an economic assessment to fundament the proposal and the creation of an Amazonian fund.

The Pact and its economic assessment were sent to the federal government and donor countries such as Norway and Germany. According to the participant, this proposal influenced and helped to pave the way for the creation of the Amazon Fund as well as influencing the government of Norway to pledge USD 1 billion in results-based payments in Brazil as the Pact pointed to the need of R$ 1 billion annually (for 7 years) to be invested in the Amazon to curb deforestation.

Rainforest Foundation Norway (RFN) had received the Pact and its economic assessment from one of the Brazilian NGOs by the time the Norwegian government launched its climate and forest initiative. RFN works together with a network of partners to influence policies and practices from governments, intergovernmental bodies and the private sector, in order to enhance rainforest protection all over the world. This was the case of a successful joint effort between Brazilian and international NGOs that advocate in favor of the Brazilian Amazon. According to a civil society participant, RFN and Friends of the Earth Norway lobbied the Norwegian Parliament by using the Pact to convince them to invest in Brazil. Hermansen and Kasa (2014) further explained this case:

> The Rainforest Foundation Norway and Friends of the Earth Norway exploited the window of opportunity that emerged from the tension between high domestic abatement costs and increasing domestic climate policy demands by proposing a large-scale Norwegian rainforest effort. This proposal resonated well with the new emphasis on reduced deforestation as a promising climate policy measure internationally. Towards the end of 2007, these ENGOs managed to convince a broad majority in Parliament that large-scale financing of measures to reduce deforestation globally should become an important part of Norwegian climate policy. (p.1)

4.1.4.4 Openness to discuss the REDD+ strategy

Openness to discussing REDD+ strategy emerged in most of the interviews with both civil society and policy makers. The level of participation in the development and implementation of the national strategy is a major point of conflict between actors. A full and effective participation of key stakeholders in REDD+, as required by UNFCCC, was found to be very complex.

Empirical evidence that supports the emergence of this concept was the process to develop the national strategy for REDD+. The consultation process to elaborate the national strategy took several years and received various inputs from state and nonstate actors at all levels. However, according to civil society participants, the final version of the national strategy did not incorporate most of the contributions received over the years. Indeed, the national government did not involve civil society actors in the construction of the FRELs submitted to the UNFCCC.

In 2010, the MMA initiated a dialogue process with key stakeholders to support a collective construction of the national strategy for REDD+. Technical seminars, meetings, and public events were organized involving government, civil society, indigenous peoples, academia, and the private sector. All the efforts aimed at building a consensus to develop the national strategy. Three working groups were set up with 120 representatives from 58 different public and private organizations. During the consultation process, several activities were conducted, including the mapping of existing policies and regulations, definition of guidelines for the national strategy, coordination between policies and regulations with the participation of entities and key stakeholders involved, and the creation of laws and regulations (MMA, 2012).

In 2011, an interministerial working group was formed with several ministries and policy implementing agencies. In 2012, a task force was established involving the Amazonian states and key ministries. A series of workshops was organized by the MMA and FUNAI on indigenous peoples' issues to support the development of the national strategy. Events and technical seminars were organized to discuss safeguards for REDD+ involving representatives from social movements, smallholders, the private sector, NGOs, and research institutions. The first draft of the national strategy was designed in 2013 and revised in 2014 to include guidelines of the WFR (MMA, 2017, April, 17).

From the initial consultation process through the establishment of ENREDD+ (Ordinance n. 370/2015), a stakeholder engagement process was conducted, including information sharing, consultation, and joint activities with different actors and groups. Nevertheless, most civil society participants have criticized the five-year-period that the federal government took to receive all contributions, negotiate them internally, and approve the ordinance.

Another civil society participant explained that the pressure from different stakeholders during the public consultation was critical for the government at the national level. In his perception, the major mistake was to approve the national strategy without having a final public consultation within civil society and subnational governments on the final version of the document. It culminated in a top-down decision centered on the federal government, which generated many complaints.

According to the perception of civil society participants, with the establishment of the national strategy, the lack of openness to discuss REDD+ became a major point of conflict. It is worth noting that during data collection MMA representatives said they were very open to discuss the implementation of the national strategy with key stakeholders as long as different actors and groups were willing to work on concrete and technically based proposals that do not compromise environmental integrity and attend UNFCCC guidelines.

Some of the policy makers explained that the openness to discuss REDD+ with some important civil society actors is not reciprocal as the latter only complain. On the other hand, all civil society participants agreed on the lack of openness to discuss REDD+ with the federal government. Some Amazonian states pointed out that subnational governments were not sufficiently involved in the construction of the national strategy.

One policy maker explained that discussions at CONAREDD+ are very centered on REDD+ financing and benefit sharing. According this participant, the discussion needs to be amplified from the environmental sector to the productive sector by involving landholders and companies, which are key actors involved in the drivers of deforestation. In addition, REDD+ needs to be demystified for the private sector. Openness to dialogue with a more comprehensive public would bring opportunities and joint solutions. The heated debate between environmentalists and ruralists makes for a complex process in which cultural barriers need to be surpassed in order to implement a common and integrated agenda on REDD+.

4.1.5 Joint action

A very strong in vivo code and concept that emerged several times from all participants during interviews was the need for joint action, cooperation between different actors and groups, in order to implement REDD+. In some cases, joint action was found to be one of the determining factors that promote coordinated actions and guidance for policy making and implementation. In others, the lack of joint action between entities or members from the same group was a constraint.

Joint action emerged as an important category by contributing to the development of two other concepts, the participatory governance structure and the experimentalist process. The category is formed by four related subcategories: acting together, motivation to work together, divergent positions and interests, and the political power game.

4.1.5.1 Acting together

This refers to a group of individuals or organizations acting collectively, aiming to achieve a major common goal. In other words, it is the collective action of stakeholders involved in the governance structure and implementation of the national strategy. Deforestation is a highly complex problem that requires collective actions from different actors at all levels.

There is a consensus between policy makers and civil society participants that the deforestation problem cannot be addressed only by law enforcement, monitoring, and sanctions. It requires joint actions from government at national, state, and local levels, civil society, the private sector, academia, indigenous peoples, traditional communities, landholders, and individuals. Indeed, some participants pointed out that deforestation is everyone's problem and requires joint action to develop and implement structural initiatives aiming at balancing economic development with sustainable development.

According to a number of policy makers, shared responsibilities between actors should be discussed in the REDD+ policy arena as actions must be better coordinated at different levels. Joint efforts aiming at innovative strategies for national integrated plans focused on development and territorial occupation are necessary to combat deforestation. Otherwise, struggles will continue to only partially address the deforestation problem, which is even greater today as the deforestation rate has increased over the last three years.

Civil society actors and organizations play a very important role as they work directly with local communities and indigenous peoples. This study suggests that national and subnational governments should stop clashing and start working toward collaboration, including the enhancement of joint efforts involving civil society organizations. It seems that disagreements between the national and subnational governments about decisions already taken at CONAREDD+ may weaken the REDD+ governance.

4.1.5.2 Motivation to work together

Motivation is the reason why different actors have decided to work together. A variety of actors and groups with distinct interests constitute the complex emerging governance in REDD+. Understanding their motivation to work together leads to the reason why joint actions take place in an experimentalist way in Brazil. Even though actions and interactions

between actors and groups are based on distinct interests and ideologies, mitigation is the common expected goal.

The concept is strong because it helps to explain the experimentalist process in the REDD+ governance process. Its characteristics can further be explained through eight dimensions: motivation to work together between ministries; between subnational governments; between government and civil society; between NGOs; between donor countries; between recipient countries; between donor and recipient countries; between donor countries and subnational governments.

4.1.5.2.1 Motivation of ministries to work together

The policy making process in REDD+ involves several ministries because it is considered a transversal policy. The REDD+ policy making process is led by the MMA in close cooperation with the Ministry of Foreign Relation (MRE in the Portuguese acronym), which oversees the international negotiation in REDD+ and climate at the UNFCCC. The MMA and the MRE have been working collaboratively by sharing the same views and positions on REDD+ over the years.

The MMA and the Ministry of Finance (MF in the Portuguese acronym) have been working together to collectively build the REDD+ agenda. As explained by a policy maker, REDD+ requires financing and the integration of land use change public policies at the national level. The MF is interested in the policy making process focused on economic instruments to finance a sustainable forest-based economy and promote incentives for farmers and landholders to keep the forest standing. It is also responsible for regulating the financial market of payment for environmental services, identifying potential synergies between REDD+ and the agricultural credit policy. The Brazilian Central Bank resolution n. 3545 requires a mandatory proof of environmental compliance for agricultural financing purposes in the Amazon biome.

The Ministry of Agriculture, Livestock and Food Supply, (MAPA in the Portuguese acronym) is part of REDD+ governance. The MMA and the MAPA have complementary agendas in the policy making process related to REDD+. According to a policy maker, the MAPA is working collaboratively with the MMA to identify possible synergies in transversal policies and programs. The agribusiness sector has great potential to contribute to mitigation. The productive sector could be benefited by results-based payments in REDD+ in terms of the implementation of initiatives focused on mitigation, such as intensive agriculture and

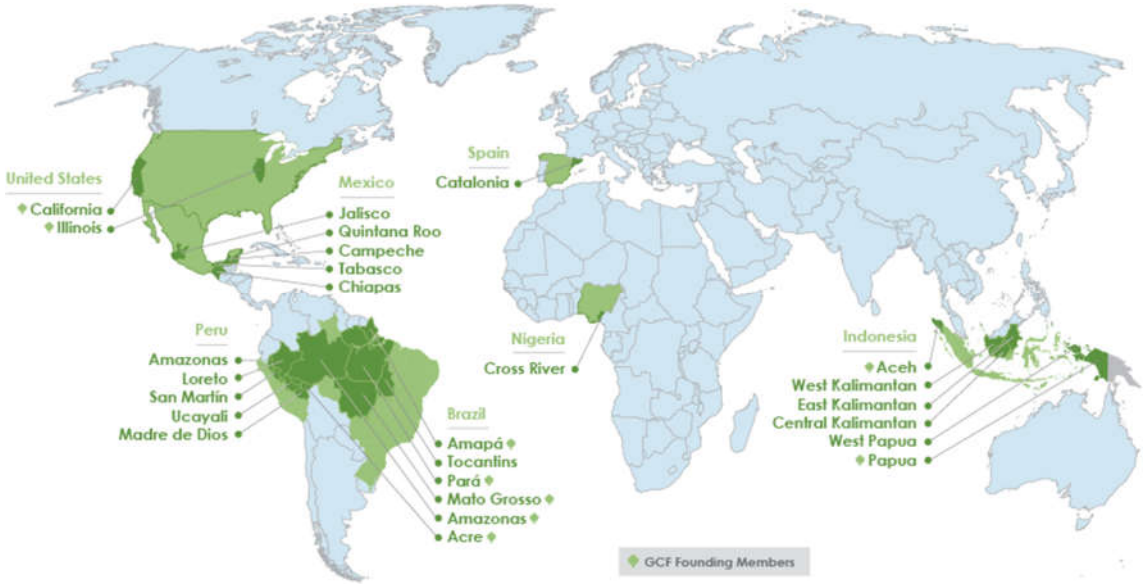
livestock farming. Mitigation outcomes from the agriculture and livestock sectors would come from capacity-building, technical assistance, low-carbon technology, and technology transfer. However, the heated debate between environmentalists and ruralists makes the process difficult.

The Ministry of Science, Technology, Innovation and Communications (MCTIC in the Portuguese acronym) is also part of the governance structure as some of its policies should be integrated within the REDD+ agenda. The Government Secretariat and the Office of the Chief of Staff of the Presidency are also part of the governance structure but with limited contributions as they have changed their representatives several times over the last years.

4.1.5.2.2 Motivation of subnational governments to work together

The motivation to work together between subnational governments at the national and international levels is rooted in the need to advance in the implementation of jurisdictional programs due to the lack of national and international legal frameworks for REDD+. The Governors' Climate and Forests Task Force (GCF Task Force) was launched in 2009 by ten subnational governments from Brazil, Indonesia, and the US, motivated by the aim to create a platform to advance on policy innovation and leadership at the jurisdictional level and form a collaborative network (GCF Task Force, 2017a, May 30). Nowadays the initiative has 35 members, as illustrated in Figure 9.

Figure 9: GCF Task Force Members



Source: GCF Task Force (2017b, May 30). Note: light green represents the GCF founding members.

It should be noted that certain states from developed countries are part of this network. Even though they are not REDD+ recipients, their interests are related to market-based approaches for REDD+ such as the case of California, which is willing to consider mitigation results from jurisdictional REDD+ programs as part of its cap-and-trade program.

The Norwegian Agency for Cooperation Development (NORAD), the Moore Foundation, the Climate and Land Use Alliance, and the Laboratory for Energy and Environment Policy Innovation (LEEP) are major donors of the GCF Task Force. It is interesting to note the Norwegian endorsement of the development of jurisdictional REDD+ programs. According to one policy maker, international donors such as Norway have been nudging national governments through the support of subnational REDD+ initiatives to implement national strategies or REDD+ regimes at the national level. Nudging is a very powerful approach to influence developing countries in the context of REDD+.

4.1.5.2.3 Motivation of governments and civil society to work together

There is a consensus between participants of the importance of governments and civil society to work together in REDD+. Policy making participants pointed out that the federal government recognizes the importance of certain reputable environmental NGOs such as IPAM and ISA, to contribute to the policy making process, the construction of the REDD+ agenda, and to improve implementation in light of their ground experience about what works or not in practice.

For example, the MMA and the IPAM organized a technical seminar in November 2016 to discuss new ideas and measures to structure the guidelines for the new economic and normative instrument of the PPCDAm and the PPCerrado, which aims to develop innovative mechanisms to foment a forest-based economy. Some civil society organizations have been working together with state actors to build this agenda.

ISA is another example of collective action. ISA is an active member of the Amazon Fund's governance structure since its creation, making a significant contribution to improve the fund's performance and effectiveness based on ISA technical knowledge about what works or not in practice and in line with PPCDAm priorities. Indeed, ISA has also contributed to the capacity building of NGOs proponents of the Amazon Fund in several administrative and bureaucratic procedures on how to negotiate with BNDES.

4.1.5.2.4 Motivation of NGOs to work together

It is a fact that civil society organizations compete for resources. However, NGOs that work in the same territory tend to work collaboratively in order to maximize their efforts. In practice, collaboration and alignment with institutions only takes place if actors willing to work together have concrete proposals for an alliance in terms of their territories and/or technical field.

For example, the System Study Greenhouse Gas Emissions Estimates (SEEG in the Portuguese acronym), a Climate Observatory initiative, is a collaboratively executed program by four NGOs to coordinate the technical process and generate emission estimates, including IMAZON, IMAFLORA, Energy and the Environment Institute (IEMA in the Portuguese acronym), and Local Governments for Sustainability (ICLEI). This initiative has received or receives funding from international civil society organizations, including the OAK Foundation, Fundación Avina, the Latin American Regional Climate Initiative (LARCI), the Climate and Society Institute, the Climate and Land Use Alliance, the Skoll Foundation, and the Porticus Foundation.

This study suggests that networks of civil society entities with common interests have been working together to contribute to the REDD+ agenda. For example, the Brazilian Forum on Climate Change (FBMC in the Portuguese acronym) and the Coalition on Climate, Forests and Agriculture have established specific working groups on REDD+ to contribute and influence policy agenda.

At the project level, NGOs have been working together to find ways to overcome barriers to access financial resources. A civil society participant explained the need to develop collective knowledge between NGOs on how to be more effective in writing proposals and negotiate with BNDES. As the financial institution has a discretionary approach to evaluate proposals submitted to the Amazon Fund, NGOs perceived the need to learn from each other's experience on how to strengthen their positions during negotiations with the Amazon Fund team based on what has or has not worked in practice.

Another empirical piece of evidence is the joint effort between ISA and IPAM in the Altamira region. These organizations have different local partners to implement their projects with distinct aims, but in the same region. Their joint actions are complementary, and have been very successful.

4.1.5.2.5 Motivation of donor countries to work together

Donor countries may have been working collaboratively on REDD+ as it is a breakthrough financial mechanism for mitigation and have experiment REDD+ finance through different channels, including bilateral and multilateral cooperation and direct grants to civil society, but this has resulted in a fragmented institutional environment.

According to policy makers and civil society participants, donor countries have been learning from each other in the experimentalist process in REDD+, and because of this, some joint efforts have emerged between donors. For example, in 2014 the government of Norway announced a cooperation agreement with GIZ, the German technical assistance agency, to financially support their office in Rio de Janeiro, which is focused on providing technical assistance to BNDES in the execution of the Amazon Fund.

This cooperation is complementary for both donors as Norway does not have a hands-on approach in cooperation agreements, and, on the other hand, Germany has significantly contributing to capacity building in order to improve the Amazon Fund performance by organizing technical workshops for BNDES teams and subnational government staff on the implementation of the CAR. Indeed, GIZ is helping to develop impact indicators to assess the effectiveness of the Amazon Fund investments.

This is a typical win-win situation. As pointed out by some civil society and policy makers, the government of Germany has positioned its cooperation agency as an employment mechanism abroad since the number of positions in the German labor market is shrinking over the years. This is one of the reasons GIZ has an international fundraising strategy. On the other hand, Norway recognizes the importance of the German technical cooperation with the Amazon Fund and decided to support it financially, aiming at improving the efficiency and efficacy of the Norwegian REDD+ financing in Brazil. International cooperation agreements in REDD+ are also part of donor countries' mitigation commitments at the UNFCCC level.

4.1.5.2.6 Motivation of recipient countries to work together

The reason why recipient countries have been working together in REDD+ is rooted in the need to establish knowledge sharing channels and cooperation for capacity building. The South-South Cooperation on Climate Change and Forests, an initiative led by Brazil, is a piece of empirical evidence that explains this concept. Several developing countries are at different stages of implementing REDD+ initiatives. According to one policy maker, the

South-South cooperation aims at knowledge exchange in solutions to common challenges, thereby promoting consensus building between developing countries to strengthen their position at the international climate negotiations.

The Brazilian government is willing to collaborate and share experiences with other countries in the implementation of climate change and forest related policies, with a focus on REDD+. Indeed, the Brazilian forest cover monitoring system, coordinated by the INPE, is considered a benchmark. Technology transfer in the monitoring system is a priority for Brazil to advance South-South cooperation (MMA, 2017, May 30).

According to Brazil's NDC, the national government is committed to making a great effort to enhance initiatives through the South-South cooperation related to REDD+ implementation in developing counties, including forest monitoring systems, restoration and reforestation activities, management of protected areas, increased resilience through social inclusion and protection programs, low carbon and resilient agriculture, and capacity building for national communications and other obligations under the UNFCCC (Federative Republic of Brazil, 2015a, p. 4). The MMA is working with the Brazilian Cooperation Agency in order to operationalize South-South cooperation, especially with other South American and African countries (MMA, 2017, May 30).

4.1.5.2.7 Motivation of donor and recipient countries to work together

Brazil is the country most likely to implement REDD+ activities on an unprecedented large-scale and has shown the feasibility of the results-based payments mechanism. Policy makers and civil society participants pointed out that mitigation potential is the main reason why donor countries have chosen Brazil as a major REDD+ recipient. Brazil has the largest tropical forest block in the world, with a low cost of mitigation, negotiated at USD 5 each CO_2 ton for results-based payments through the Amazon Fund. Indeed, the robust forest cover monitoring system for the Amazon biome, coordinated by the INPE in a historical series since 1988, has provided credibility and reliability for donors.

According to a civil society participant, the country circumstances in 2008 were decisive for the cooperation of Norway and Germany with Brazil, culminating in the creation of the Amazon Fund, considering: 1) the very promising positive international image of the Lula government; 2) the increase in gross domestic product; 3) the drastic reduction of the deforestation rate over the previous decade; 4) a good institutional environment and democratic system; and 5) a strong and active position in South-South cooperation.

Indeed, civil society participation to build a common and robust REDD+ agenda is particularly important for donors since some important NGOs have great potential to complement visions and contribute to the policy making process with their high quality scientific studies and on the ground experience.

One policy maker explained that donor countries have chosen Brazil because of its seriousness and transparency to implement policies that have shown substantial outcomes with the drastic reduction of the deforestation rate over the last decade. According to this participant, the Norwegian government has publicly stated that the cooperation with Brazil in REDD+ is desirable due to the great level of interaction and verified results.

Another policy maker argued that Germany is investing in environmental protection activities in Brazil for over 40 years, including important initiatives such as the Amazon Region Protected Areas Program (ARPA in the Portuguese acronym) and the Pilot Program for Tropical Forest Protection (PPG7 in the Portuguese acronym). Germany envisages making Brazil the international benchmark in results-based climate finance.

On the other hand, countries such as the US and Netherlands consider Brazil over-qualified to receive financial aid because of its level of development and historical results in reducing the deforestation rate in the Amazon over the years. The US has shown some interest in investing in environmental protection in Brazil if these investments are conditioned to business opportunities for American companies in the forest sector.

A policy maker added the importance of institutional capacity to implement a forest policy. In theory, all results-based approaches require that recipients show a priori institutional capacity in policy making and implementation. With regards to REDD+, the Forest Code, the forest cover monitoring system, and land rights were critical factors for donors to have chosen Brazil as a major recipient. Indeed, Brazil was the only country with the capacity to deliver results in REDD+, even though a more flexible approach was adopted by UNFCCC to accommodate the needs of other developing countries in light of their circumstances and capacities.

4.1.5.2.8 Motivation of donor countries and subnational governments to work together

Donor countries and multilateral funds have financed REDD+ activities at the jurisdictional level over the past years. One of the reasons for this fragmented finance was the delay of the UNFCCC to establish a legal framework for REDD+. The WFR was adopted only in 2013, establishing international guidelines for implementation in order for developing countries to be eligible to access results-based payments in REDD+.

According to one policy maker, the empowerment of some subnational governments and their leadership to implement jurisdictional REDD+ programs supported by international agreements, such as the case of the state of Acre and Germany, have encouraged all Amazon states to put pressure on the federal government to establish the national strategy and governance structure for REDD+.

Germany's REDD+ Early Movers Programme (REM), a global German development cooperation program that combines carbon finance from KfW Development Bank with operational support from GIZ, is supporting the state of Acre since 2012. The German government intends to demonstrate the implementation of a results-based approach at the jurisdictional level by generating new insights for the climate negotiation process (GIZ, 2017, March 20).

One policy maker pointed out that donor countries have nudged developing countries toward stronger commitments by supporting capacity building and providing incentives through results-based payments in REDD+. Nudging is a very effective approach for behavioral change and influencing governments at the national level. In the case of Brazil, for example, the level of investment made by the federal government in initiatives to curb deforestation (as per the PPCDAm guidelines) is much higher than the USD 1 billion results-based payments made by Norway to the Amazon Fund. However, the Norwegian cooperation agreement has put so much pressure that the REDD+ agenda became a priority in Brazil, which could not have happened without this financial incentive, even though it was substantially lower that other incentives.

International donors have experimented and tested various alternatives to implement REDD+ at different levels by involving a diversity of actors and different financial channels. With the adoption of the international normative WFR in 2013, countries could implement REDD+ at the national or subnational levels as an interim measure. As stated in the UNFCCC (2014) decision booklet for REDD+, “subnational approaches, where applied, should constitute a step towards the development of national approaches, reference levels and

estimates" (p. 5). This goes against the fragmented institutional environment, which has been financed by international donors.

4.1.5.3 Divergent positions and interests

Even though all participants have agreed on the importance of different stakeholders acting together to implement REDD+ activities, divergent positions and interests of key actors emerged as a very strong concept since conflicts and disputes are making the implementation process of the national strategy very difficult and time-consuming. Divergent interests in the REDD+ policy arena were expected because the implementation of initiatives involves a large number of actors and entities and benefit sharing.

Although the discussion about REDD+ started in 2005, its concept has different meanings for different actors and groups. Several actors and interest groups consider REDD+ a financial opportunity, a market mechanism, or a panacea for all environmental problems, which leads to disputes, conflicts and disagreements, resulting in a slow operationalization of the national approach to REDD+. Some others see it as a mitigation instrument to support policies and measures that focuses on sustainable development and forest conservation in developing countries.

All policy makers and civil society participants mentioned points of divergences between actors, groups, and governments across levels. Empirical evidence showed divergent positions of actors related, but not limited to, market-based approaches for REDD+. Another four dimensions emerging from this subcategory help to explain the phenomenon: national vs. jurisdictional approach to REDD+; stock-and-flow approach to benefit sharing; Brazil's National REDD+ Strategy; and conflicts at the COP-22 in Marrakesh.

4.1.5.3.1 Market-based approaches for REDD+

Policy making participants explained that Brazil has taken a historical position against forest carbon offsettings since 2005. Brazil's position against the inclusion of REDD+ in any market mechanism is based on technical arguments, including risks to compromise the environmental integrity of the climate regime because of uncertainties in measurements, linkage, the permanence of REDD+ results, as well as incentivizing developed countries to implement actions based on the additionality principle to mitigate their emissions as offsettings do not reduce GHG emissions.

Civil society participants made a counterpoint by criticizing the views of Brazil in terms of uncertainties in measurements and the permanence of REDD+ results. They believe Brazil has developed technical capacity in MRV. A number of highly specialized institutions are capable of carrying out measurements on emission reductions in REDD+ at the same level as emission reductions in other sectors, including, but not limited to INPE, the University of São Paulo, and the Federal University of Minas Gerais. Indeed, there are mechanisms available to protect environmental integrity.

The same civil society participants did not mention anything about the permanence of REDD+ results. As pointed out by a policy maker, USD 5 for a ton of CO_2, as per results-based payments transferred to the Amazon Fund, is not enough to transfer mitigation results to another country and ensures carbon will remain for at least 100 years, as indicated in the *Special Report on Land Use, Land Use Change, and Forestry* prepared by the IPCC (2000).

In addition, policy makers have argued that new market-based mechanisms under the UNFCCC have to serve the purpose of implementing the Paris Agreement by reducing global GHG emissions and the average global temperature. The implementation of ENREDD+ is based on the premise that results-based payments are a consequence of verified emission reductions, based on the MRV system at the national level and reports to the UNFCCC. REDD+ is considered means of implementation of Brazil's NDC, and so REDD+ results should not be used to mitigate emissions in other countries.

Some other policy makers pointed out an interesting perspective that most civil society organizations focused on project development favor market mechanisms for REDD+ because of their business interests in carrying out consultancy services to implement jurisdictional programs and sell forest carbon credits from REDD+ projects as it is easier to sell projects and programs at the jurisdictional level.

The lack of consensus on market mechanisms for REDD+ emerged from actors and entities at all levels. There is even no consensus between ministries at the national level. A particular group of NGOs, project developers, and the Amazonian states, do not agree with the views of Brazil against market mechanisms for REDD+. Potential resources of offsetting transactions would help subnational and local governments to implement actions to combat deforestation as their economic situation is very critical due to the financial crises. Indeed, Brazil has faced difficulties to fundraise results-based payments at the national level. This view is corroborated by the MF and MAPA, which are opposed to the views of the MMA and MRE.

Indeed, there is no consensus on offsettings in REDD+ even between civil society actors and groups. There is no consensus among the FBMC members, neither between indigenous peoples nor forest-dependent communities. The Carta de Belém group is against REDD+ and any market mechanism in terms of forests. A civil society participant pointed out the strong resistance from entities involved with CDM projects against the creation of a Brazilian carbon market that includes REDD+.

Another civil society participant discussed how REDD+ is still a delicate issue even between civil society entities and the private sector. For example, Coalizão launched its position paper on REDD+ in 2016. However, there is no consensus between its members about market opportunities. Participatory observation reinforces the lack of consensus and divergent positions among members of the Coalizão's Working Group on REDD+. Some defend the total liberalization of offsets for REDD+ on the international market; others are in favor of market mechanisms for REDD+ with some centralization at the national level. Nevertheless, there does seem to be a consensus on the importance of REDD+ as a mitigation mechanism. Coalizão members defend a more liberal REDD+ approach than one which is totally centralized at the national level.

The Coalizão's position paper on REDD+, launched in November 2016, recommends five measures to be adopted by the national government to take advantage of promising investment opportunities in REDD+ at the international level: 1) create and regulate mechanisms for emissions reduction in the forest and agriculture sectors, considering carbon market opportunities; 2) implement the Brazilian Market of Emissions; 3) regulate the Forest Code Article 41 focused on PES; 4) recognize jurisdictional REDD+ programs in the national strategy; 5) increase the number of seats for the private sector and civil society in CONAREDD+ and allow greater equality in the decision-making process (Coalizão, 2017, February 26).

Different from any other civil society organizations network, the Carta de Belém is a very cohesive group against REDD+ and offsettings. All its members, including social movements, and social and environmental entities, do not approve any type of compensation or market mechanisms in forests as they are against the commodification of nature. Indeed, the group is against REDD+ because it is neither a panacea for deforestation nor an effective mitigation mechanism. Within the inclusion of REDD+ in the Paris agreement, the group advocates convincing the federal government to maintain Brazil's historical position against market mechanisms in REDD+ where any results-based payments must be made through public policies. However, the group is aware of the advances in jurisdictional programs

through the establishment of subnational legal frameworks for REDD+ in view of the potential investments from international donors.

APIB is a Carta de Belém member and sustains the same position on REDD+ and offsettings. However, there is no consensus among indigenous peoples. Some tribes have been influenced by TNC and the WWF, for example, and are in favor of REDD+ and offsettings. Others are against offsettings but in favor of REDD+. APIB members are against both. Table 22 summarizes the divergent positions on market mechanisms for REDD+ between some actors and groups identified in this study.

Table 22: Position Regarding Market Mechanisms for REDD+

Sector	In favor	Against	No consensus
Government	Ministries of Finance, Agriculture and states	Ministries of the Environment, and Foreign Affairs	
Networks of nonstate actors	Coalizão and Climate Observatory	Carta de Belém Group, APIB, and CNS	FBMC
Civil society	International and national NGOs	Community-based NGOs	Indigenous peoples, traditional communities, and others forest-dependent communities
Private sector	Project developers, carbon accounting standards entities	Some beneficiaries from CDM projects	

Source: Elaborated by the author (2017).

One civil society actor argued that the environmental integrity of the global climate system has to be a priority for everyone due to the emergency situation of keeping the global warming to below 2°C. The discussion about offsetting mechanisms, whether against or in favor, is mistaken. The central point of the discussion should be under what conditions offsets may happen. If countries had the 'right level of ambition' for their emission reduction targets in the Paris Agreement, offsets would be acceptable to attract financial resources to forest conservation activities on an international scale. The planetary forest and glacier systems are collapsing due to global warming and the high level of deforestation. This is the context in which the discussion about mitigation mechanisms such as REDD+ should be based in view of the commitments taken on by parties in the Paris Agreement to limit global warming. With more ambition, the financial flow for mitigation activities would come from different sources.

4.1.5.3.2 National vs. jurisdictional approach to REDD+

According to UNFCCC decisions, REDD+ was designed as a nationwide mechanism based on national policies, measures, and verified results. The jurisdictional approach may be adopted as an interim measure. Despite the centralization of REDD+ at the national level, lower levels are responsible for implementation through projects and programs.

The MF is in favor of jurisdictional REDD+ programs in the voluntary carbon market since Brazil is able to develop a robust MRV system, has good governance to avoid double counting, and does not compromise its environmental integrity. Possible risks should not prevent further discussions on how to increase Brazil's potential to access REDD+ results-based finance through different sources and mechanisms. The MF's position contradicts the national position against offsettings, led by the MMA and the MRE.

A civil society participant pointed out that a well-balanced design for a REDD+ regime would consider jurisdictional REDD+ programs integrated with public policies on forests and not just the establishment of a forest carbon market. Another civil society participant argued that the establishment of a centralized emission reduction accounting at the national level is linked to a major interest of the federal government in having flexibility to increase emissions from industry, energy, and the transportation sectors but still comply with Brazil's NDC goals.

The problem is that the Amazon biome continues to face huge challenges due to the lack of investment in inclusive policies to foment economic development concomitantly with environmental protection, aggravated by the country's economic recession and the financial crises of the Amazonian states. In light of this context, forest offsets would help to increase investment to create a long-term plan to encourage the development of productive forest-based chains, monitoring, forest management, and governance.

4.1.5.3.3 The stock-and-flow approach to benefit sharing

Another point of disagreement between the national and subnational governments, and some civil society entities, is the proposed stock-and-flow approach to benefit sharing in REDD+. According to Moutinho et al. (2012), the stock-and-flow approach distributes benefits in a balanced and transparent way to those who reduce GHG emissions from the forest (flow) and others who conserve the forest carbon (stocks).

Subnational governments and some civil society entities defend the stock-and-flow system as the best approach to benefit sharing in order to ensure transparency and ownership by the states. The federal government has some technical concerns about the viability of this method, including the high costs of jurisdictional MRV systems compared to the total cost of the project, technical barriers and constraints to measure CO_2 flow, and the permanence of results.

In fact, certain policy makers do not understand why the Amazonian states want to absorb the transaction costs of a jurisdictional MRV, as per the stock-and-flow approach, instead of joining efforts with the federal government in supporting a centralized MRV at the national level. A decentralized fundraising strategy is under discussion at CONAREDD+ in order to consider the MRV system and results centralized at the national level.

4.1.5.3.4 Brazil's National REDD+ Strategy

Another point of disagreement between the MMA and some civil society entities is the ENREDD+. The federal government explained that the formulation of the national strategy was based on a participatory process over four years of discussions and consultation with key stakeholders. On the other hand, all civil society participants have a completely divergent perception and say public consultation was not enough, resulting in a strategy that fails to express the lessons learned from lower-level actors and entities responsible for the implementation of pilots, demonstration projects and programs.

On the other hand, certain policy makers argue that a specific group of civil society entities and individuals always want more as the participatory process is never enough for them. Indeed, some entities have criticized the high number of processes and decisions but never come up with a constructivist approach on how to solve problems collectively in a different way as deforestation should be considered everyone's problem and not only that of the federal government.

Evidence suggests that the lack of consensus and disputes are postponing decisions at the CONAREDD+ level, with implications for implementation. Some actors are questioning many decisions already taken by the national government, including Ordinance n. 370/2015 (establishment of the ENREDD+), and Presidential Decree n. 8576/2015 (establishment of CONAREDD+). But these groups have specific interests and direct their complaints against the national approach to REDD+.

4.1.5.3.5 Conflicts at COP-22 in Marrakesh

At COP-22, held in Marrakesh in late 2016, there was strong pressure from some environmental NGOs, congressmen, and governors from the Amazonian states on the Brazilian government, represented at the UNFCCC by the MRE, in partnership with the MMA, to revise its position against forest offsets. Disagreements had started months before the COP-22, when the MMA pointed out that REDD+ is means of implementation of Brazil's NDC. According to a civil society participant, the conception of REDD+ was based on additionality, a mechanism to reduce emissions by implementing innovative initiatives to combat deforestation, and promote a forest-based economy and sustainable development. In this sense, REDD+ should not be a means for the implementation of national goals committed to in the Paris Agreement.

On the other hand, national policy makers were surprised by the public reaction of some civil society actors and subnational governments at the COP-22 since it was never on the government's agenda to discuss any changes in UNFCCC decisions already adopted by Parties regarding REDD+ or any other decision related to reviewing Brazil's position against forest carbon offsets.

Some of the members of Coalizão argued that they were surprised by the Brazilian submission to UNFCCC, prior to COP-22 in Marrakesh, of a document called 'Views of Brazil on the Elements of the New Agreement under the Convention Applicable to All Parties', stating that Brazil is against the inclusion of REDD+ in the Sustainable Development Mechanism (SDM+) in the international carbon market after 2020. As stated in the official document:

> It would constitute a mechanism to enhance action under the agreement and to provide incentives for developing country Parties to consider moving towards economy-wide absolute contributions. It should be understood as a complementary tool to achieve a level of implementation above and beyond the NDC. In this sense, accounting under the Economic Mechanism should remain separate from the national GHG inventories of the Parties, with a view to avoid double counting. Brazil does not agree with the inclusion of bilateral or voluntary emission trading schemes as part of a Party´s NDC. The Economic Mechanism shall be comprised of general guidelines related to an emission trading system and an enhanced Clean Development Mechanism. (Federative Republic of Brazil, 2015b, p.11)

Some civil society entities and the private sector, mainly represented by the Coalizão network, wondered why there was no public consultation before submitting this document to the UNFCCC as the federal government conducts the negotiation, defines the policies, but the implementation is carried out by lower-level actors and entities that were not even consulted a priori. However, the Carta de Belém Group had officially made a statement endorsing the historical position of the federal government during climate change negotiations at COP-22 to keep forests out of the carbon market.

Despite the divergent positions and interests among ministries, subnational governments, civil society entities and groups regarding the ideal REDD+ approach, this study suggests that everyone should demand a technically grounded debate with the MMA, and key stakeholders should be involved through a transparent public consultation process and a democratic dialogue. The technical discussion should include the challenges involved in land use change and opportunities for policy integration across sectors within the implementation of REDD+ initiatives.

It is interesting to note a different perspective brought up by a policy maker who pointed out that civil society entities, especially those focused on project development, are not willing to have a technical discussion focused on the risks which market mechanisms bring to REDD+. In summary, as stated by a policy maker, the REDD+ experience in Brazil is new, requires maturation and a clear understanding of risks and opportunities by all actors involved in the policy making and implementation processes.

4.1.5.4 The political power game

The political power game is a result of divergent positions and interests between key actors. Economic interests and different ideologies permeate the REDD+ policy arena. This concept emerged as an in vivo code from an interview with a policy maker. As pointed out by the participant, “a political power game focused on REDD+ is taking place in Brazil”.

Research evidence showed the political pressure of certain actors and groups on the MMA, the influence of project developers and some environmental NGOs on subnational governments, and the strategic interactions between some CONAREDD+ members to influence voting processes and deliberations. Evidence of the political power game in REDD+ was pointed out by most of the participants, especially at the CONAREDD+ level, and was corroborated by non-participatory observance at one of the ordinary meetings.

Disagreements on or contributions to certain documents and proposals sent by the CONAREDD+ secretariat to its members prior to ordinary meetings were not expressed individually. At one of the ordinary meetings, principles and guidelines to have jurisdictional and local initiatives endorsed by CONAREDD+ were presented, and all the members agreed on the document but disapproved of it later in an electronic voting process. A similar political power game was observed at an ordinary meeting to approve limits for the decentralized fundraising strategy.

It is interesting to note this political power game at CONAREDD+ to which neither subnational governments nor civil society representatives have brought the offsettings issue for a technical or political discussion as they want to negotiate it only at the ministerial and presidential levels. According to one policy maker, their strategy is to put pressure on the current government at the ministerial level as it is a transitory and weak government, open to dialogue, who does not want to confront its constituency, especially civil society. No policy maker appreciates this kind of pressure. On the other hand, subnational governments and civil society actors have been complaining for a long time about the lack of openness to discuss REDD+ issues with MM and the MRE.

Table 23 consolidates some of the empirical evidence that better explains the political power game concept in REDD+.

Table 23: REDD+ Political Power Game

Actors	Conflicts, Disputes, and Proposed Solutions
Ministries	There is lack of consensus on forest carbon offsets between ministries. MMA and MRE have the same views against any market mechanisms for REDD+ because of the risks related to compromising environmental integrity, uncertainty about measurements, permanence and linkage, as well as compromising the achievement of the Brazil's NDC goals. On the other hand, MF and MAPA are favorable to jurisdictional REDD+ and market-based mechanisms in order to take advantage of promising international sectorial commitments, such as the International Civil Aviation Organization (ICAO) carbon offset scheme called CORSIA that intends to include REDD+ as one of the mitigation mechanism for the sector *Still under discussion at CONAREDD+.*
Brazilian Forum on Climate Change (FBMC)	The lack of consensus on market mechanisms for REDD+ between its members *Proposed solution* – On March 2017 members decided to form a small working group with seven experts with different views to prepare a technical paper to support a larger discussion on the pros and cons of market based approaches to REDD+.
MMA vs. Amazonian States	States do not agree with the centrality of emission reduction accounting at the national level as they demand financial resources for their jurisdictional programs in order to support the implementation of the PPCDAm. As per the decentralized forest governance in Brazil, subnational governments are responsible for the policy implementation. In this sense, states demand the ownership of REDD+ results. However, the national approach to REDD+ is a decision already taken as per the establishment of the national strategy (Decree n. 8.576/2015). Another point of conflict is offsettings. As stated in the national strategy, results-based payments in REDD+ do not generate any rights or credits of any nature to donors. Mitigation results cannot be transferred to other Parties. *Proposed solution* – The operationalization of the national strategy is under discussion with the thematic advisory boards and decision will be taken by consensus at the CONAREDD+ level. By the time data was collected three major topics were under discussion and negotiation: 1) a mix of centralized and decentralized fundraising strategies in which states and implementing agencies would be able to fundraise REDD+ results-based payments; 2) a strategy to promote coherence between jurisdictional programs with the national strategy, and 3) development of safeguards guidelines and information system.
MMA vs. BNDES	BNDES is the financial executor of the Amazon Fund (AF), created by Decree n. 6.527/2008. Federal government gave full power for BNDES to disburse non-refundable funds to implementing partners by observing PPCDAm guidelines. The AF became a department under the BNDES governance structure. The AF team had to learn from scratch how to operationalize the fund. BNDES internal bureaucracy is one of the causes of the delay to approve proposals and execute disbursements. Its steering committee (COFA in the Portuguese acronym) had adopted an experimentalist approach to set guidelines for request for proposals and advice. By 2012, the AF overall result was a project portfolio not in line with the lessons learned from PPCDAm under implementation since 2004. BNDES had changed the AF leadership team in 2013, which resulted in a better alignment with the MMA team. By that time, the AF had started shifting gradually from a project approach to a structuring initiatives approach with the guidance of COFA and MMA. *Proposed solution* – As per the Presidential Decree n. 8.773/2016, the AF and its COFA have to observe PPCDAm and the national strategy guidelines. With the establishment of the ENREDD+ and CONATREDD+, the AF became one of the financial executors of results-based payments.

MMA vs. certain NGOs, Project Developers, and the Amazonian states	A specific group of NGOs conflict with MMA on the implementation of a national versus jurisdictional approach. According to policy makers, some civil society organizations and project developers have business interests in selling consultancy projects to implement jurisdictional approach as the most appropriate solution for the environment, even though they know the possible duplicity of efforts on MRV and safeguards, which increases the transactional costs that should be centralized only at the national level, as per the ENREDD+. Another issue is offsettings. Certain civil society actors argued that restrictions on offsettings should not be applied to aviation and maritime sectors, since their emissions are not allocated to any country. In such cases, all reductions would be additional. *Still under discussion at the CONAREDD+.*
MMA vs. certain CONAREDD+ and thematic advisory boards members	Participants pointed out difficulties to keep an open dialogue with MMA during meetings as they do not see political will at the national level to create and regulate new financial mechanisms and strategies to generate large-scale investment to combat deforestation in the Amazon and promote sustainable development. Participatory observation has showed the political power game between participants aiming at overturning voting of decisions taken during CONAREDD+ meetings. *Proposed solution* – the MMA has included in the 2016-2020 PPCDAm and PPCerrado a new pillar focused on normative and economic instruments. Discussions and proposals are still preliminary. These plans are considered the major instrument to implement the national strategy for REDD+ by articulating and integrating initiatives. Indeed, a carbon pricing mechanism in which REDD+ may be considered an alternative for domestic offset is under discussions at MF. This mechanism could become another financial source for REDD+ initiatives.
Indigenous peoples vs. State of Acre	During COP-20 held in Lima in 2014, indigenous peoples protested against the state of Acre because of their REDD Early Movers Programme (REM). They were complaining of the unfairness of benefit sharing criteria in the program financed by Germany. *Proposed solution* – Since 2013 Acre is implementing social and environmental safeguards under its jurisdictional System of Incentives for Environmental Services (SISA). The development of safeguards was based on a participatory process also involving indigenous peoples. Benefit sharing for this program is running since 2014.
Brazil vs. certain UNFCCC Parties	By the time Brazil had submitted its FREL, a policy maker narrated a situation at COP-20 in Lima in which an European policy maker and an environmentalist from a well-known international NGO argued with him that Brazil has become very sophisticated in the elaboration of its FREL and the Amazon Fund, and this has brought negative implications for other developing countries by raising the bar and increasing donors' expectations of others FRELs, fund management, MRV systems, transparency, and external audits. *Proposed solution* – Brazil continues to improve its governance and implementation of REDD+. It is still considered the international benchmark, the first developing country that has accomplished the UNFCCC pre-requisites for REDD+ implementation to access results-based payments. Raising the bar in international cooperation means progress toward a performance-based mechanism on climate finance, and not comfortable business as usual financial aid, as per traditional ODA.

Brazil vs. Germany	Another point of conflict took place during COP-19 in Warsaw in 2013. The Brazilian delegation had been negotiating for days WFR, and the government of Germany was about to announce a cooperation agreement with the state of Acre to finance its jurisdictional program through the REDD+ Early Movers Programme supported by the KfW. Brazil was defending the national approach in the international negotiation. At the same time, the Germans were negotiating to support a jurisdictional program without the involvement of the federal government. *Proposed solution* – Even though the situation was very contradictory, Brazilian policy makers at the national level did not block the agreement. Here we can understand to what extent and how donor countries are contributing to the REDD+ governance structure at national level or making it very difficult bypassing the federal government. According to the national strategy, fundraising based on the national results will be carried out in accordance with guidelines, rules and criteria that are currently under discussion at the CONAREDD+ and Advisory Boards. States and entities must be eligible by attending the criteria (under definition) to receive REDD+ results-based payments, and be accredited by the GCF to submit proposals.

Source: Elaborated by the author (2017).

Empirical evidence in Table 23 demonstrates some of the divergent positions and interests between actors and groups, which lead to the political power game in REDD+ under way in Brazil. Lessons learned from successes and failures in Brazil on how different groups have solved or not disagreements on the implementation of REDD+ may be valuable to other countries to develop a REDD+ regime, national strategy or an action plan.

A policy making participant pointed out another interesting perspective of the REDD+ political power game at the national and international levels, stating that there are two major epistemic communities that, consciously or not, act against the implementation of REDD+ in certain ways. The first group includes project developers and NGOs that have been benefited from the fragmented financial structure of REDD+. Initiatives have been implemented at the jurisdictional and project levels by these actors, based on consultancy and project development.

The second group includes some government staff from donor countries who are very comfortable and accustomed to the ODA mentality, because it gives disproportionate control to donor countries. ODA is the traditional modality for North-South cooperation in which donor countries usually participate in the development of the initiative, including the project or program design, and how the financial aid should be used. In this sense, results-based payments are a paradigm shift in which control on how to spend money moves to the recipient countries, considered by some as an ‘act of faith’. Both the control relationship and the spending control mentality of the finance staff from donor countries are broken. The results-based approach has attributed responsibility to the developing countries to invest financial

resources according to national priorities. This approach is an innovation for international cooperation on climate finance.

This approach is still considered experimental as the mentality shift from traditional ODA to results-based payments is under way among donor and recipient countries. In thesis, the recipient country could use the financial resources as it wishes because payments were made upon verified emission reductions. But in practice the situation is not as ideal as it seems to be because donor countries have to demonstrate results to their constituency.

This study suggests that market-based mechanism for REDD+ is the major point of conflict between actors and groups. The Federal Government is open to having a structured and technical discussions on offsettings at any time as every actor needs to technically understand the risks and opportunities involved within this mechanism at all levels. On the other hand, civil society organizations argue about the lack of space to dialogue with the federal government.

4.1.6 Implementation

Since 2009, results-based payments on REDD+ have been channeled to the Amazon Fund. BNDES, the financial executor of the Amazon Fund, works on the project-based approach by transferring non-refundable finance to implementing partners, including national agencies, subnational governments, municipalities, civil society organizations, and academia.

According to UNFCCC decisions, results-based payments in REDD+ should be centralized at the national level. REDD+ initiatives are therefore implemented through projects and programs, with results centralized at the national level. Project developers do not have any rights over the achieved REDD+ results as mitigation requires policies and measures implemented by government at all levels. The national government has ownership of all REDD+ results and is responsible for submitting information and technical documents to the UNFCCC in order to be eligible to access results-based payments.

Since the establishment of the ENREDD+ and CONAREDD+ in late 2015, MMA is leading the process to implement the national strategy. Currently, CONAREDD+ and the Advisory Board on Fundraising and Distribution of Non Reimbursable Resources are discussing criteria and rules for the subnational level and private entities to access results-based payments without prior approval from the national government as the commission was not created to centralize approvals on a case-by-case basis. These criteria will allow subnational governments and eligible entities to fundraise internationally regardless of

CONAREDD+ approval. The decentralized fundraising approach will involve neither offsettings nor volunteer and official carbon markets. Donors will receive certificates to prove their financial contribution to a results-based initiative, the same type of certificate that is issued by the Amazon Fund.

Brazil has adopted a national approach to REDD+, with a decentralized fundraising strategy. Implementation is conducted by lower levels, including state and nonstate actors across levels. All participants therefore recognize the large amount of resources needed to implement Brazil's NDC goals. In light of this, REDD+ finance should come from different sources, public or private, to support the development of a low-carbon economy. The federal government is not concerned about the fragmentation of initiatives since Brazil is able to implement a national strategy that combines the centrality of REDD+ results and MRV at the national level, with a decentralized fundraising approach to attract more donors.

The operationalization of this approach will decide on limits for subnational governments to receive results-based payments according to their level of effort and contributions based on results. States will be empowered to make their own decisions on how to invest the REDD+ funds since they comply with pre-requisites such as safeguards and criteria for benefit sharing, in line with the PPCDAm and PPCerrado guidelines.

This category is formed by seven related subcategories: policy implementation; implementation by lower-levels; the monitoring system; design of experiments; fund management; benefit sharing, and capacity building.

4.1.6.1 Policy implementation

REDD+ policy implementation in Brazil is based on a mix of top-down and bottom-up approaches. The top-down approach was found in policy decisions through the establishment of laws, decrees, and ordinance. The hierarchy of decisions is top-down, even with some public consultation prior to the decision-making process. The bottom-up approach was perceived within lower-level entities that are involved in policy making and/or implementation. Empirical evidence showed that the bottom-up approach emerged from the REDD+ experiments at the subnational and local levels due to the absence of a national strategy to set rules and guide implementation.

According to one policy maker, civil society actors do not usually participate in deliberative instances in the policy making process. Within CONAREDD+, civil society has permanent seats with deliberative voting rights for members, and this is characterized as a

bottom-up participation in the policy making process. Indeed, the national approach to REDD+, as determined by UNFCCC with the adoption of the WFR, requires a top-down approach based on higher-order rules, including a national strategy, submission of FREL and technical annexes, a forest cover monitoring system (including MRV), and a safeguards information system.

Although decisions are taken at the CONAREDD+ level, these elements are part of the top-down approach within the policy implementation, as per the ENREDD+. Table 24 summarizes some of the empirical evidence that demonstrates the mix of top-down and bottom-up approaches in REDD+.

A self-criticism made by a policy maker regarding the construction of the national strategy is worth noting. Even though there was interaction with subnational governments and civil society to design the national strategy, its elaboration was centered on the national government. According to the participant, the policy making process should have more deeply involved the Amazonian states and civil society organizations as they are the lower-level agents responsible for the policy implementation and know what works or not on the ground. The consultation process and stakeholder engagement were insufficient and have generated many complaints and conflicts between actors and groups. All civil society participants agreed with these views.

Indeed, the participants point out the differences between the past and current MMA leadership under Minister Izabella Teixeira and now Minister José Sarney Filho. ENREDD+ was created by decree and published by ordinance in 2015, with a top-down approach that this policy maker evaluated as being self-centered. Since May 2016, the MMA management has determined a better alignment and open dialogue with the Amazonian states, municipalities, civil society entities and the private sector in all phases of policy making and implementation processes in REDD+, which are driven by a bottom-up approach.

Another interesting perspective pointed out by various policy makers and civil society participants is that the policy making and implementation of REDD+ activities are multi-sectorial because forest conservation depends on transversal policies in the forestry and land use sectors. Those policies are fragmented at the national level between three different ministries: the MMA, the MAPA, and INCRA at the Office of the Chief of Staff of the Presidency.

Table 24: REDD+ Top-down and Bottom-up Approaches

Top-down Approach	Bottom-up Approach
Policy making process	
National level - Amazon Fund (Decree n. 6.527/2008) - Working Group of Technical Experts on REDD+ (Ordinance n. 41/2014) - National REDD+ Strategy – ENREDD+ (Ordinance n. 370/2015) - National REDD+ Committee – CONAREDD+ (Decree n. 8.576/2015) - Designation of the representatives of each institution for CONAREDD+ (Ordinances n. 91/2016, 117/2016, and 242/2016) - Establishment of the Executive Secretariat *International level* UNFCCC decisions adopted by Parties, including the 2013 Warsaw Framework for REDD+ (WFR), and the 2015 Paris Agreement	State of Acre has implemented the first jurisdictional REDD+ program in the world in 2012, supported by the German REM Programme, including a subnational legal framework due to the lack of the national and international legal frameworks. NGOs have implemented REDD+ experiments supported by private foundations and donor countries (pilot and demonstration activities) prior to the establishment of the national and international legal frameworks. Participation of representatives from civil society, indigenous peoples, traditional communities, subnational and local governments in deliberative and advisory instances at the national level (CONAREDD+ and thematic advisory boards). The decision-making process at CONAREDD+ is based on consensus and when it is not possible by means of a vote to ensure that at least one representative of the federal government agrees with the decision.
Implementation process	
MMA's is responsible for: - Coordinating Climate Change, Biodiversity and Forest related public policy - Providing UNFCCC requirements in order for Brazil to access results-based payments, including FREL and other technical documents - Issuing certificates to donors on results-based payments - Coordinating the REDD+ Safeguards Information System (still under development) - Coordinating the MRV results, considering that verified REDD+ results are accounted for at the national level The Ministry of Finance will be able to register on the national treasury the results-based payments received from donors as soon as the fundraising strategy is approved by CONAREDD+, and becomes operational.	Discretion has been granted to lower-levels with respect to subnational circumstances and capacities: - As per the decentralized forest governance in Brazil, subnational governments are responsible for the implementation of the PPCDAm and PPCerrado - A decentralized fundraising strategy is under discussion and will be implemented by giving autonomy to states and some agencies for fundraising results-based payment on REDD+ up to determined limits. - Implementation of REDD+ initiatives by governments at all levels, national agencies, civil society, indigenous peoples associations and academia. The Amazon Fund, currently a financial executor of the ENREDD+, has its own Steering Committee that set guidelines and criteria for the allocation of resources, in line with PPCDAm and the directives of the Sustainable Amazon Plan.

Source: Elaborate by the author (2017).

The fragmentation of the policy making process related to REDD+ activities and the compartmentalized discussion on land use changes have implications for civil society as some NGOs advocate environmental protection, others agricultural development, another the forestry sector, and so on. The challenge is to integrate all these agendas into environmental conservation, agrarian development, livestock, forestry activities, and economic development.

All these activities require policies, technology, and financial resources through a mix of top-down and bottom-up approaches to both policy making and the implementation processes.

4.1.6.2 Implementation by lower-levels

The implementation of REDD+ initiatives involves state and nonstate actors across levels. The federal government has the ownership of the policy making process and coordination of the national strategy, which is supposed to be implemented by lower-level agents such as national agencies, states, municipalities, civil society organizations, indigenous peoples and traditional community associations.

BNDES is the financial executor of results-based payments in REDD+ att the national level through the Amazon Fund on a project-based scheme in which implementing partners execute projects and programs. As of July 2017, a decentralized fundraising strategy was approved by CONAREED+. Subnational governments may become eligible to fundraise results-based payments in REDD+ under the UNFCCC regime, according to limits and guidelines established by CONAREDD+. States and Brazilian entities interested in fundraising need to meet certain criteria in terms of legal frameworks and performance in order to reduce the deforestation rate. Benefit sharing should consider actors who contribute to REDD+ results, including indigenous peoples, traditional communities, and smallholders. Accredited entities will be submitted to the UNFCCC by the chair of CONAREDD+ (MMA, 2016a).

CONAREDD+ issues nominal and non-transferable certificates to donors once the results-based payment contract is signed. Certificates do not generate any credits or rights to other countries for the fulfillment of mitigation commitments (offsettings) under the UNFCCC. Results-based payments are communicated to the UNFCCC and posted on the Lima Info Hub (MMA, 2016a).

The success of the decentralized fundraising strategy will have to be tested as the federal government does not know whether donor countries will agree to it. The government of Norway has officially communicated that additional results-based payments will only be made through the Amazon Fund. On the other hand, the government of Germany seems to have a hybrid strategy for REDD+ investment as the German cooperation in Brazil is currently based on three fronts: technical assistance, results-based payments focused on the Amazon Fund, and pledges at the jurisdictional level to subnational governments.

REDD+ initiatives coordinated by the national level include projects supported by the Amazon Fund. Civil society organizations and subnational governments have implemented most of the projects, as illustrated in Table 25.

Table 25: Amazon Fund Project Portfolio by Implementing Partner

Executor	Number of projects	Total amount approved (%)	Total amount disbursements (%)
NGOs	45	35	43
States	21	37	37
Municipalities	7	1	2
Federal government	7	24	12
Academia	6	1	2
International	1	2	3
TOTAL	*87*	*100*	*100*

Source: Adapted from the Amazon Fund (2017, April 11).

The implementation of policies in Brazil is made through national agencies, states, and municipalities. The three dimensions of this subcategory are described below.

4.1.6.2.1 National agencies

National agencies are also responsible for the policy making process and implementation of the environmental and other REDD+ related policies in Brazil. Table 26 describes some of the main agencies responsible for policy implementation that have been contributing to REDD+ results. Some of them are Amazon Fund recipients, such as the IBAMA, SFB, and FUNBIO.

Table 26: Lower-level Agencies | Environment Policies

Entity | Policy Implementing Agency	Main Role
MMA – Ministry of the Environment	Coordinates the ENREDD+ and chairs the CONAREDD+
INPE – Brazilian Institute of Space Research	Coordinates the forest cover monitoring system
IBAMA – Brazilian Institute of Environment and Renewable Natural Resources	Implements the national policy of the environment, known as Forest Code
FUNAI – National Indian Foundation	Implements the National Policy for Territorial and Environmental Management of Indigenous Lands
ICMBio – Chico Mendes Institute for Biodiversity Conservation	Manages the conservation units
SFB – Brazilian Forest Service	Manages natural reserves, especially public forests
EMBRAPA – Brazilian Agricultural Research Corporation	Public research institution focused on the development of technologies, knowledge and technical-scientific information for agriculture and livestock
FUNBIO - Brazilian Biodiversity Fund	Financial mechanism for the development of strategies that contribute to the implementation of the UN Convention on Biological Diversity in Brazil
BNDES – Brazilian Development Bank	Financial executor of the Amazon Fund

Source: Elaborated by the author (2017).

4.1.6.2.2 States and municipalities

Since 2004 Brazil has adopted decentralized forest governance. Subnational governments have assumed great responsibilities, even with their low capacity for execution and budget constraints. The Amazonian states are responsible for adapting the PPCDAm and PPCerrado guidelines to their local circumstances and to implement the policy. Subnational governments are also responsible for implementing the CAR, a strategic management tool mandatory for all rural properties. The electronic database is intended to support, monitor, and combat deforestation. Eight of the nine Amazonian states, excluding the state of Maranhão, which had a project approved and then canceled by BNDES, are Amazon Fund recipients. Four other states in different biomes have received Amazon Fund support, including the states of Bahia, Ceará, Mato Grosso do Sul, and Paraná.

4.1.6.2.3 Civil society organizations

Although REDD+ initiatives have been implemented by many entities, the federal government only considers those supported through the Amazon Fund with financial mechanisms distributed under the UNFCCC regime. This centralization is justified by the fact that the national government can only report to UNFCCC on what is under its control. A decentralized fundraising strategy was approved by CONAREDD+ in July 2017 but is not yet operational. On the other hand, civil society participants criticized this situation because most of the REDD+ initiatives (as per UNFCCC definition) in the Amazon have been implemented

by civil society. Some initiatives are partially financed by the Amazon Fund, combined with other sources from international donors, as most of the initiatives require long-term financing.

4.1.6.3 Monitoring system

Monitoring and assessment, in the context of REDD+, is addressed through a national forest monitoring system to monitor land use changes and forest carbon stocks in a country and to develop data on levels of GHG emission and removal in forest areas. In practice, it is a system to assess whether REDD+ activities are working (UN-REDD Programme, 2015b).

The WFR has established a robust guidance for the implementation of system required for measuring REDD+ results and methods of reporting and verification a priori in order for a developing country to be eligible to access results-based payments under the UNFCCC regime (UNFCCC, 2014b; Voigt & Ferreira, 2015). Indeed, recipient countries need to provide transparent and consistent data over time appropriate to ensure mitigation outcomes, according to country circumstances and capacities. The combination of satellite land monitoring and grounded-based forest carbon inventory (national forest inventory and GHG inventory) approaches should be the basis for estimating anthropogenic forest-related GHG emissions, considering IPCC methodological guidance (Decisions 4/CP.15 and 1/CP.16).

Brazil has a world-class forest cover monitoring system coordinated by the INPE. Four systems have been developed, which can monitor different aspects related to REDD+ in the Amazon, as described in Table 27.

Table 27: INPE Forest Cover Monitoring Systems

System	Aims	Indicator	Time series
PRODES	Produces deforestation data on clear-cutting of forested areas	Annual deforestation rate	Since 1988
DETER	Real-time deforestation detection system	Daily deforestation data	Since 2004
DEGRAD	Monitors forest degradation	Forest degradation data	From 2007 to 2013
TerraClass	Tracks land use change in deforested areas identified by PRODES	Land use change data	2004, 2008, 2010, 2012, and 2014

Source: Adapted by the author from MMA (2017a, March 29).

The other Brazilian biomes (Cerrado, Atlantic Forest, Caatinga and Pampas) were partially monitored by IBAMA. Aggregate deforestation data were produced from 2002 through 2008, for the deforested area in 2009, and for the Cerrado only in 2010 and 2011 (MMA, 2017b, March 29).

Currently, the MMA is coordinating the establishment of the Brazilian Biomes Environmental Monitoring Program (Ordinance n. 365/2015) to expand the monitoring system to all biomes through a phased approach. The program will be implemented in partnership with the MCTIC through the INPE, MAPA through Embrapa, and IBAMA. In the first phase, the aim is to improve the monitoring system in the Amazon and implement it in the Cerrado (2016-2017). The second phase will cover the Atlantic Forest (2016-2017). In the third phase monitoring will cover the Caatinga, Pampa, and Pantanal biomes (2017-2018) (MMAb, 2017, March 29). It is expected that Brazil will have a national monitoring system covering all biomes by 2018.

This study suggests that these plans to implement a nationwide forest cover monitoring system in all biomes have been directly influenced by UNFCCC requirements for Brazil to continue accessing results-based payments in REDD+ as the forest monitoring system at the biome level is considered an interim measure. The Brazilian Biomes Environmental Monitoring Program, which began in 2015, is aligned with the objectives of the national strategy for REDD+.

Data collected through the national forest monitoring system also helps the construction of the FREL, which is a benchmark to assess REDD+ results. The submission of FREL, which goes through a technical assessment by UNFCCC experts (Decisions 1/CP.16, 14/CP.19 and 14/CP.19), is another requirement to access results-based payments.

Brazil was the first country to submit a FREL, which was considered a stepwise approach at the biome level in Amazonia, to the UNFCCC through the MMA in September 2013, and its technical assessment by UNFCCC experts was concluded in December 2014. The FREL of Cerrado was submitted in January 2017. The technical annex to REDD+ results and a summary of information on safeguards were also submitted to UNFCCC.

According to UNFCCC guidelines, after the FREL technical assessment, REDD+ results from a developing country seeking to receive results-based payments go through the MRV process in three phases: 1) measured against the FREL; 2) reported through a technical annex to the Biannual Update Report (BUR); and 3) verified by the International Consultation and Analysis process (Decision 2/CP.17). Experts analyze whether data and information in the annexes are transparent, consistent with the assessed FREL and guidelines, and results are accurate (MMA, 2017c, March 29).

The submission of FREL seems to be an experimentalist process under the UNFCCC as it is specific to national circumstances and capacity. According to one policy maker, most of the developing countries do not even have the capacity to prepare their own FREL. Even

with the technical assessment conducted by the UNFCCC experts, donor countries are very concerned about the quality of the FRELs as they are a baseline to measure REDD+ results.

The reason why recipient countries are required to prepare and submit a FREL is that by implementing REDD+ activities and structural changes, the developing countries will reach policy maturation over time. In this case, a results-based payment flow would decrease as the recipient country reaches a certain stabilization of emissions from deforestation and forest degradation. This approach makes sense and requires further investigation to examine its effectiveness.

4.1.6.4 Design of experiments

Since 2008 several REDD+ experiments have emerged in Brazil, designed and implemented by state and nonstate actors. Implementation of these experiments took place at different levels and locations. Projects were designed by implementing agencies / entities, based on various public or private financial sources. Some jurisdictional REDD+ programs have been supported by international donors and local NGOs. None of these experiments have generated any carbon credits for mitigation in another country.

Even with the diversity of self-declared REDD+ initiatives, the federal government does not recognize REDD+ at the project scale. As explained by a policy maker, projects are important pilot and demonstration activities, but with insignificant scale for mitigation and permanence. Currently, the federal government recognizes only projects sponsored by the Amazon Fund, with results-based payments from international cooperation agreements under the UNFCCC climate regime.

The aim of this study is not to evaluate individual projects or programs already implemented or in course of implementation. In fact, the analysis of this subcategory aims to understand the design of experiments even before the establishment of the national REDD+ strategy. It is taken for granted that project approach is not considered at the national strategy although its implementation also takes place through the support for projects and programs. This subcategory design of experiments is further developed in two dimensions: REDD+ experiments, and the fragmented institutional environment.

4.1.6.4.1 REDD+ experiments

REDD+ experiments, in the context of this study, are defined as initiatives, programs or projects that aim at reducing emissions from deforestation and forest degradation concurrent with the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks. A REDD+ experiment is not a business as usual activity. Instead, it is supposed to be a scalable innovation, with a design based on the additionality principle, even implemented in an environment under uncertainty. Indeed, it is considered an experiment due to uncertainties about measurements, mitigation outcomes, forest carbon permanence, leakage, and other risks related to environmental integrity.

There are several REDD+ experiments in Brazil that have been implemented by different state and nonstate entities based on different methods and financial sources. Experiments may vary in three dimensions: 1) comprehensiveness (regional, national, subnational, or local levels); 2) the implementing entity (national, subnational, or local; national agency; financial executor; civil society organization, or academia, and 3) financial mechanism (results-based payment, technical assistance, or a grant direct to civil society).

The Amazon Fund is the world's most important REDD+ experiment. The implementation of the initiative is also an experiment for BNDES, because the institution did not have previous experience on how to manage a small scale project-based environmental fund. The Fund has been financially supporting a diversity of experiments at the project level. According to a civil society participant, the initial strategy of the Amazon Fund was designed in a broad and inclusive way by accepting and approving proposals submitted by a variety of state and nonstate entities in different areas.

This experimental approach was used to test and experiment the Fund's response to finance a diversity of situations in the Amazon biome. In some regions, civil society plays a more prominent role than state actors while in others it is important to strengthen local organizations, including states and municipalities. In certain other cases, strengthening national agencies makes more sense.

The participant pointed out that the Amazon Fund proponents have different capacities and potentialities, depending on the region and circumstances. In light of this context, the Amazon Fund Guidance Committee (COFA in the Portuguese acronym) had decided to establish a strategy focus on the PPCDAm guidelines, but experimentalist at the beginning to understand the demand. The initial demand was spontaneous, not coming through a request for proposals.

It is worth noting that the Amazon Fund was created before the establishment of the international and national legal framework for REDD+. This also justifies the experimentalist approach to receive, analyze, and approve the first projects. The initial demand came from different regions and proponents. Proposals were analyzed according to their suitability for the PPCDAm guidelines. On the other hand, this experimentalist approach guided the Fund in couple of years to have a widespread and diverse portfolio, which was associated with a lack of strategic vision. This period coincided with the recession in Brazil, the retention of the federal budget, and financial crises in the Amazonian states. As a result, the Amazon Fund became the great financial solution for all in the Amazon biome.

Nowadays, the Amazon Fund continues to have a very diverse portfolio that reflects the demands from both government and civil society. However, the participant explained that the Fund has been narrowing its focus to what the federal government considers priorities in implementing the PPCDAm, resulting in several projects to support subnational governments implement the CAR, a fundamental command and control, and monitoring mechanism in the Amazon. On the one hand, this focus shows the integration of the Fund with environmental policies and national priorities. On the other hand, the Amazon Fund has been criticized by many since it was created to be an additional fund to support innovative solutions rather than financing business as usual activities, which should be the government's responsibility.

Indeed, the fragility of the Amazon Fund portfolio is reflected by the difficulty to implement structuring policies in Brazil and the extent to which the Amazon Fund makes investment based on effectiveness and articulation with policies, rather than politics, is an open question.

Projects financed by the Fund have a specific timeframe to be implemented – about four years on average. However, initiatives to intervene in the economic dynamics of the Amazon to address the direct and indirect drivers of deforestation require policies and measures to be implemented in a 10 to 15 year period, with long-term commitments beyond command and control actions. The same situation was perceived in the design of projects directly supported by donors. In this sense, long-term projects require a diversity of donors for effective long-term implementation.

However, one civil society participant explained that even with the limitation of resources and timeframe for implementation, the Amazon Fund has been important to catalyze long-term policies and processes, combined with command and control actions. Indeed, long-term commitments are necessary to negotiate interventions with local communities and implement structuring policies.

Some subnational governments have implemented jurisdictional REDD+ programs through an experimentalist approach which tests different approaches. These experiments are important, and their implementations have been aiding other jurisdictional programs in Brazil and abroad. As per the decentralized forest governance in Brazil, states are responsible for the policy implementation in line with national policies.

The state of Acre has the world's most advanced jurisdictional REDD+ program implemented since 2012. The initiative has two major programs supported by the government of Germany and the Amazon Fund. The German REDD+ financing comes from KfW for the REM Programme, and the GIZ technical assistance. Indeed, Norway has been supporting certain initiatives in Acre, including NORAD grants to civil society organizations and the GCF Task Force.

At the local level, civil society organizations have been implementing pilot and demonstration REDD+ projects by testing different approaches and methodologies. According to a civil society participant, with the goal of complementing each other, NGOs that work in the same territories usually collaborate with each other during the design and implementation of projects. The diversity of experiments in Brazil should be integrated, complementary, and grounded in long-term structuring policies. However, with very few exceptions, the integration of initiatives does not exist in the environmental area, leading to a fragmented institutional environment in REDD+. Table 28 describes a sample of some important REDD+ experiments in Brazil in different dimensions.

Table 28: Sample of REDD+ Experiments in Brazil

Level	Implementing Entity	REDD+ Experiment	Description
Regional	Amazon Cooperation Treaty Organization (ACTO)	Monitoring Forest Coverage in Regional Amazon	There is a capacity building focus on forest cover monitoring system in ACTO member countries (Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname and Venezuela). It is partially financed by the Amazon Fund. MRE, MMA, and INPE are also involved in the project by providing technology transfer and training.
National	BNDES	Amazon Fund	Launched in 2008, this is the most important and the largest REDD+ experiment in the world. It is an instrument of national policy by receiving REDD+ results-based payments from donors (Norway, Germany, and Petrobras), and channeling them to implementing partners – state and nonstate actors. The Fund receives technical assistance from GIZ, which has a dedicated office in Rio de Janeiro to support the BNDES dedicated team, such as capacity building, CAR implementation in the states, development of impact indicators to analyze effectiveness of the investment.
Subnational	State of Acre	Jurisdictional REDD+ Program	This is the world's first jurisdictional REDD+ program (State Law 2.308/2010) integrated into the System of Incentives for Environmental Services (SISA). The program has an innovative design through experimenting two different methods in distinct initiatives. The first is financially supported by the Amazon Fund and follows BNDES' guidelines for MRV. The second is financed by KfW through the German REDD Early Movers Program, and uses the stock-and-flow method. The State has also signed a MoU with the State of California for potential REDD+ emission offsets through the Californian cap-and-trade system.
Local	FAS	Bolsa Floresta Program	This is the first REDD+ initiative in Brazil to make direct conditional cash transfers to households. It became a public policy in the state of Amazon and has been implemented in protected areas since 2007. It is partially financed by the Amazon Fund.

Source: Elaborated by the author (2017).

4.1.6.4.2 The fragmented institutional environment

The diversity of experiments in Brazil is a consequence of the delay in establishing a legal framework for REDD+ at both national and international levels, resulting in a fragmented institutional environment. Pilot and demonstration initiatives started to be financed before the adoption of the normative WFR in 2013 at the UNFCCC level. The expectation is that the GCF will centralize the financial flow for REDD+ and avoid financial fragmentation.

Although Brazil has adopted a national approach to REDD+ within the establishment of the national strategy, a group of civil society entities advocate supporting the fragmentation of initiatives at the subnational and project levels because of the business opportunities that result from projects and programs with no centrality at the national level. A policy maker pointed out the influence of the German cooperation to sustain this fragmentation of the initiatives by supporting jurisdictional programs in states with large carbon stocks.

On the other hand, the fragmentation of REDD+ financing has helped to test new ideas, methods, approaches, and governance arrangements within jurisdictional REDD+ programs and at the national level within the operationalization of the Amazon Fund. It should be mentioned that international donors play a major role by supporting experimentation in Brazil through results-based payments, technical assistance, and direct grants to civil society organizations.

The Brazilian experience has shown that it has not been possible to integrate all these fragmented initiatives or systematize all lessons learned from successes and failures to construct and operationalize an integrated national strategy. There are still many open questions at the national level, divergent positions, and interests between state and nonstate actors at all levels. However, there is a consensus among participants that initiatives at the national and subnational levels are complementary.

Therefore, the lack of integration between initiatives is considered a bottleneck for the implementation of a national approach to REDD+ as various pilot projects have been implemented with different logic and approaches.

4.1.6.5 Fund management

BNDES is the financial executor of the Amazon Fund in close coordination with the MMA. The Fund was established in 2008, with a pledge of up to USD 1 billion from the government of Norway announced in 2009. The Amazon Fund is the first, largest and most important REDD+ experiment in the world. As of June 2017, BNDES is the only financial institution accredited in Brazil to receive REDD+ results-based payments from international donors under the UNFCCC regime. Donors transfer performance based financial resources from REDD+ results already achieved at the country level and receive certificates for the corresponding emission reduction they have financed.

The Fund has a multi-stakeholder management approach, including a Technical Committee (CTFA in the Portuguese acronym) made up of experts with technical and

scientific knowledge, and a Guidance Committee (COFA in the Portuguese acronym) made up of civil society, federal, and state government representatives. CTFA is responsible for attesting carbon emission reductions and approving the issue of certificates to donors. COFA establishes guidelines and investment criteria to select and approve proposals based on the PPCDAm priorities.

A civil society participant explained that it makes sense that the Amazon Fund be guided by the major public policy in the Amazon. On the other hand, the fund supports only what is a priority for public policy, which in turn has resulted in a project portfolio of business as usual initiatives that should have been financed through public budgets. Indeed, this is contradictory to commitments made to donor countries because disbursements should be based on additionality, experimentalism, and innovative criteria. However, the study suggests that the Amazon Fund has become an instrument to implement public policies by covering the financial gaps within the public budget due to country circumstances.

Within the establishment of the ENREDD+ and REDD+ governance structure at the national level, BNDES is no longer the only financial executor of results-based payments. The new decentralized fundraising strategy empowers subnational governments and future accredited institutions to fundraise results-based payments up to an agreed limit, and this is expected to reduce bureaucracies and accelerate the processes to implement policies, measures, and programs at different levels.

Despite the centralization of REDD+ at the national level within new institutional arrangements, CONAREDD+ will not interfere in the Amazon Fund management. The only instances in the governance structure that overlap are the Amazon Fund CTFA with the working group of technical experts at the national level. Even though both structures perform similar functions, they will be maintained for now, as requested by donor countries.

The Amazon Fund has demonstrated high standards of accountability and transparency based on robust fiduciary standards established by BNDES. Participants argued that the Amazon Fund approval and disbursement processes are bureaucratic and time-consuming due to the BNDES management structure and internal procedures, with a rigid approval process to avoid risks, which may have prevented the financing of innovative experiments. Donor countries monitor results based on the Amazon Fund's overall performance and not at a project-based level.

However, there is a consensus between civil society and policy makers that the BNDES was the most suitable financial executor of REDD+ resources back in 2009 even though the Amazon Fund was relatively small and peculiar for the bank's size and core

operation. The BNDES team allocated to operationalize the Amazon Fund has been through an expected learning curve to understand the context of the Amazon biome, the needs of states, and the intervention logic in the proposals submitted by civil society organizations. Indeed, time was needed to develop internal processes to evaluate and approve proposals, monitor and assess results. Members of COFA have been providing strategic guidance and helping to improve the Amazon Fund performance in a learning-by-doing approach, based on what has or not worked in practice.

The extent to which country circumstances have influenced certain investment decisions under the Amazon Fund should be highlighted. For example, some policy makers and civil society participants pointed out the exception approved by the Amazon Fund to support IBAMA's financial request to assist in some of its 2016 operating costs, expenses associated with the maintenance and administration of business as usual command and control activities, including helicopter rental to monitor forest fires, maintenance of 4W vehicles, and other administrative costs (such as utilities bills).

In fact, IBAMA was requesting financial support for business as usual activities, which the federal government should be responsible for. The request was approved as an exception because COFA members understood that the financial crises and cuts in IBAMA's annual budget would have drastic implications on controlling deforestation in the short-term. The same situation happened with state projects to support military fire fighters in five Amazonian states.

The problem is that the Fund is intended to support efforts to prevent, monitor, and combat deforestation as well as promote conservation and sustainable development in the Amazon based on the additionality criteria to allocate resources. Projects must represent additionality to public budgets during application. These exceptions have been greatly criticized by several state and nonstate actors. This study suggests that the current financial crisis in Brazil interferes in the management of the Amazon Fund as the approval process is very discretionary.

Since 2012, the Amazon Fund has received more than USD 1 million from results-based payments. By April 2017, 88 projects had been approved, amounting USD 614 million (requested and approved amount). However, only 79 projects have received disbursements, amounting a total of USD 341 million. This indicates that that the Amazon Fund has executed only 30% of the results-based payments received from donors through disbursements to implementing partners. Disbursements take place according to the execution of projects by implementing partners, based on a planned implementation timetable (Amazon Fund, 2017, June 2). These figures indicate the low execution capacity of the Amazon Fund, which is reinforced by research participants. This issue is further developed in the Capacity building subcategory.

In light of this context, there is a consensus among participants that the most suitable approach to the operationalization of the national strategy includes national level funds such as the Amazon Fund and jurisdictional REDD+ programs with a decentralized fundraising strategy as both initiatives are complementary and necessary for implementation. There is a consensus between research participants that the Amazon Fund should not continue to be the only financial executor of REDD+ funds in Brazil.

Several civil society participants complained that the federal government is taking too long to indicate which institutions will be accredited to submit projects to the GCF as the fund is already open to receive REDD+ proposals and probably will be highly competitive. Indeed, participants argued that Brazil is not creating innovation and additionality in REDD+. New financial arrangements for forests must be developed to attract new donors.

According to certain civil society participants, the assets and REDD+ results Brazil has generated in the Amazon in recent years are much superior to its fundraising capacity in the logic of results-based payments. Thus a diversity of experiments and fund sources are considered beneficial to expand the implementation of REDD+ activities.

4.1.6.6 Benefit sharing

This concept was not sufficiently developed during data collection because the subject remains under discussion in Brazil. Even so, the researcher decided to keep it in the theoretical framework because of its importance for the implementation of REDD+ initiatives. Benefit sharing or allocation of incentives in the context of REDD+ is a mechanism used by countries to encourage or reward stakeholders to adopt behavior or implement actions that result in the reduction of forest emissions through the sustainable use

of forest and lands. Although there is no UNFCCC guidance to design and implement a specific approach to the allocation of incentives, it is expected that equitable criteria for benefit sharing should aid the most vulnerable communities (UN-REDD Programme, 2015b).

One civil society participant pointed out that a bottleneck in REDD+ implementation is the way in which the results-based payments will be distributed between states, implementing entities and communities that are in fact helping to generate REDD+ results. Some NGOs have proposed different approaches to the allocation of incentives, but this remains a developing issue in Brazil, where the discussion of proposals has been led by a community leader from the CNS, representing the traditional communities in CONAREDD+.

The Amazonian states have been complaining about benefit sharing in REDD+ since they are responsible for implementing local policies to combat deforestation due to the decentralization of forest governance in Brazil. A stock-and-flow approach to benefit sharing has been tested in the state of Acre through the German REM Programme, in which stocks refers to actions aiming at protecting and conserving forests and carbon stocks, and flow refers to actions aiming at addressing drivers of deforestation and reducing the flow of emissions. In the case of Acre, at least 70% of the REM funds are used to directly benefit stakeholders at the local level (Moutinho, Castro, Stabile, & Azevedo, 2015).

4.1.6.7 Capacity building

Capacity building emerged as an important concept frequently linked to the effectiveness of REDD+ activities. Empirical evidence suggests that the lack of competences, knowledge, management skills, and technical abilities among actors and groups are major constraints on implementing REDD+ activities.

A controversial issue is the fact that the Amazonian states have been in conflict with the federal government about offsettings, jurisdictional REDD+, and allocation of resources, to mention just some of the disagreements and divergent positions, though most of the subnational governments are not able to execute their own projects which are supported by the Amazon Fund. As explained by certain policy makers, lack of REDD+ financial resources is not the major problem in the Amazon. In fact, most of the subnational governments do not have the execution capacity to implement REDD+ initiatives. Execution at the federal level through national agencies is also weak and lacking capacity.

Table 29 summarizes some of the empirical evidence related to the lack of capacity building through actions-interactions between actors and groups.

Table 29: Capacity Building in REDD+ Implementation

Actor/Group	Capacity building issue	How the problem was addressed
BNDES	Low capacity of execution of the Amazon Fund (AF). The learning curve of the BNDES team was longer than expected for the Fund to become fully operational as it was created in 2008, but the first project was approved only in 2012. Indeed, it has received more than USD 1 million from results-based payments, but executed only 30% of this amount through disbursements to implementing partners as of April 30, 2017	GIZ has provided capacity building activities for BNDES team, including technical seminars and workshops. The GIZ team focused on the AF based in Rio de Janeiro, which has provided consulting services aiming at improving the Fund's performance. COFA has been contributing significantly with capacity building and advice to the AF aiming at improving the Fund's performance.
Amazonian states	Low execution capacity of REDD+ funds received from the AF. The majority of the states with projects approved by the AF have shown very low capacity to execute the financial resources as per years of delay to conclude the initially planned initiatives. So far, only Pará and Acre have been able to conclude projects.	The Advisory Board on Federative Relations is intended to develop a capacity building plan on REDD+ under the UNFCCC for subnational and municipal public servants. GIZ has provided capacity building activities for subnational governments, including a series of technical workshops on development planning and implementation of CAR.
Amazon Fund applicants (NGOs)	NGOs quickly found the BNDES discretionary approach to approve and negotiate proposals within civil society organizations.	A leading civil society organization has organized workshops with NGOs that were submitting proposals to the AF. The initiative aimed at developing capacity building and exchanging experiences on how to negotiate with BNDES and increase their chances to have proposals approved.
Advisory Board on the Safeguards	Coordinators of this Board found a significant gap in understanding among participants about the safeguard dimensions in the context of REDD+. Board members need to have a clear understanding of REDD+ safeguards to be able to contribute effectively.	Virtual technical seminars were held to all board members. Safeguard experts conducted technical presentations during meetings. A 2-day technical workshop focused on the conceptualization of REDD+ safeguards in the Brazilian context was organized. Travel expenses were paid with resources from a German cooperation agreement to support REDD+ activities in Brazil.

Source: Elaborated by the author from grounded data (2017).

The Amazon Fund project portfolio is presented in Table 30, which lists all projects supported. The last column shows the percentage of disbursements already liberated to implementing partners, as per the project execution schedule. Disbursements are made according to the implementation in phases. Projects highlighted in red means a delay in what has been planned. Projects highlighted in yellow have been approved but not yet implemented. Projects already concluded are highlighted in green. The remaining projects are apparently on time as planned.

Table 30: Amazon Fund Recipients – Execution Capacity

Level	Recipient	Data Approved	Amount in USD	Estimated Duration	Disbursement (April 2017)
National Government	IBAMA	10/2016	9,019,941	15 months	39%
	EMBRAPA and Eliseu Alves Foundation	12/2015	10,812,381	36 months	5%
	Ministry of Defense – CENSIPAM	7/2015	20,783,439	48 months	9%
	Ministry of Justice – FNSP	3/2015	11,796,765	24 months	3%
	INPE and FUNCATE	7/2014	27,783,399	42 months	58%
	IBAMA	6/2014	6,252,557	12 months	13%
	Brazilian Forest Service (SFB)	1/2013	40,549,316	48 months	21%
Subnational Government	Parana Environmental Institute	10/2016	4.528.323	36 months	0%
	State of Roraima	6/2016	4,356,254	36 months	0%
	State of Ceara	2/2016	6,205,114	30 months	28%
	State of Mato Grosso do Sul	11/2014	3,927,524	42 months	16%
	State of Bahia	6/2014	13,623,107	36 months	22%
	State of Rondônia	3/2014	13,995,972	36 months	33%
	State of Amazonas	1/2014	6,921,266	36 months	62%
	State of Mato Grosso	7/2014	14,947,480	36 months	23%
	State of Para	5/2014	26.437.282	30 months	50%
	State of Amapa	1/2013	18,485,528	36 months	0%
	State of Amazonas	12/2013	6,360,453	36 months	40%
	State of Acre	11/2013	7,187,739	24 months	67%
	State of Tocantins	6/2013	17,290,360	36 months	48%
	State of Amazonas	12/2010	8,537,522	36 months	97%
	State of Acre	11/2010	25,612,566	36 months	76%
	State of Para	10/2010	6,797,246	48 months	100%
	Military Fire Fighters Para	6/2013	7,184,444	24 months	100%
	Military Fire Fighters Rondonia	12/2012	6,420,429	12 months	71%
	Military Fire Fighters Tocantins	9/2012	2,134,380	24 months	99%
	Military Fire Fighters Mato Grosso	1/2012	5,389,310	24 months	93%
	Military Fire Fighters Acre	7/2012	5,669,213	24 months	100%
Municipalities	Cotriguaçu, MT	12/2014	891,047	42 months	68%
	Alta Floresta, MT	9/2013	3,066,238	30 months	99,5%
	Jacunda, PA	8/2012	426,005	36 months	25%
	Carlinda, MT	9/2011	1,202,868	48 months	89%
	Marcelandia, MT	5/2011	388,236	48 months	100%
	Alta Floresta, MT	1/2011	1,187,287	36 months	100%
	Porto dos Gauchos, MT	8/2011	51,504.74	12 months	100%
International	ACTO	3/2013	11,847,412	60 months	78%
Civil Society	IMAFLORA	1/2017	5.574.276	42 months	0%
	Vale Sustainable Development Association	12/2016	11.232.350	36 months	0%
	FAS	5/2016	10.115.049	42 months	32%
	IMAZON	12/2015	3,194,485	36 months	38%
	Ashaninka Association of River Amonia APIWTXA	4/2015	2,289,952	36 months	84%
	Center for Indigenous Work	12/2014	7,514,829	36 months	57%
	Amazon Conservation Team	12/2014	608,294	42 months	64%
	Bank of Brazil Foundation	12/2014	4,979,666	24 months	0%
	TNC Brazil	11/2014	6,730,655	48 months	29%
	WWF Brazil	4/2014	1,368,540	36 months	100%
	Ouro Verde Institute	12/2013	7,213,452	60 months	71%
	Rioterra	12/2013	4,032,464	48 months	76%
	IDSM	8/2013	4,068,834	36 months	66%
	IBAM	2/2013	9,019,941	48 months	74%
	ISPN	9/2012	6,456,480	60 months	81%

	Bank of Brazil Foundation	6/2012	6,403,141	24 months	97%
	IPAM	2/2012	13,411,056	42 months	94%
	FUNBIO	11/2011	9,168,339	72 months	44%
	Amazon Museum	9/2011	4,935,493	36 months	96%
	FASE	6/2011	4,579,312	60 months	91%
	Tropical Forest Institute	4/2011	4,164,244	42 months	100%
	FUNBIO	4/2010	10,478,547	48 months	100%
	FAS	3/2010	11,114,147	60 months	100%
	IMAZON	7/2010	4,156,267	36 months	100%
	TNC	4/2010	6,830,017	36 months	100%
	Ouro Verde Institute	3/2010	2.304.182	36 months	100%
	Request for Proposal: Territorial & Environmental Management Projects in Indigenous Lands				
	IEB	11/2016	3.674.103	42 months	20%
	CTI	9/2016	3.830.083	36 months	0%
	ISA	8/2016	3,467,961	42 months	14%
	OPAN	2/2016	2,096,159	42 months	35%
	Association in Defense of Ethno-environmental Kaninde	1/2016	2,156,669	42 months	33%
	IEPE	1/2016	3,127,236	42 months	29%
	Request for Proposal: Sustainable Production Projects				
	CPI-Acre)	12/2015	889,760	30 months	52%
	UBEE	12/2015	1,307,192	36 months	12%
	SOS Amazon Association	5/2015	3,848,494	36 months	35%
	OPAN	1/2014	2,511,633	36 months	77%
	Association of Small Agro-farmers	1/2014	2,411,118	36 months	98%
	COOPERACRE	11/2014	2,128,932	42 months	61%
	ASSEMA	10/2014	2,363,754	36 months	34%
	CTA	11/2014	1,447,876	42 months	60%
	IMAFLORA	10/2014	1,452,506	42 months	75%
	Jari Foundation	10/2014	na	na	na
	Peabiru Institute	8/2014	915,899	24 months	71%
	COOPAVAM)	4/2014	2,195,441	24 months	99%
	ISA	2/2014	3,421,832	60 months	100%
Academia	UFPA and FADESP	10/2012	2,459,556	24 months	100%
	UFPA and FADESP	8/2012	723,832	24 months	100%
	UFPA and FADESP	7/2012	1,130,843	36 months	100%
	UFPA and FADESP	7/2012	638,082	30 months	100%
	UEA) and the Muraki Institutional Support Foundation	5/2011	2,646,585	36 months	100%
	UFPA and FADESP	12/2011	1,738,849	24 months	100%

Source: Adapted from Amazon Fund (2017, April 7). Some of the amounts were in Brazilian Reals – exchange rate used on April 6, 2017: R$ 3.12 = USD 1, Brazilian Central Bank.

A comparison of the execution period of supported projects and the percentage of disbursements made by the Amazon Fund shows a critical delay in implementing initiatives by state actors at the subnational and local levels. This empirical evidence corroborates with the views of federal government policy makers, who pointed out that the lack of financial resources is not the bottleneck in controlling deforestation; the biggest problem is the lack of capacity from states and municipalities to implement REDD+ and structuring initiatives. On the contrary, the high execution capacity of civil society organizations and academia should be noted.

An interesting perspective was pointed out by several participants on the high potential Brazil has to contribute to the capacity building of other developing countries, especially technology transfer in the forest cover monitoring system and sharing its experience in the REDD+ policy making process. These issues are further developed in the *Collective learning* category.

4.1.7 Collective learning

This is an in vivo code that emerged from one of the first civil society participants. The concept presented solid groundedness during data analysis and was reinforced by theoretical sampling. The concept became a strong category as it helped to explain the basis of the experimentalist process in the emerging REDD+ governance process in Brazil, the core phenomenon in this study. Collective learning is a type of learning developed from actions-interactions between actors and groups in response to specific situations in which joint actions were needed such as problem solving and strengthening the positions of coalitions and alliances. The Motivation to work together subcategory is linked to collective learning. This study suggests that actors and groups working together learn from each other.

This category is formed by two related subcategories: collective knowledge development and recursive learning process. Evidence described in the following sections suggests how powerful collective learning outcomes can emerge in the REDD+ governance process in Brazil.

4.1.7.1 Collective knowledge development

Collective knowledge development in the context of this study is rooted in actions-interactions between actors and groups that have been learning from each other in the uncertainty on how to solve a real-world problem. For example, collective knowledge development emerged in strategic alliances arising from the need to further the implementation of REDD+ initiatives at the subnational and local levels as the international legal framework for REDD+ was only adopted in 2013 by UNFCCC Parties, and Brazil had decided to wait for it before launching its national strategy.

Furthermore, empirical evidence showed collective knowledge development among NGOs due to the need to strengthen their negotiations within the Amazon Fund team. For example, the GCF Task Force, a subnational collaboration between 35 states and provinces,

was formally established in 2008 due to difficulties to advance the international negotiations on REDD+ at UNFCCC level. The GCF Task Force aims to advance the development of jurisdictional REDD+ programs (GCF, 2017, March 21).

Private and public donors have been financing this alliance, which became a major platform for collective knowledge development and knowledge exchange between subnational governments. A major outcome of the GCF Task Force in Brazil was the revamping of the alliance between the nine Amazon states that culminated in the reactivation of the Legal Amazon Governors' Forum.

Another interesting collective knowledge development case was the implementation of the PPG7, which has contributed to the development of jurisdictional REDD+ programs in Brazil, considered by some to be the continuation of the policy implementation initiated in the 1990s. PPG7, an initiative supported from 1992 to 2009 by the G7 (Germany, Canada, the United States, France, Italy, Japan and the United Kingdom), Netherlands, and the European Commission, aimed at developing projects on the sustainable use of natural resources in the Amazon and the Atlantic Forest in Brazil.

The World Bank was in charge of the Rain Forest Trust Fund, created to channel donors' financial aid to Brazil. Germany and the UK developed important capacity-building activities, involving government at all levels, indigenous peoples, and civil society entities. This innovative and experimentalist initiative supported 26 subprograms and projects implemented over 17 years (MMA, 2009). Several lessons were learned from both successes and failures. However, none of the participants knows how and to what extent this large experiment has contributed to a recursive learning system able to improve the effectiveness of REDD+ initiatives or the implementation of other policies related to environmental protection.

This subcategory was further developed in three dimensions: knowledge sharing, knowledge spillover, and technology transfer.

4.1.7.1.1 Knowledge sharing

Knowledge sharing includes action-interaction between actors and groups where knowledge on REDD+ was exchanged or shared, including best practices and lessons learned from successes and failures in ground experience that may have resulted in strengthening institutional and/or technical capacities.

Knowledge sharing was found in different situations and groups, the most robust of which was the GCF Task Force platform, including a training and network development program which has implemented capacity building initiatives for subnational governments. IDESAM is the local coordinator of the GCF Task Force in Brazil and has supported the organization of workshops and technical seminars focused on the design of jurisdictional REDD+ programs, elaboration of FREL, jurisdictional MRV systems, sustainable supply chains, fundraising, and communications strategies (GCF Task Force, 2016). This study suggests that capacity building and knowledge sharing are vital to strengthen collective learning by different actors.

As explained by a civil society participant, there is a systematic knowledge sharing practice between subnational governments at the national and international levels through the Legal Amazon Governors' Forum and the GCF Task Force. For example, the state of Acre has been invited by governors of Peru and Bolivia to share its experience on the policy making and implementation processes in REDD+ at the jurisdictional level. Brazilian NGOs have been invited by subnational governments in developing countries to share their experiences as in the case of IDESAM with African states. However, knowledge-sharing opportunities between NGOs and subnational governments abroad are still very preliminary, with few examples.

At the country level, several developing countries have requested knowledge sharing channels with Brazil to learn about the domestic experience in the implementation of effective public policies to reduce the deforestation rate over the past decade, the INPE forest monitoring system, and advances in the implementation of REDD+.

According to policy makers, Brazil recognizes the importance of cooperating and sharing its experience, especially in technical areas and policy implementation, including monitoring, methodological capacity for emissions accounting, preparation of technical reports, forest restoration, crop-livestock-forest integrated systems, as well as institutional capacity building in REDD+. The MMA is systematizing some of the information and best practices to share with REDD+ recipient countries through South-South cooperation.

As the international demand is very high, and the MMA has limited personnel and financial resources to collaborate with others, the Brazilian government is working on the operationalization of the South-South cooperation through a knowledge-sharing platform based on solutions for common challenges in implementation, capacity building, and consensus building, based on four pillars: 1) the forest cover monitoring system; 2) developing evidence based integrated policy; 3) the MRV system and technical documents to

be submitted to UNFCCC; and 4) governance structure and national funds (MMA, 2017, February 26).

Donor countries have systematically organized closed meetings and public events aiming at knowledge sharing and the exchange of experiences between donors, recipient countries, civil society entities, and academia. The purpose of some of these events has been the evaluation of REDD+ experiments in Brazil by experts, and knowledgeable state and nonstate actors. The Oslo REDD+ Exchange is an example of a knowledge-sharing platform organized by NORAD. The third edition of the event, held in 2016, received some 500 participants, including policy makers, civil society actors, scholars, indigenous peoples, and traditional community representatives. The initiative became a major international platform to exchange ideas, lessons, and perspectives among stakeholders (Norad, 2017, March 21).

Norway also organizes systematic meetings with recipient and donor countries to learn more about results in Brazil within the Amazon Fund. Public events with Norwegian NGOs are organized, demonstrating a strong commitment to exchanging experiences and knowledge about the REDD+ cooperation agreements and establishing a communication channel with the Norwegian constituency on how aid funds have been spent, based on transparency and accountability principles.

A civil society participant argued that donor countries have performed a very important role in the development of the REDD+ policy agenda and implementation by promoting these forums to discuss the results of REDD+ experiments in Brazil, especially focusing on the Amazon Fund performance. On contrary, events organized by Brazil or public speeches are usually focused on sharing best practices and never evaluate what has not worked on the ground in order to learn from the failures that occur during implementation.

Another important international platform of knowledge sharing in REDD+ is the Global Landscapes Forum, organized by CIFOR, which is the world's largest science-led multi-sectorial platform designed to produce and disseminate knowledge and accelerate action focused on sustainable landscapes by connecting diverse stakeholders (Global Landscape Forum, 2017, June 5).

International think tanks, such as the Center for Global Development (CGD) in the US and CIFOR in Indonesia, have been contributing to REDD+ with solid scientific research. The CGD is focused on aid effectiveness in public policies and practices of bilateral and multilateral donors. CIFOR has been contributing with important policy briefs and comparative assessments on REDD+ initiatives in multiple countries. Indeed, as already mentioned, there is a select group of NGOs in Brazil that have been producing science-led

studies and contributing to the development of the REDD+ agenda in Brazil, as in the case of IPAM.

At the national level, the study suggests that knowledge sharing in REDD+ is still nascent. According to one policy maker, there is no systematic knowledge sharing process or institutional arrangement at the national level that promotes exchange of experiences in light of lessons learned by different actors from implementation. However, knowledge sharing and technology transfer are part of the Brazil's NDC to support REDD+ implementation in developing countries.

Another policy maker explained that despite the lack of institutional arrangements for knowledge sharing, the states of Acre and Mato Grosso have been sharing their experiences with jurisdictional programs at CONAREDD+ ordinary meetings, including donors' expectations and constraints during implementation.

A civil society representative pointed out that the Coalizão could be a site with great potential for exchanging experiences and knowledge on REDD+ experiments, aiming at improving effectiveness in implementation, avoiding similar problems and constraints. However, the group is very focused on advocacy. This study suggests that knowledge sharing is still embryonic in Brazil, with a limited number of isolated cases. Table 31 consolidates some of the knowledge sharing platforms identified in this study.

Table 31: Some of the Knowledge Sharing Dimensions

Actors / Groups	Instance
Subnational governments	Legal Amazon Governors' Forum (Amazonian states in Brazil); GCF Task Force (national and international subnational governments)
Civil society	Informal network of NGOs that submit proposals to the Amazon Fund
Amazon Fund recipients	BNDES has organized a few meetings with recipient NGOs. However, the initiative is perceived by participants more as an accountability activity than knowledge sharing
REDD+ stakeholders	At the international level: Norwegian Oslo REDD+ Exchange Event (organized by Norad); Global Landscape Forum (organized by CIFOR); REDD+ meetings (organized by donor countries); developing countries missions; South-South cooperation At the national level: CONARRED+, and thematic advisory boards

Source: Elaborated by the author (2017).

4.1.7.1.2 Knowledge spillover

Knowledge spillover is the influence in which 'spills over' from one experience to another. In the context of this study, the spillover effect refers to the influence of the REDD+ experiments in Brazil on practices in other countries, or domestically by stimulating innovation, improvements, and replication of best practices.

Policy maker and civil society participants believe that the REDD+ experiments in Brazil have influenced practices in other countries or regions. However, most of the interviewees did not present any evidence of this. Even though the concept was not highly developed due to the lack of evidence and groundedness, it became a dimension in the collective knowledge development subcategory. Knowledge spillover is an important measurement to understand to what extent the REDD+ governance in Brazil has been successful by influencing another party.

At the international level, the spillover effect emerged in different situations. A policy maker pointed out that in 2012 the Democratic Republic of Congo implemented a national REDD+ fund based on the Brazilian experiment with the Amazon Fund. In another case, Germany used the lessons learned from the international cooperation agreement with Brazil to support the ARPA Program to improve the basis of cooperation agreements of similar initiatives focusing on REDD+ in Colombia and Peru through the World Bank GEF.

At the subnational level, a civil society participant pointed out that the state of Acre's jurisdictional REDD+ program has influenced implementation in other jurisdictions in Brazil and abroad. The GCF Task Force is a major arena for knowledge exchange between subnational governments. However, none of the participants mentioned any concrete case of knowledge spillover from Acre's experiment to other jurisdictions.

At the national level, a policy maker pointed out an interesting case of the REDD+ spillover effect improving the policy making process in Brazil. Before the establishment of Brazil's National REDD+ Strategy, safeguards, biodiversity and climate were considered 'separate boxes'. As the 4th phase of the PPCDAm and PPCerrado for the 2016-2020 period includes the implementation of the national strategy, REDD+ elements to access results-based payments under UNFCCC became part of these plans, including the development and implementation of the national strategy, a national forest monitoring system, including the MRV system, a safeguard information system, and FREL.

As the national approach to REDD+ requires a countrywide forest cover monitoring system, the MMA has recently launched a phased approach to implement the national system covering all biomes. Currently, Brazil has submitted FRELs for the Amazon and Cerrado biomes, and FRELs from other biomes will be developed in the coming years. Indeed, the 4th phase of PPCDAm has an integrated perspective with comprehensive objectives linked to a new set of indicators intended to be measured through impact assessment, and this is an innovation in the main public policy of the Amazon that has been influenced by the

implementation of REDD+ as the 3rd phase of PPCDAm had goals and indicators that were not linked to the action plan.

This study suggests that the implementation of REDD+ is influencing the way public policies have been designed, monitored and assessed at the national level. The same was perceived at the subnational level, where states have implemented jurisdictional programs with specific legal and institutional frameworks for REDD+.

In summary, a multi-level policy alignment and consolidation of verified results are required for developing countries to be eligible to access results-based payments in REDD+. This study suggests that the implementation of REDD+ activities has positively influenced the policy making process in Brazil by inducing innovation, and improvements. The spillover effect at the international level seems to be based on the replication of best practices, such as technology transfer.

4.1.7.1.3 Technology transfer

Technology transfer between countries in REDD+ was only found in the forest cover monitoring system. The Brazilian forest monitoring system coordinated by INPE is the international benchmark for developing countries; Brazil has been transferring INPE technology and knowledge to other South America countries and is planning to do so to African countries around the Congo basin.

Brazil has advanced within the South-South Cooperation on Climate Change and Forest by supporting two regional projects. The first is a partnership with ACTO to develop a forest monitoring system in the Amazon Basin region to be implemented in eight countries. The second is a cooperation agreement with the Central Africa Forests Commission (COMIFAC) to develop forest monitoring in the Congo Basin region in ten African countries. Besides financial resources from the Amazon Fund, the Brazilian government, including MMA, MRE and INPE, are providing capacity building and technology transfer. Brazil offers its experience, and partner countries decide how and to what extent policies and systems will be implemented.

4.1.7.2 Recursive learning process

The recursive learning process is based on the revision of goals, procedures, and/or practices in light of the results and lessons learned from implementation. REDD+ has been

implemented by multiple actors and groups that are supposed to learn from each other's experience. This concept helps to understand the experimentalist process to implement the national approach to REDD+ in Brazil.

According to a civil society participant, a recursive learning process in REDD+ may be perceived only in the policy implementation and monitoring systems. The implementation of REDD+ has positively influenced the policy making process on the environment, motivated by the UNFCCC requirements for Brazil to be eligible to access results-based payments under the regime. This study suggests that knowledge sharing has been occurring between state and nonstate actors when convenient, resulting in a recursive learning system in specific cases and not through new institutional arrangements.

At the local level, participants pointed out that major environmental NGOs in Brazil are neither learning from each other nor have established a systematic recursive learning process. Organizations are accountable, transparent and can share their interesting practices, knowledge and findings through reports, papers, and external events. They acquire institutional knowledge on new methodologies, monitoring and reporting, and collaborative work with donors. However, there is no effective appropriation of the knowledge and methodologies shared between institutions, which could improve effectiveness and efficiency in the implementation of REDD+ activities.

At the national level, as the governance structure is too new to be evaluated, and the operationalization of the national strategy is still incipient, a recursive learning system is not yet a topic of discussion. However, most of the participants recognize the importance of having a recursive learning system to improve policy making and implementation processes.

5 INTEGRATION OF THE THEORY

This study aims to understand the governance process to implement a national approach for REDD+ in Brazil. The method adopted was the Glaser and Strauss (1967) grounded theory, and the Corbin and Strauss (2015) technics and procedures for developing grounded theory.

Grounded theory is a methodology to generate theory from the data, systematically obtained and analyzed, used to explain a real-world problem. The intention is not to test hypotheses from existing theories but rather develop a new theory based on data collection in the field through the research. It consists of an interactive cycle of data collection and analysis to generate concepts based on constant comparisons of different types and sources of data (high data variation). Concepts are developed and integrated, and some of them become categories (also known as constructs in quantitative studies) or themes that are linked to each other and integrated into a core category to form the structure of the theory (Corbin & Strauss, 2015; Dunne, 2011; Glaser & Strauss, 1967).

The relationships between categories provide theoretical explanations of why and how something happens. This process of linking categories around a core category and refining the theory is called theoretical integration. This study used grounded theory methodology through the lens of the paradigm model that consists of conditions, actions-interactions, and consequences. The paradigm model is a tool to enrich analysis during the open and axial coding processes, identify relationships between categories, and support the integration of the theory (Corbin & Strauss, 2015).

At this point, it is important to mention that the use of existing literature in grounded theory studies is a polemical issue among theorists, with an ongoing contemporary debate related to when the literature review should be employed and how extensive it should be (Dunne, 2011). This study has followed the Corbin and Strauss (2015) recommendation to engage with existing literature prior to primary data collection to support the development of the research problem. However, during the data collection, analysis, and integration of the theory no literature review was conducted. As the REDD+ theoretical framework emerged from grounded data, a second literature review was made to discuss the results in light of existing literature to reinforce and enlighten research findings.

In the previous chapter, the analysis of the primary data was based on constant comparison (data was collected and analyzed concomitantly) and theoretical sampling (data collection was guided by theory development and saturation of the categories), resulting in a robust set of categories and related subcategories, which were described in terms of their properties and dimensions through patterns observed in the data.

This chapter constitutes the integration of the theory in light of the results from data analyzed in the previous chapter, including an explanation of the research paradigm model used to support data collection, analysis, and the categorical integration process in which categories were linked around the core category to explain the phenomenon. According to Corbin and Strauss (2015), a list of concepts and categories alone do not make for a theory. Categories must be linked and integrated into a theoretical framework which has explanatory power.

Text and diagrams are discussed in the following sections to facilitate the understanding of the resulting theoretical framework. Empirical evidence is used to support the explanation of the theory. This chapter is organized as follows. Section 5.1 discusses some of the fundamentals in theory building considered in this study. Section 5.2 focuses on the explanation of the research paradigm technique used to support data analysis and the integration of the theory. Section 5.3 discusses the relationships between categories to explain the phenomenon studied. The final section is a narrative of the resulting substantive theory.

5.1 Theory Building Research

There is a large body of literature on theory building research in social science. However, Sutton and Staw (1995) discuss the lack of consensus on what theory is, the difference between model and theory, and even the limited agreement on what strong and weak theories are. But there does seem to be a consensus among theorists of the importance of theory building to explain a phenomenon.

Gioia and Pitre (1990) broadly define theory as “any coherent description or explanation of observed or experienced phenomena” (p. 587). Corbin and Strauss (2015), based on Hage (1972), define theory as a “set of well-developed categories that are systematically developed in terms of their properties and dimensions and interrelated through statements of relationship to form a theoretical framework that explains something about a phenomenon” (p. 62).

According to Whetten (1989), who discusses the building blocks of theory development, a fundamental part of theory building is to identify which factors (concepts, constructs, and categories) should be part of the explanation of the phenomenon. Once the set of factors are defined, and in the case of the present study they are called categories and related subcategories, the researcher needs to identify how they are related to each other by explaining patterns, usually through a causal type of relation. These two elements form the subject of the theory through a descriptive framework. The interpretation of patterns and empirical evidence justifies the selection of factors and the relationship between them, which leads to the theory's assumptions and the explanation of the framework.

Corbin and Strauss (2015) point out that the most important aspect of theory building is to explain the relationship between the categories of the emerging conceptual framework based on four aspects: 1) identifying the main problem or theme according to the perception of the participants; 2) explaining the potential context or circumstances for action-interactions; 3) explaining how actions-interactions occur in the context of the phenomenon studied; and 4) relating results to actions-interactions (p. 62). In summary, concepts are developed based on the data in terms of properties and dimensions, then integrated into a core category through the relationships between related categories, resulting in the theoretical integration.

Theory building may be classified into three different levels: substantive, middle range, and formal. A substantive theory emerges from research in a specific situation and does not aim to explain other phenomenon for which there are no data. A middle-range theory is developed when a study uses a broader concept, originally developed in another study, to be applied in a different situation to increase the abstraction of a core category. Formal theory derives from middle-range theory by adding more concepts with an even higher level of abstraction and can be generalized by explaining different situations with broader applicability (Glaser & Strauss, 1967; Corbin & Strauss, 2015; Goulding, 2002). The theory that emerged in this study is substantive and applied to the REDD+ governance process in Brazil.

5.2 The Paradigm Model

The Corbin and Strauss (2015) paradigm model was used to assist data analysis during the coding process and theoretical integration. The paradigm model consists of conditions, actions-interactions, and consequences. Conditions are the perceived reasons why some phenomenon takes place. Actions-interactions are the response to a specific situation or problem. Consequences are the outcomes or expected results from actions-interactions.

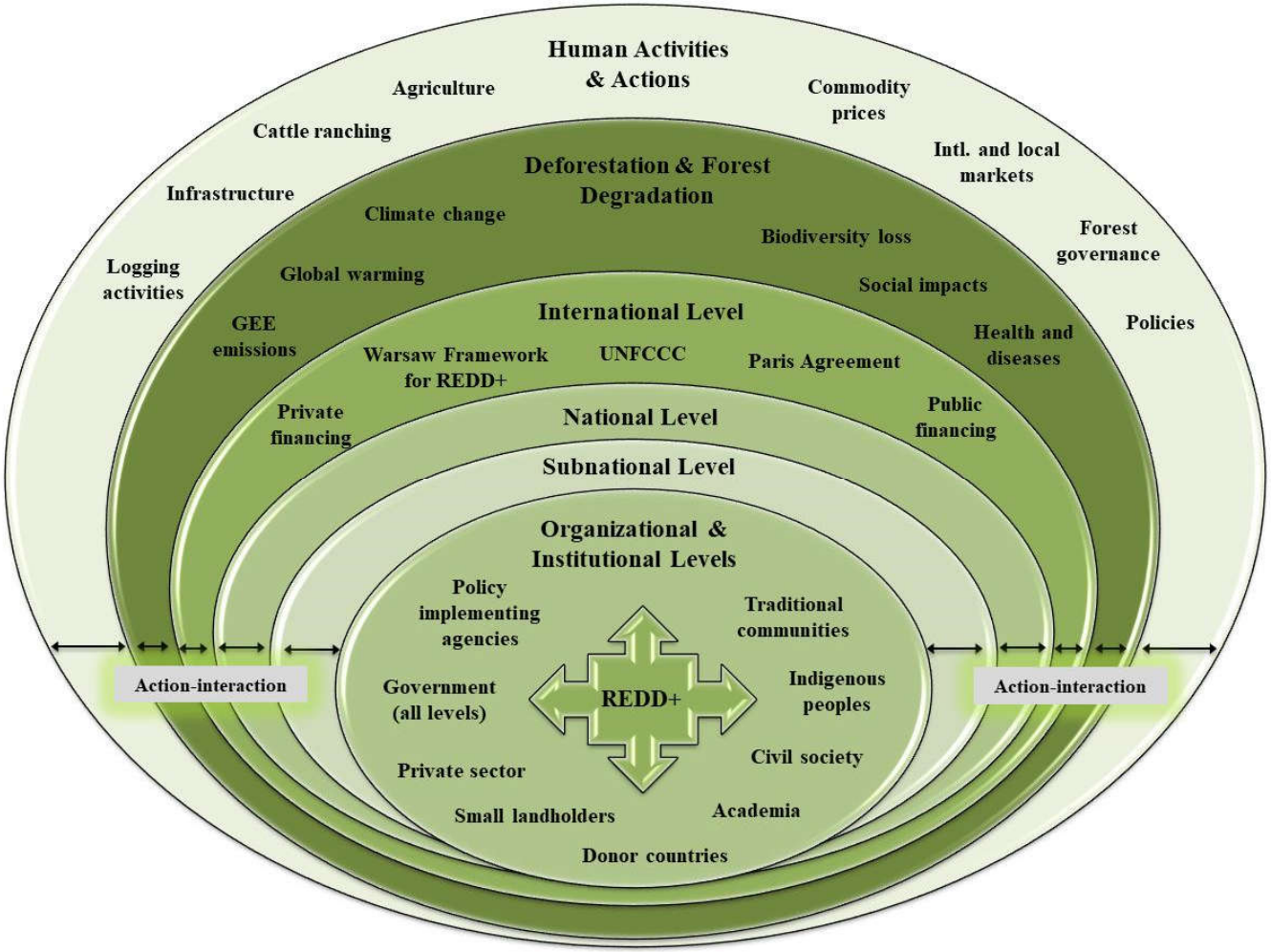
Indeed, the Corbin and Strauss (2015) conditional/consequential matrix was used as an analytic strategy to contextualize the core phenomena and help in the identification of possible conditions that lead to human actions-interactions and result in a range of consequences.

The REDD+ conditional/consequential matrix (see Figure 10) represents the context of REDD+ in Brazil. The matrix consists of six concentric and interconnected circles. The REDD+ context is very complex as it involves different actors and groups with distinct ideologies, perspectives, and interests. Human actions-interactions occur in the REDD+ governance process in which conditions and consequences may impact on or be impacted by any actor and level of the matrix. Indeed, the implementation of REDD+ activities involve different sectors, requiring transversal and integrated policies in order to be effective.

Although the flow between the circles may seem to be linear, human actions-interactions are linked to conditions and consequences at all levels of the matrix by flowing to and from the center (Corbin & Strauss, 2015), thus illustrating the complex context in which the REDD+ governance process occurs, considering the intersections of conditions and consequences resulting from human actions-interactions.

The largest circle in the matrix shows some of the major drivers of deforestation and forest degradation caused by human actions-interactions. These drivers emerged from the data, which does not cover all of the deforestation drivers. The second largest circle shows some of the consequences of deforestation and forest degradation. The subsequent circles represent the levels (international, national, and subnational) in which human actions-interactions take place. Major stakeholders involved in the REDD+ governance and policy arena are represented in the central circle. The construction of the matrix was rooted in data.

Figure 10: REDD+ Conditional/Consequential Matrix



Source: Elaborated by the author (2017).

The following discussion is based on empirical data in light of some existing studies to reinforce some the concepts and elements in the matrix. REDD+ was defined by one of the civil society participants as a "mitigation mechanism based on performance to support sustainable development efforts in developing countries" (Research participant, 2017). REDD+ governance is the core phenomenon of the study.

Deforestation and forest degradation are caused by actions-interactions from human activities, which are motivated by certain conditions. Land-use change is defined as the human exploitation of the land cover (Lambin, Geist, & Lepers, 2003). The conditions that lead to land-use changes in tropical forests are complex, requiring great commitment and collective actions from developing and developed countries alike to address the problem (Laurance, 1999). According to Lambin et al. (2003) "land-use change is always caused by multiple interacting factors originating from different levels of organization of the coupled human-environment systems" (p. 217).

The deforestation and forest degradation drivers represented in the matrix (Figure 10) were mentioned by participants during interviews. Even though the research did not intend to investigate the causes of deforestation and forest degradation, research participants cited these drivers to explain important concepts that originated main categories and subcategories in this study, such as the case of the category 'Strategy' and related subcategories 'country circumstances' and 'relative importance of REDD+'.

Corbera and Schroeder (2011) point out that the effectiveness of REDD+ governance and its implementation are influenced by the drivers of deforestation and forest degradation that may be external to the forest sector such as market opportunities in the agricultural and livestock sectors or trends in land occupation.

The drivers of deforestation and forest degradation are diverse and are produced by multiple causes through complex interactions. In the large body of literature that explores this subject, some argue about the primary drivers of deforestation, including the expansion of soy production (Arima, Richards, Walker, & Caldas, 2011; Macedo et al., 2012), the expansion of cattle ranching (Nepstad, Stickler, & Almeida, 2006; Soares-Filho et al., 2006; Rudel, Defries, Asner, & Laurance, 2009), the expansion of agriculture (Nobre et al., 2016; Gibbs et al., 2010), economic conditions and policies (Lambin et al., 2003), infrastructure such as road building, logging activities, international markets, subsidies (Fearnside, 2005; Hosonuma et al., 2012; Laurance et al., 2001; Rudel et al., 2009), commodity prices and technological improvements (Nepstad et al., 2006), frontier governance (Nepstad et al., 2014), and mining (Laurance et al., 2001).

Kissinger et al., (2012) point out that the agriculture and logging activities are the key proximate or direct drivers of deforestation and forest degradation that impact the long-term viability of REDD+ activities. Furthermore, key underlying or indirect drivers act at all levels and influence the proximate drivers; such drivers are markets and commodity prices at the international level, forest governance, policies, population growth, and the domestic market at the national level.

These key proximate and underlying drivers that cause deforestation emerge from complex human actions-interactions involving social, economic, and political dimensions. Research findings suggested that the current economic and political crises in Brazil (causes) are the major underlying drivers that have been influencing key proximate drivers over the years. Examples of these drivers are the expansion of agriculture, cattle ranching, and logging activities, resulting in the increase of the deforestation rate in the Amazon (consequence).

As suggested in this study, the deforestation problem requires a set of collective actions, including command and control, and integrated public policies to promote sustainable development through structuring activities that combine economic development and forest preservation. According to participants, the perceived lack (or absence) of public power to control illegal deforestation in recent years has created a kind of civil disobedience among criminal groups, also motivated by the so-called 'political degeneration' in Brazil, which includes political turmoil, economic recession, and budget constraints at all levels in the public sector. As a consequence, the deforestation rate in the Brazilian Amazon increased about 60% between 2013 and 2016 (INPE, 2017, September 20).

Indeed, country circumstances are driving the increase of the deforestation rate in Brazil through actions-interactions, motivated by changes in the Forest Code and budget constraints to maintain business as usual command and control activities (law enforcement). Indeed, the situation is worsened by powerful economic and development pressures. For example, a number of laws and decrees, including the revision of the environmental licensing criteria and the rollback of protection of significant forest reserves in the Amazon, are under discussion in the Brazilian Congress.

Empirical data suggests that circumstances are aggravated by the lack of political coalition even between ministries at the national level. According to one civil society participant, the Ministry of Justice and the MAPA do not necessarily support the MMA on many issues in Brazil. Public policies overlap, resulting in a "total disarticulation between national entities in the Amazon biome" (Research participant, 2017).

Country circumstances help to explain the context of REDD+ through complex actions-interactions between different actors and groups, resulting in the increase of emissions from deforestation and forest degradation. Besides forest loss, some of the major consequences include biodiversity loss and contribution to global warming (Fearnside, 2005). It is important to reinforce the fact that, in the context of this analysis, consequences are actual or anticipated outcomes of human actions-interactions.

Tropical forests provide important ecosystem services such as carbon storage, water availability, soil conservation, and the reduction of infectious diseases. Surrounding forests are also impacted due to their drier forest floors and increased wildfires (Foley et al., 2007; Laurance et al., 2001). Tropical deforestation increases the temperature, leading to drier conditions at the local level (Lawrence & Vandecar, 2014). In the social dimension, deforestation and forest degradation impact forest-dependent communities such as indigenous peoples, extractivist communities, and the ecotourism sector (Laurance et al., 2001).

At the regional and global levels, tropical deforestation impacts climate change, regional climate patterns (Foley et al., 2007), water recycling, and reduces rainfall precipitation (Fearnside, 2005), putting agriculture at risk in the tropics, with "considerable risk to agriculture in parts of the US, India, and China (among others), due to impacts on rainfall against a background of warmer temperatures" (Lawrence & Vandecar, 2014, p. 33). The Amazonian biome has a significant influence on regional and global climates as its removal by deforestation may be a key driver of climate change (Malhi et al., 2008).

Through data collection and analysis, REDD+ governance emerged as a non-linear process in which conditions may facilitate or hinder actions-interactions between state and nonstate actors at all levels, with consequences for policy making and implementation of the national strategy for REDD+.

As represented in the circle 'International Level', the UNFCCC legal framework, including the WFR and the Paris Agreement, public and private financing is a condition that leads to actions-interactions in REDD+ at the national and subnational levels. The Paris Agreement reinforced previous decisions adopted by UNFCCC and encourages Parties to support policy approaches and positive incentives for REDD+ related activities, according to the guidance of the WFR. A Party, in the context of the UNFCCC, is a State or regional economic integration organization such as the EU that agrees to be bound by a treaty and for which the treaty has entered into force (UNFCCC, 2017, August 25).

Financing is a condition in order to implement REDD+ initiatives in developing countries, and this may come from different public or private sources. Another condition is

that market-based mechanisms (such as offsettings) for REDD+ are not allowed under the UNFCCC regime. In this sense, results-based payments in REDD+ do not generate any carbon rights to donors or allow the transference of mitigation results from recipient to donor.

At the national level, ENREDD+ is a condition. The lack of mitigation results to access results-based payments on REDD+ under the UNFCCC regime, and/or the failure to operationalize the national strategy according to the WFR requirements may have as a consequence the lack of international financing to support further REDD+ activities in Brazil.

The upward trend in the deforestation rate in recent years will determine the future of the Norway-Brazil results-based partnership in REDD+. The Norwegian Minister of Climate and Environment, Vidar Helgesen, announced in June 2017 that the Norwegian REDD+ payments will be reduced in 2017 because of the increase in deforestation in 2016, based on the Amazon Fund's rules, set unilaterally by the government of Brazil, to limit the maximum payments according to country's performance (forest emission reductions). In this sense, the increase in the deforestation rate, caused by some of the drivers explained above, has as a consequence the decrease in financial support from bilateral agreements on REDD+ as they are performance-based.

Brazil has been undergoing a process of decentralized forest governance since 2004. Subnational governments have assumed great responsibilities, even with the low capacity of execution and budget constraints. Due to the delay in establishing the national strategy for REDD+, some of the Amazon states have developed jurisdictional REDD+ programs, as is the case of the state of Acre. Within ENREDD+, the federal government has been challenged to move from a jurisdictional to a national approach to REDD+, which requires policy coordination at all levels (actions-interactions).

The central circle, 'Organization & Institutional Level', represents some of the major stakeholders involved in REDD+ governance, including state actors at all levels, policy implementing agencies, donor countries, civil society entities, indigenous peoples, traditional communities, academia, small landholders, and the private sector.

These actors and groups interact with each other at all levels (international, national, subnational, and local). Conditions and consequences influence actions-interactions in a non-linear process, which may be explained by the motivation to work together between state and nonstate actors, and among actors in the same group. Indeed, the constraints on working together and the political power game in place due to divergent positions and interests also explain the difficulties of joint efforts in REDD+.

The next section further develops the integration of the theory through the explanation of the relationships between categories that emerged from the data, which were already detailed in Chapter 4.

5.3 Categorical Relationships

Describing the relationships that exist between categories is a critical step in research based on grounded theory methodology. As postulated by Sutton and Staw (1995), a list of constructs (known in this study as categories) is not a theory in itself. A theoretical argument of proposing frameworks explains the reasons why the phenomenon occurs.

The web of relationships between categories that emerged from the data was analyzed in light of the paradigm model, considering conditions, actions-interactions, and consequences around the REDD+ governance, the core phenomenon of this study. As illustrated in the REDD+ conditional/consequential matrix (Figure 10), the major drivers of deforestation and forest degradation (conditions) are causing environmental and social impacts (consequences) such as climate change and biodiversity loss through actions-interactions between actors and groups across sectors and levels.

Theoretical integration occurred throughout the concurrent data collection and analysis processes. High variation in data considering different data collection techniques and participants with distinct perspectives and interests was critical to develop the theory. Some categories presented a higher level of saturation than others due to their groundedness and explanatory power. As recommended by Corbin and Strauss (2015), “poorly developed categories are saturated through further theoretical sampling” (p. 200). This is how the integration of the theory was conducted in a logical way, consistent with the data, resulting in a well-differentiated and connected set of categories that explain the phenomenon studied.

Governance emerged as the research core category. According to Corbin and Strauss (2015), core category is “a concept that is sufficiently broad and abstract that summarizes in a few words the main ideas expressed in the study” (p. 187). The following analysis explains the integration of the emerging theoretical framework through the relationships between categories, which are linked to the core category *Governance*.

Data analysis resulted in a conceptual framework formed by a core category, six major categories, and 28 subcategories, as listed in Table 32. These concepts emerged from the data and were already described and conceptualized in the Chapter 4.

Table 32: Research Categories and Related Subcategories

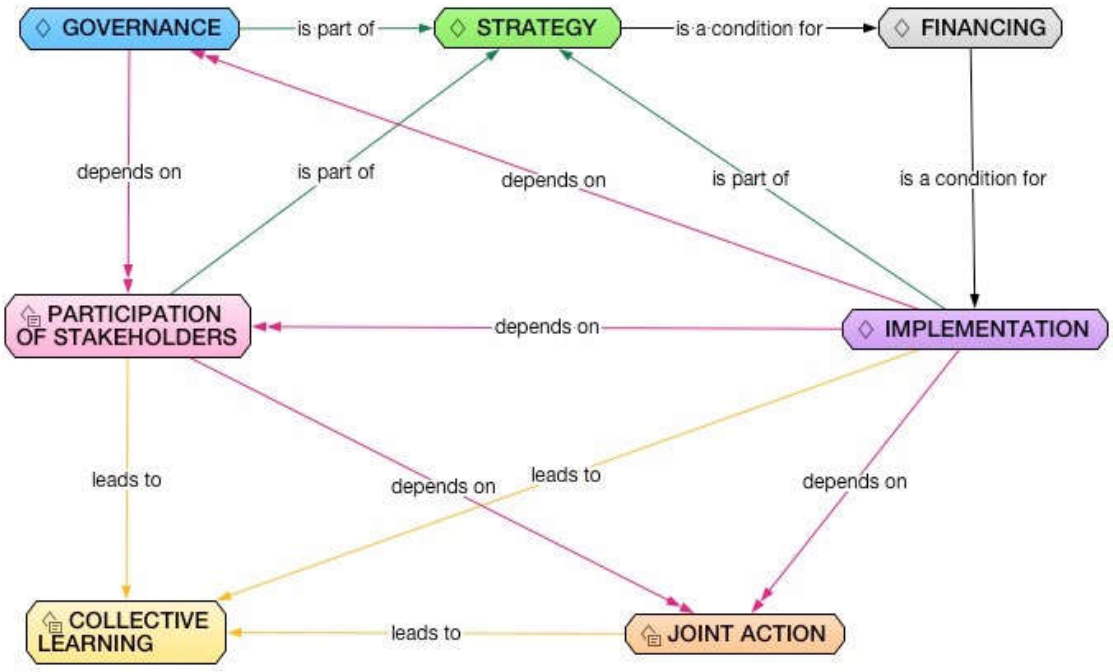
Categories	Subcategories
1. Governance	1.1 Governance structure
	1.2 Participatory governance structure
	1.3 Experimentalist process
2. Strategy	2.1 Country circumstances
	2.2 Relative importance of REDD+
	2.3 One-size-does-not-fit-all approach
	2.4 National REDD+ Strategy
	2.5 Framework goals and metrics
3. Financing	3.1 Results-based payments
	3.2 International level
	3.3 National level
4. Participation of stakeholders	4.1 Diversity of actors
	4.2 Advocacy
	4.3 Collective building of the REDD+ agenda
	4.4 Openness to discuss the REDD+ strategy
5. Joint Action	5.1 Acting together
	5.2 Motivation to work together
	5.3 Divergent positions and interests
	5.4 Political power game
6. Implementation	6.1 Policy implementation
	6.2 Implementation by lower-levels
	6.3 Monitoring system
	6.4 Design of experiments
	6.5 Fund management
	6.6 Benefit sharing
	6.7 Capacity building
7. Collective learning	7.1 Collective knowledge development
	7.2 Recursive learning process

Source: Elaborated by the author (2017).

The integration of the seven major categories listed in the Table 32 was supported by the Atlas.ti network editor, resulting in the diagram presented in Figure 11. The diagram shows the set of categories discovered throughout data collection and analysis that explains the REDD+ Governance. In this phase, the relationships between the categories were identified to support the explanation of the theory.

As can be seen in the diagram (Figure 11), REDD+ Governance is a complex process that involves seven categories (higher-level concepts that emerged from the data) that are related to each other in an interactive and non-linear process.

Figure 11: Integration of the Theory – Relationships Between Categories



Source: Elaborated by the author using Atlas.ti network editor (2017).

The core category *Governance* has direct and indirect relations with six other categories: *Strategy, Financing, Participation of stakeholders, Joint action, Implementation,* and *Collective learning*. The type of relation is represented by named links that connect source and target nodes between categories. Directed links start in a source node and end in a target node to which the arrows point.

Nodes are used in networks to connect elements, and each category has a node. A source node represents the origin of the relation between two categories, the starting point of the arrow in a source category that points to a target category. Arrows represent the relations between categories by connecting source and target nodes.

The relationships between categories, represented by arrows, were classified into four types: ‘depends on’, ‘is a condition for’, ‘is part of’, and ‘leads to’. Understanding the relations between categories is critical to guide the development of a theory as the relationship links represent important aspects of the research problem. The types of relations used to link

categories are important epistemological tools (Friese, 2013) and part of the methodology adopted in this study to integrate the theory and explain the phenomenon. Table 33 describes the types of relations between categories.

Table 33: Types of Relation Between Categories

Type of relation	Definition
Depends on	A dependency relation means that the operationalization of a source category relies upon the existence of a target category. A category depends on another category through a transitive relation, as explained in Table 34. For example, the category *Governance* 'depends on' *Participation of stakeholders*.
Is a condition for	The source category is a condition for the target category in which the first gives the condition for the feasibility or operationalization of the second. A category is a condition for another category through an asymmetric relation, as explained in Table 34. For example, the category *Strategy* 'is a condition for' *Financing*.
Is part of	A source category is part of a target category when the first is a formal element of the second category. A category is part of another category through an asymmetric relation. For example, the category *Implementation* 'is part of' *Strategy*.
Leads to	In this type of relation, the source category may contribute within the development of the target category. A category leads to another category through an asymmetric relation. For example, the category *Joint action* 'leads to' *Collective learning*.

Source: Elaborated by the author (2017).

The arrows representing the relationships between categories were classified into two formal attributes, asymmetric and transitive, as presented in Table 34.

Table 34: Types of Formal Attributes Linking Categories

Attribute	Definition	Type of arrow
Asymmetric	Asymmetric relations were found whenever category A is related to category B but category B is not related to A. Types of asymmetric relations identified in the theoretical framework: 'is part of', is a condition for', and 'leads to'. For example, the category *Governance* (A) is part of *Strategy* (B).	An asymmetric relation is linked by an arrow pointing from the source category (A) to the target category (B). A ➡ B
Transitive	Transitive relations were found whenever category A is related to category B and category B is related to category C; then category A is related to category C or vice-versa. Type of transitive relation identified in the theoretical framework: 'depends on'. For example, the category *Implementation* (A) depends on *Governance* (B); *Governance* (B) depends on *Participation of stakeholders* (C); *Implementation* (A) depends on *Participation of stakeholders* (C).	A transitive relation is linked by a double arrow pointing in the same direction from the source category (A) to the target category (B). A ⇉ B

Source: Elaborated by the author (2017).

The use of these formal attributes was a method adopted by the researcher to facilitate the identification of possible relations between categories that were not evident in a specific phase of the categorical integration process. The use of the transitive property supported the

identification of links between categories that were connected through a dependency type of relationship (‘depends on’), as a logical result of the relationships between three categories (AB, BC, CA).

The integration of the theory was based on thirteen direct relationships between the seven major categories. The types of relation between categories are further discussed in light of evidence from empirical data to sustain the explanation of the emerging theoretical framework. The occurrence of different types of relations between categories is summarized in Table 35.

Table 35: Relationships Between Categories

#	Source	Relation	Target	Formal Attribute
1	Financing	is a condition for	Implementation	asymmetric
2	Governance	depends on	Participation of stakeholders	transitive
3	Governance	is part of	Strategy	asymmetric
4	Implementation	depends on	Governance	transitive
5	Implementation	depends on	Joint action	transitive
6	Implementation	depends on	Participation of stakeholders	transitive
7	Implementation	leads to	Collective learning	asymmetric
8	Implementation	is part of	Strategy	asymmetric
9	Joint action	leads to	Collective learning	asymmetric
10	Participation of stakeholders	depends on	Joint action	transitive
11	Participation of stakeholders	leads to	Collective learning	asymmetric
12	Participation of stakeholders	is part of	Strategy	asymmetric
13	Strategy	is a condition for	Financing	asymmetric

Source: Elaborated by the author (2017).

The unit of analysis in grounded theory is the category (or construct) that emerges from the data. The resulting theoretical framework includes seven major units of analysis. Each category presented different types of relation and interaction with other categories. The following sections discuss the different types of relation found within each category, illustrated by examples from empirical evidence to reinforce the explanation.

5.3.1 Governance

Governance is the core category of this study and has a direct relation with two other categories: *Strategy* and *Participation of stakeholders*. *Governance* is part of *Strategy*. *Governance* and its management structure are important elements of the ENREDD+ and are considered fundamental pillars for the implementation and monitoring of REDD+ processes based on transparency and accountability. One of the objectives of the national strategy is to

integrate the REDD+ governance structure within the existing governance structures in climate change, forests, and biodiversity at the federal, state, and municipal levels. The current REDD+ governance in Brazil has a management structure that includes a national committee, an executive secretariat, three thematic advisory boards, and a technical working group.

Indeed, *Governance* depends on *Participation of stakeholders*, as per the participatory governance approach adopted to operationalize the national strategy by involving key stakeholders in the decision making and implementation processes. There are several UNFCCC decisions related to REDD+ in which recipient countries need to ensure a full and effective participation of important stakeholders, especially indigenous peoples and local communities, in the governance structure and implementation processes. The participatory process through stakeholder engagement is part of the governance approach to REDD+.

Despite the dependency relation between governance and participation of stakeholders, empirical evidence suggests that the higher the participation of stakeholders, the greater the complexity of managing the governance structure. For example, the REDD+ governance structure involves 110 stakeholders (elected or approved members). The current management structure includes the formal participation of 12 state and nonstate representatives at CONAREDD+, 90 representatives on the three thematic advisory boards, and eight representatives in the technical working group.

Some complain about the under-representation of civil society, indigenous peoples, traditional communities, and the private sector in the governance structure. Others disagree by explaining that there is no other interministerial commission or committee in Brazil with this level of participation of nonstate actors as civil society, indigenous peoples, and traditional communities usually do not take part in deliberative instances similar to CONAREDD+.

This study suggests that this level of stakeholder participation in the implementation of a public policy that relies on actors with different ideologies, positions, and interests, such as the case of REDD+, is very challenging and time-consuming. In a certain way, the political power game in place between key stakeholders and the national government seems to be unproductive, resulting in delays in operationalizing the national strategy.

5.3.2 Strategy

Strategy, as one of the units of analysis of this study, refers to ENREDD+ established in 2015, a top-down approach to the policy-making process. The category *Strategy* is a condition for *Financing*, because recipient countries are required to have a national strategy or action plan in order to access results-based payments in REDD+ under the UNFCCC regime. In fact, it is an eligibility criteria.

Some policy makers pointed out that the performance-based approach to REDD+ is a paradigm shift in international climate finance. International agreements for the environmental and climate change used to be focused on traditional official development assistance, based on the project scale approach. REDD+ has emerged as an innovative and breakthrough mechanism which gives considerable power and ownership to the recipient country because the investment and allocation of financial resource is a national decision and no longer controlled by donor countries.

This context explains why having a strategy or action plan for REDD+ a priori is a condition imposed by donor countries through UNFCCC decisions for a country to be eligible to access results-based payments at the national level. Donors want to know a priori whether the recipient country has a strategy on how emissions will be reduced, how forest carbon stocks will be enhanced and maintained, and how the drivers of deforestation will be addressed. According to the REDD+ logic, donor countries may not decide in which activity the results-based payments will be invested or how the criteria for resource allocation or benefit sharing will be decided as these are national decisions.

The categories *Governance*, *Participation of stakeholders*, and *Implementation* are part of *Strategy* through an asymmetric relation. In these cases, *Strategy* is the target category. These relations are explained in their respective source categories following the analysis.

5.3.3 Financing

In the context of this study, the category *Financing* refers only to results-based payments in REDD+. Even though non-refundable funding not conditioned to performance and direct grants are modalities of REDD+ finance, the scope of *Financing*, as one of the units of analysis in the theoretical framework, is delimited to the performance-based approach, as per the case studied in Brazil.

Financing is a condition for *Implementation* as without financial resources the implementation of REDD+ activities is not feasible and does not take place. As pointed out by some participants, there is no private REDD+ finance domestically. Neither fiscal incentives for REDD+ nor PES mechanisms are part of public policies in Brazil. Currently, international financing is the only source for implementation of REDD+ activities.

According to the logic of REDD+, recipient countries need to have financial resources in addition to the business as usual budget because it is an incentive mechanism designed on the additionality principle to strengthen forest governance management in recipient countries by supporting innovative and scalable initiatives.

A logical implication of this analysis is based on the assumption that if the category *Strategy* is a condition for *Financing*, and *Financing* is a condition for *Implementation*, the implementation of REDD+ activities does not occur without results-based payments, and the national strategy cannot be operationalized because there is no domestic REDD+ financing.

5.3.4 Participation of stakeholders

This is a process that involves interactions of state and nonstate actors who can influence decisions or be impacted by decisions under the implementation of REDD+ activities. A full and effective participation of important stakeholders requires the design and implementation of engagement platforms through a participatory governance structure in REDD+.

There are several decisions under UNFCCC that mention the need to ensure a full and effective participation of key stakeholders in REDD+ activities. The category *Participation of stakeholders* has a direct relation with three categories: *Strategy, Joint action*, and *Collective learning*.

Participation of stakeholders is part of the *Strategy*, which is included in the participatory governance approach and management structure as established in the ENREDD+. The participatory governance structure involves key actors to collectively build the REDD+ agenda in Brazil, including guidelines for implementation, criteria for distribution of financial resources, and development of a safeguards system. A diversity of state and nonstate actors considering different genders, affiliations, and group representatives was found in the current participatory governance structure.

This study suggests that an effective and full participation of key stakeholders depends on the development of collective actions that are supposed to overcome constraints related to divergent positions and interests between actors as part of the political power game identified in the study. In light of this, *Participation of stakeholders* depends on *Joint action*. Besides the participatory governance structure at the national level, the implementation of REDD+ initiatives by lower-levels entities requires the involvement of stakeholders through joint actions.

For example, civil society organizations and subnational governments are leading the implementation of important REDD+ activities in Brazil. However, empirical results showed only few joint efforts between implementing actors (state and nonstate). As explained by a civil society participant, NGOs compete for financial resources, and, as a result, they want to have their own methodology and technology to implement REDD+ initiatives. Although some cooperation among institutions that work in the same territories was found, they usually seek articulation and synergy in specific projects to avoid overlaps.

There is a consensus between research participants that the REDD+ implementation is a highly complex process, which requires an effective involvement of different institutions and actors to address the drivers of deforestation. Besides the participatory governance structure managed by the MMA to discuss and deliberate decisions for the implementation of the national strategy, several stakeholders are involved in the development of the REDD+ agenda or affected by its implementation.

Participation of stakeholders leads to *Collective learning* because the implementation of a national approach to REDD+ is unprecedented and characterized by a learning-by-doing process that involves a diversity of institutions and actors. Collective knowledge development and knowledge sharing were found in different dimensions involving state and nonstate actors.

As pointed out before, the participatory governance approach to implement the national strategy is highly complex and challenging due to the involvement of a diversity of actors with divergent positions and interests. However, research participants argued that actors with practical knowledge of REDD+ implementation have been helping to build the REDD+ agenda and provide guidance to operationalize the ENREDD+, especially at the CONAREDD+ level.

The development of the safeguards information system is another example where several actors have been helping each other through collective knowledge development and knowledge sharing to develop inputs to support CONAREDD+ in overseeing appropriate safeguards that should be addressed and respected in the implementation of the REDD+ activities. Although the safeguards information system is still a work in progress, this study suggests that the process requires joint action and inputs from a diversity of actors. In light of this context, the participation of key stakeholders in the REDD+ management structure at the national level is leading to collective learning at a certain level through knowledge development and knowledge sharing between institutions and actors.

5.3.5 Joint action

Joint action leads to *Collective learning* category because different institutions and actors at all levels are expected to work together and learn from each other in light of the policy making and implementation processes. Indeed, joint efforts facilitate the development of collective knowledge, information sharing, exchange of experiences, and revision or improvement of implementation strategies in light of what works or not on the ground. Empirical evidence showed several dimensions that explain what motivates different actors, groups, networks, or coalitions to work together in REDD+.

For example, joint action leading to collective learning was found in a civil society organization network. As explained by a civil society participant, BNDES has a discretionary approach to evaluate proposals submitted by civil society organizations to the Amazon Fund. NGOs had perceived the need to learn from each other's experience on how to strengthen their positions during negotiations with the Amazon Fund team, based on what has worked or not in practice. Even though NGOs compete for the Amazon Fund's non-refundable funds, they have been working together to find ways to overcome barriers and increase the chances of having their project proposals approved. Proposing entities have been learning from each other and collectively developing knowledge on how to be more effective in writing proposals and negotiating with the BNDES. A leading NGO has organized workshops with groups of NGOs to develop capacity building and exchange experiences about the BNDES discretionary processes and procedures.

5.3.6 Implementation

The category *Implementation* has a direct relation with five categories: *Governance*, *Joint action*, *Participation of stakeholders*, *Collective learning*, and *Strategy*. Transitive relations were found between *Implementation* and two groups of categories. In the same way *Implementation* depends on *Governance* and *Participation of stakeholders*, Governance also depends on *Participation of Stakeholders*. In another situation, *Implementation* depends on *Participation of stakeholders* and *Joint action*, so *Participation of stakeholders* depends on *Joint action*.

As previously explained, the use of the transitive property was a method adopted by the researcher to facilitate the identification of possible relations between categories that were not evident. Empirical results suggested that links between categories connected through a dependency type of relationship ('depends on') are transitive as a logical result of the relationships between a specific set of categories (AB, BC, CA). These relationships between categories are described below.

Implementation has a dependency type of relation with *Governance*, *Participation of stakeholders*, and *Joint action*. The implementation of REDD+ activities does not occur without elements from these three target categories. *Implementation* depends on *Governance.* The implementation of the national approach to REDD+ is a highly complex process that requires a transparent and reliable governance to set the rules, procedures, and guidance for implementation and establish power relations.

As mentioned before, the implementation of the national strategy for REDD+ is a highly complex process and requires the involvement of several state and nonstate actors at all levels, especially considering that Brazil has been moving from a subnational to a national approach to REDD+ since 2015. In this sense, *Implementation* depends on *Participation of stakeholders,* without whom the federal government cannot implement the national strategy by itself due to the complexity of the process as per the mix of top-down and bottom-up approaches adopted in the policy making and implementation process.

The implementation of REDD+ at the national level depends on a formal governance structure based on a multi stakeholder approach as per the complexity of the process and commitments assumed by Brazil in the national strategy to comply with UNFCCC decisions and requirements. Networks and coalitions of nonstate actors have been very active in contributing to the implementation process despite the political power game between important actors and groups due to divergent positions and interests such as the criteria for

allocation of resources and limits for decentralized fundraising strategy between national and subnational governments.

The implementation of REDD+ activities is multi-sectorial and involves different agendas that should be integrated. In light of this, *Implementation* depends on *Joint action* aiming at synergy and collective efforts. Discretion has been granted to lower-level entities to implement REDD+ activities as a result of their practical knowledge and capacity. This implementation depends on joint actions between the Amazonian states, responsible for the execution of the public policy and implementation of REDD+ activities at the subnational level and coordination at the municipal level, and national agencies such as IBAMA and FUNAI, also responsible for policy implementation. BNDES is the financial executor of REDD+ results-based payments at the national level. Civil society entities are key stakeholders necessary for the implementation of REDD+ activities as per their technical knowledge and work with local communities. Effective participation of indigenous peoples and traditional communities are also necessary in the design of experiments and implementation. All these stakeholders must be involved in the implementation of REDD+ activities through joint efforts.

All civil society participants have argued about many conflicting points with the federal government, especially in order to rectify the underrepresentation of civil society, including indigenous peoples and traditional communities, and the private sector at CONAREDD+, and secondly, the lack of openness to discuss the national strategy and offsettings in REDD+. On the other hand, policy making participants at the national level pointed out how challenging and time-consuming managing a participatory governance structure in REDD+ has been due to the political power game taking place, resulting from the consensus approach adopted at CONAREDD+ and the high number of participants on the three thematic advisory boards (about ninety representatives).

Implementation also leads to *Collective learning* as per the experimentalist approach in REDD+. The implementation of REDD+ at the national level is considered a one-size-does-not-fit-all approach because it depends on national circumstances and capacity. In this sense, the Brazilian case is a unique experiment in which processes have been established, and initiatives have been implemented through a learning-by-doing approach. REDD+ implementation provides on the ground experience about what works or not in practice. In some cases, a recursive learning system was noticed in light of the experience of what has worked or not in practice.

This is the case of the Amazon Fund, which was created from scratch in 2008 and has been gradually improving its performance. Its learning curve has been taking more time than expected by both state and nonstate actors. Some justify the low capacity of execution of the BNDES's bureaucratic processes and its governance structure. Others have pointed out the lack of qualified proposing institutions and proposals received by BNDES. What seems to be evident through empirical evidence is that the Amazon Fund's low capacity of execution is also caused by the low capacity of execution of its implementing partners, especially subnational governments as the approved projects have a timetable of planned activities in which disbursements are made according to the execution of specific programmed phases. As of May 2017, most of the projects executed by state actors (national agencies, state foundations, subnational and local governments) had been delayed.

Implementation is part of *Strategy*. Implementation was identified as a key element of Brazil's National REDD+ Strategy, in which guidelines and institutional arrangements for implementation were established, including the different roles played by institutions and management bodies involved in the operationalization of the strategy. Indeed, the national strategy defined the implementation period through a detailed timetable with planned activities for the 2015-2020 period.

5.3.7 Collective learning

Collective learning was the only category that did not initiate any relationship as a source category though it does have a direct relationship with three others as a target category. The categories *Participation of stakeholders*, *Joint action*, and *Implementation* have a direct 'leads to' type of relation with *Collective learning*. The development of collective learning in REDD+ relies on the lessons learned from diverse state and nonstate actors during the policy making and implementation process. Key stakeholders are involved in and/or are impacted during the implementation of REDD+ initiatives through joint actions. These actions-interactions between actors and groups at different levels in the policy arena and during implementation lead to individual and collective knowledge development.

This study suggests that REDD+ activities in Brazil have been based on a learning-by-doing approach due to the complexity of implementing such an unprecedented mechanism and governance process. Therefore, it seems that actors and groups have been learning from each other when necessary and convenient. Lessons learned from ground experience are not always shared between actors, and neither do they feed a recursive learning system as is

expected in the implementation of a highly complex mechanism that involves various different state and nonstate actors at all levels.

Empirical evidence indicates that the national government has not incorporated into ENREDD+ significant lessons learned by subnational governments within the implementation of jurisdictional REDD+ programs such as the case of Acre, which has the most advanced REDD+ experiment at the subnational level in Brazil and is considered by many to be the most important jurisdictional REDD+ program in the world. In Acre's experience, REDD+ has been integrated into a sustainable development and conservation policy framework as a complementary mechanism to reinforce ongoing payments for environmental service initiatives. A legal framework was established a priori, and REDD+ was incorporated into the so called Environmental Services Incentive System (SISA in the Portuguese acronym).

On the other hand, subnational governments have used their autonomy to implement jurisdictional programs in the absence of a national legal framework as per the decentralized forest governance and policy implementation in Brazil, and have not considered the transition from a jurisdictional to a national approach to REDD+. Jurisdictional REDD+ programs and local projects, including pilot experiments and demonstration activities, were implemented in Brazil before the establishment of the international and national legal frameworks for REDD+.

Findings suggest that neither the national nor the subnational levels have had joint technical meetings to discuss or influence the design of the national strategy or a regime for REDD+, based on the lessons learned from what has worked or not in practice, and only political meetings between governors and ministers, and state secretaries and ministers have been held in recent years. The lack of knowledge sharing between actors and groups at all levels may have encouraged the political power game, increasing the challenge for the national government to move from a subnational to a national approach to REDD+ in Brazil.

The implementation of REDD+ activities by lower-level entities resulted in individual and collective knowledge development. However, the study identified the fact that Brazil does not have institutional arrangements in which the knowledge generated by state and nonstate entities about success and failures during implementation under different circumstances could be systematically used to improve the effectiveness of the policy-making process through a recursive learning system.

This study has brought to light some interesting cases that demonstrated how powerful collective learning and knowledge sharing among actors and groups with different aims but the same ends can be. For example, the case already mentioned in this section on the network

of civil society entities that have been learning from each other about the BNDES discretionary process to approve proposals. Knowledge sharing between these entities has been improving their bargaining and negotiation power within BNDES in order to access financial resources from the Amazon Fund. This is a successful case of a recursive learning system to improve efficiency and effectiveness in a given process related to REDD+ where different organizations are learning from each other and improving their performance.

The Amazon Fund is another case where individual knowledge has been generated by lower-level entities during implementation, but BNDES does not have institutional arrangements to potentialize the development of collective learning and promote knowledge sharing among implementing partners (national agencies, subnational and local governments, and civil society organizations) to improve the program's performance. The Amazon Fund is still in its first cycle with a low execution capacity. As of July 2017, the Amazon Fund had disbursed to implementing partners only 26% from the total amount of USD 1.1 million received by donors (Amazon Fund, 2017a, August 26; Amazon Fund, 2017b, August 26).

Initially, the Fund was idealized as an instrument to catalyze innovative processes, but it ended up being designed by the BNDES as a project counter, which resulted in a portfolio with several projects supported in areas that are not necessary in line with the priorities to address the deforestation problem in Brazil. During the first years of implementation, projects were approved by BNDES if they were considered robust and attended the fund's criteria. The Fund's performance has been improving over the years through contributions from experts on the advisory committee, the German technical assistance, capacity building, and the internal learning curve within BNDES team. However, some governance issues and the BNDES bureaucratic processes persist as major causes of the Amazon Fund's poor performance. Research findings suggest that this is also related to the low execution capacity of implementing partners, especially subnational and local governments as most of the projects that have been implemented by state actors have been delayed.

At the international level, the Brazilian experience in REDD+ has significantly helped other recipient countries through technology transfer and knowledge sharing. For example, Brazil is transferring its forest monitoring system technology to certain developing countries through South-South Cooperation. Indeed, evidence on knowledge spillover, such as the case of the Democratic Republic of Congo's national REDD+ fund that was designed and implemented based on the Brazilian Amazon Fund experiment was found.

In summary, collective learning relies on actions-interactions between actors and groups during implementation.

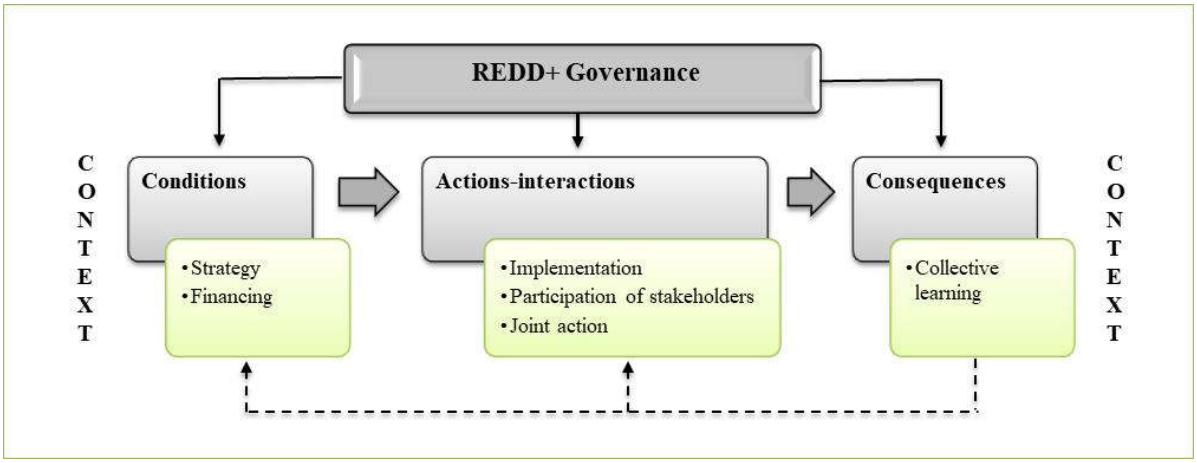
5.4 The Substantive Theory

The intention of this section is to provide a narrative description of the emerging substantive theory. The detailed development of the categories and the careful explanation of how they are related to each other, based on rigorous data analysis through theoretical sampling and constant comparison, resulted in the substantive theory called 'REDD+ Governance Theoretical Framework', which is applied to the specific phenomenon studied in Brazil.

REDD+ governance emerged in this study as a complex and interactive process with no clear beginning or end. Governance, the core phenomenon of the study, and related categories, are linked to each other through a complex web of relations that explained how REDD+ governance process takes place in Brazil.

The paradigmatic classifications recommended by Corbin and Strauss (2015) were used in the diagram below that represents the theory. Actions-interactions in the REDD+ governance process are linked to conditions and related to consequences that are surrounded by the context. The relationships between categories explain the phenomenon. The substantive theory is represented in Figure 12.

Figure 12: The REDD+ Governance Theoretical Framework



Source: Elaborated by the author (2017).

The context of the phenomenon, which is related to country circumstances, influences the dynamics of the governance process. REDD+ governance is an ongoing managerial process that includes a web of conditions and consequences that result from actions-interaction between actors and groups at different levels. According to Corbin and Strauss

(2015), process "represents the rhythm as well the changing and repetitive forms of action-interaction plus the pauses and interruptions that occur when persons act and interact for the purpose of reaching a goal or solving a problem" (p. 172).

The discovered conceptual framework suggests that *Strategy* and *Financing* are the conditions to implement REDD+. Recipient countries are required to establish a REDD+ strategy or action plan as one of the UNFCCC's requirements for a developing country to be eligible to access results-based payments under the regime. The availability of financial resources, in addition to the business as usual national budget, is also a condition for a developing country to implement REDD+ activities.

The process requires actions-interactions between actors and groups during policy making and *Implementation* processes through the *Participation of stakeholders* and *Joint actions*. *Collective learning* is the outcome or expected result from these actions-interactions, which is a consequence of the *Governance* process. Indeed, *Collective learning* is supposed to be the output in the feedback system. Lessons learned from success and failures during implementation are inputs to feed a recursive leaning system that aims at improving the efficiency and effectiveness of the policy making and implementation process through a learning-by-doing approach.

6 DISCUSSION OF RESULTS

The purpose of this study was to understand the governance process to implement a national approach for REDD+ in Brazil. Grounded theory methodology was used to understand a real-word problem through the lens of the paradigm model (conditions, actions-interactions, and consequences). The REDD+ Governance Theoretical Framework emerged from the data.

The intention of this chapter is not to present an extensive literature review to individually discuss all the categories and subcategories that emerged in the theoretical framework. Instead, elements of the REDD+ conceptual framework are discussed in light of the existing literature to reinforce major research findings, which are presented in the following section. In the last section the REDD+ conceptual framework is discussed and compared to the experimentalist governance theory.

6.1 Discussion of the Substantive Theory

The literature on REDD+ governance is incipient, and the current scientific production is insufficient to explain how the governance process to operationalize a REDD+ strategy takes place at the national level. REDD+ governance was identified as a complex, non-linear, interactive process in which human actions-interactions at different levels are linked to conditions and related to consequences. International and national legal frameworks have been guiding the governance process through a participatory governance structure with a mix of top-down and bottom-up approaches for policy implementation. Indeed, the governance process involves decisions, power relations, institutional arrangements, policy and measures, framework goals and metrics, and management of financial resources received from donors.

This conceptualization of the REDD+ governance is consistent with the World Bank (2017) definition of governance, which emphasizes the important role of policy makers and nonstate actors across levels to design and implement policies. The design of the REDD+ governance structure in Brazil is based on a complex network of actors through a multi-stakeholder approach for decision making and implementation.

Forsyth (2009) argues that “governance is the act or manner of governing. Inclusive and transparent governance allows stakeholders to participate in formulating and implementing policy” (p. 113). This study suggests that the involvement of multiple stakeholders through a participatory governance process to implement the national strategy is

necessary and should reduce potential conflicts between actors and increase effectiveness. However, the process has been time-consuming and challenging due to the need for vertical integration across different levels and horizontal integration across sectors.

These findings are corroborated by Pahl-Wostl (2009), who argues in favor of the need for vertical and horizontal coordination to implement REDD+. This study suggests that vertical integration has been a challenging process for the national government in Brazil and has been permeated by a number of conflicts and disagreements between actors. Indeed, the lack of consensus even at the national level shows the challenges faced by the MMA to build a coalition around ministries and subnational governments.

The process to implement the national strategy in Brazil, moving from a jurisdictional to a national approach, has been challenging due to conflicts, disagreements about offsettings in REDD+, criteria for allocation of resources, and benefit sharing, to cite just some of the difficulties. It is interesting to note that most of the conflicts and lack of consensus between actors in the REDD+ policy arena is related to financial incentives.

Despite these difficulties, existing literature about REDD+ discusses the benefits of a multilevel and participatory governance (Corbera et al., 2010; Cronkleton et al., 2011; Forsyth, 2009; Korhonen-Kurki et al., 2012; Phelps et al., 2010; Vatn & Angelsen, 2009) in which different actors may influence each other throughout the process (Corbera & Schroeder, 2011).

Fatorelli, Gebara, May, Zhang, and Gregorio (2015) point out some of the challenges for coordinating the REDD+ governance in Brazil, including divergences between government levels, civil society, and the private sector. The absence of the private sector in the REDD+ policy arena is critical as this area contains main actors behind deforestation in the Amazon. Despite the lack of effective coordination in the governance process, the implementation of REDD+ is still an evolving experiment to address deforestation and forest degradation and cannot be considered a panacea. An effective coordination in REDD+ would come from joint actions between government and civil society, together with an effective engagement of actors from the private sector.

This study suggests that consensus and coordination may come from coalitions between different actors and groups, or even inside actor groups in REDD+, especially from the CONAREDD+ level. This is corroborated by Brockhaus and Angelsen (2012), who state that “coalition building among different actors leverages political power to realize interests. Which interest wins is often a result of a combination of economic and political power. However, coalition building is hampered since these interests are often conflicting or have

tradeoffs" (p. 22). At the same time, these divergences could be a foundation for transformational changes in REDD+.

The improvement in REDD+ coordination, which leads to transformational changes, may depend upon the existence of a learning process. Given the complex nature of governance systems, Pahl-Wostl (2009) discusses the dynamics of governance regimes as learning processes in which the coordination of joint actions improve activities. According to his theory, a more flexible governance based on an interactive system brings a higher adaptive capacity in natural resource management. Research findings suggest that the multi-level governance system in REDD+ needs an innovative process to promote interactions through horizontal and vertical coordination.

Pahl-Wostl (2009) proposes three processes to remove barriers and improve vertical coordination of governance levels: 1) the participation of actors at one level (e.g. subnational level) in decisions at another level (e.g. national level); 2) the participation of actors in the policy-making process that also influences them; and 3) institutions at one level influencing process at another level (p. 358). Research findings indicate that the participatory governance structure in REDD+ involves lower levels in decision making processes at the national level through CONAREDD+, in which deliberations influence state and nonstate actors that are involved in or may be impacted by REDD+ activities.

Government alone cannot solve the complexity and uncertainty of earth system governance (Biermann, 2007) or deforestation and forest degradation. The participation of civil society entities in the construction and implementation of the national strategy is important to achieve positive policy outcomes coherent with UNFCCC guidelines for a participatory strategy in REDD+ (Gebara et al., 2014). However, the inclusion of nonstate actors requires transparent, effective, and fair mechanisms (Biermann, 2007).

REDD+ multilevel governance was identified in this study as one of the major challenges faced by policy makers at the national level, especially related to managing conflicting interests across government levels, civil society entities, indigenous peoples, and traditional communities. As explained by Korhonen-Kurki et al. (2012), "information and incentives are the two main currencies in the complex REDD+ world relating back to the differences in power relations among the actors who control them" (p. 109). Establishing a set of criteria for the allocation of resources and a decentralized fundraising strategy has been a central issue in the political power game in Brazil.

There are various interesting discussions on the implications of REDD+ in forest governance. Some point out that the implementation of REDD+ could reverse the trend of decentralization due to international requirements for accounting and managing REDD+ results-based payments at the national level, leading to a limited involvement of actors at the subnational and local levels (Phelps et al., 2010; Vijge, Brockhaus, Di Gregorio, & Muharrom, 2016).

Research findings do not corroborate with those views as the Brazilian government does not intent to reverse the decentralization of forest governance. Brazil has been undergoing a decentralization process in forest governance since 2004. Subnational governments in the Amazon are considered key actors to implement REDD+ activities by the national government due to the decentralization of the forest governance in which the subnational level has the ownership of land and natural resources management in Brazil (Korhonen-Kurki et al., 2012), including policy implementation and command and control activities.

This study points out that the national government has centralized some of the REDD+ elements such as forest cover monitoring, which includes the MRV system, and the safeguards systems, with a decentralized implementation and fundraising strategy. Subnational governments and designated entities may be eligible to receive results-based payments according to a set of criteria and limits on allocation of resources determined by CONAREDD+. Based on eligibility criteria, these actors are empowered to implement initiatives at state and local levels as Brazil does not intend to recentralize forest governance and policy implementation.

REDD+ is based on a mix of top-down and bottom-up approaches to the policy-making and implementation processes. Despite the decentralization of some REDD+ elements, Brazil adopted a national approach to establish the REDD+ strategy in 2015. The national government does not recognize any initiative that is not under the Amazon Fund umbrella or has not been approved by the CONARED+ in order to maintain the centrality and accountability of the process and to avoid double counting. Donor countries and private foundations have financed some REDD+ experiments at the subnational and local levels that are not accountable to the national government, and this has resulted in a fragmented institutional environment.

These findings are corroborated by Davis and Daviet (2010), who argue for the need to improve coordination and coherence at the international level through the centralization of REDD+ at country level. The fragmentation of REDD+ financing might compromise the

capacity of recipient countries to effectively manage the resources. A more effective coordination would come from results-based payments focused on national and subnational capacities in consonance with a country-led REDD+ approach.

Another important research finding is the uniqueness of REDD+ as the policy-making and implementation of activities are highly dependent upon country circumstances and capacities in a similar way to the governance process. The implementation of REDD+ is considered a 'one-size-does-not-fit-all' approach. Actions-interactions are based on local needs, land use practices, the rights of indigenous peoples and traditional communities, and the economic development approach adopted by the developing country.

Corbera, Estrada, May, Navarro, and Pacheco (2011) corroborate with these findings as the legitimacy and effectiveness of REDD+ policies and measures depend upon the different forest tenure regimes and how different communities exercise their rights. Different contexts require specific actions and responses to land use change and the use of forest resources.

Some others agree by pointing out that there is not a single top-down approach to REDD+ given the diversity of actors involved and national circumstances. As a result, a one-size-fits-all approach does not work in REDD+ because policy making and implementation are complex processes and specific to local contexts (Agrawal & Angelsen, 2009; Angelsen, 2009; Visseren-Hamakers, Gupta, Herold, Pena-Claros, & Vijge 2012). However, this study suggests that some of the REDD+ elements and management processes implemented in Brazil such as the Brazilian forest monitoring system, coordinated by the INPE, and the carbon accounting method would fit other developing countries.

Peskett et al., (2011) argue for the diversity of institutional arrangements and approaches in REDD+ even in initiatives with similar aims and in the same institutional contexts. This is corroborated by research findings in which the REDD+ experiments in Brazil were designed according to local requirements, circumstances, and the capacity of the implementing agent.

Indeed, a complex network of stakeholders is involved in the design and implementation of REDD+ experiments. The policy-making process is centered at the national level, with some participation of important stakeholders. Lower-level agents, including state and municipal governments, policy implementing agencies, civil society organizations, indigenous peoples and local communities, are responsible or involved in the implementation of the national strategy.

Stakeholder engagement, including information sharing, consultation, participation, and joint decision making, was found to be a critical process in REDD+. According to Gebara et al. (2014) each group of actors has its own agenda in REDD+. While environmental NGOs are concerned about the drivers of deforestation and fomenting sustainable development initiatives, indigenous peoples and traditional communities fight to protect their land rights and natural resources. The agribusiness, which has not been effectively involved in REDD+ governance, avoids any risks related to legal rights of its private lands. Subnational governments demand a jurisdictional REDD+ approach, carbon rights, and their autonomy to carry out programs.

This study suggests that most of the actors involved in the governance process want to prioritize the establishment of criteria for the allocation of resources and benefit sharing. However, Gebara et al. (2014) point out that the lack of coordination and consensus among actors and groups is a major constraint in REDD+.

Research findings indicate that the greater the participation of different actors and groups, the greater the complexity to manage the governance process at the national level. This situation is corroborated by Olson (1971), in light of the theory of groups in which "groups with larger number of members will generally perform less efficiently than groups with smaller numbers of members" (p. 28).

Even though all civil society participants discussed their under-representativeness in the REDD+ policy arena, some instances in the governance structure seemed to be inclusive, as in the case of the thematic advisory boards at the national level, with a large number of participants – about 90 representatives from government, civil society, indigenous peoples, traditional communities, academia, and the private sector. It seems that when some civil society participants argue for more participation, this means they want more influence on the decision making process. This was found to be a major point of conflict between state and nonstate actors as the national government owns the policy-making process in REDD+.

Furthermore, according to Olson (1971), group-oriented actions are specific to circumstances in which group size is one of the determining factors that allow individual interests to influence group-oriented behaviors as small groups tend to be more effective in furthering their common interests than larger groups. This has been observed in some instances at the CONAREDD+ and thematic advisory boards, especially in relation to the challenges to reach a consensus at CONAREDD+.

Brockhaus and Angelsen (2012) point out that interests in the REDD+ policy arena refer to material interests such as economic benefits, which are negotiated by different actors

in the policy-making process horizontally (among ministries), and vertically (among civil society entities, project developers). The economic incentives and potential opportunities REDD+ can provide have changed the power relations between key stakeholders, resulting in difficulties to implement a focused REDD+ agenda.

This is corroborated in the study. Empirical evidence indicates that major conflicts and divergences between actors are also motivated by controversial estimates on the potential financial flow of results-based payments in REDD+ from international donor countries such as the GCF and the promising Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Research findings suggest that REDD+ was positioned by a group of civil society entities and project developers as the panacea for deforestation and forest degradation related problems, reinforced with the dissemination of studies based on unrealistic estimates (considered by some) of billions of dollars that Brazil would be eligible to receive according to its mitigation results. This discussion may have negatively contributed to the governance process in Brazil and makes structural changes even more difficult in the REDD+ policy arena due to divergent interests and lack of cohesion between groups.

Group consensus is another aspect discussed by Olson (1971) to determine group action or group cohesion. The lack of consensus interferes in group-oriented actions. A perfect consensus on the motivation to reach a collective good and the means of pursuing it do not lead always to the accomplishment of the group goal. Indeed, in a large group, the achievement of collective goals through the rational and voluntary action of its members, even in a situation of perfect consensus, is usually not expected as in the real world consensus is often incomplete. According to Olson, it is very important to understand whether the barriers of group-oriented actions originate from the lack of consensus or the lack of individual incentives even though financial incentives are not the only incentives.

These assumptions corroborated with some interesting research findings. First, the participatory governance structure adopted by Brazil is required to implement highly complex activities, even with all the divergent positions and interests in the realm of REDD+. The inclusion of nonstate actors in the REDD+ decision making process has been a major challenge as the process is still experimental, considering that CONAREDD+ is the only instance at the national level with such a level of participation of nonstate actors in Brazil. Even though a perfect consensus may not be reached in all decisions, the mix of top-down and bottom-up approaches adopted in the policy-making process will probably further the implementation of the national strategy.

Second, the study indicates that the lack of individual incentives has been a major obstacle to operationalize the national strategy for REDD+. For example, empirical evidence shows that the criteria for the allocation of resources, recently approved by the CONAREDD+, to place on limits on the national and subnational governments' fundraising results-based payments in REDD+ is still a major point of conflicts. The governors of the Amazonian states did not agree with the criteria approved by the CONAREDD+ and are pressing the Minister of the Environment to review the decision. This represents the political power game identified in the study. CONAREDD+ is the ultimate REDD+ instance at the national level, and any decision should not be reviewed in situations under political pressures.

Olson's (1971) main argument of collective action theory is that "large or latent groups will not organize for coordinated action merely because, as a group, they have a reason for doing so" (p. 65), and actors' positions are very related to their own group's interest.

Another important aspect that emerged in this study is the collective knowledge developed within the governance process. As per the complexity of REDD+, collective actions are required to implement activities through actions-interactions between actors and groups at different levels. The REDD+ governance process in Brazil is based on multilevel interactions through horizontal and vertical coordination. Research findings evidenced specific situations where knowledge exchange and technology transfer occurred between formal and informal groups.

For example, the South-South cooperation focused on technology transfer of the Brazilian forest monitoring system to some developing countries is a case of a learning process between formal groups – coalition of countries. Another example is the GCF Task Force, a coalition of subnational governments to strengthen jurisdictional REDD+ programs. Learning processes were also found in informal groups of NGOs in Brazil aiming at strengthening their positions to influence the REDD+ policy process and the BNDES discretionary approval process in the Amazon Fund.

However, formal and informal knowledge exchange between actors and groups was found as isolated cases, indicating the lack of an institutionalized learning process in the REDD+ governance. As pointed out by Pahl-Wostl (2009), formalized knowledge exchange processes across levels is an indicator of learning processes that aim at improvements in the planning processes based on a flexible governance structure and a balanced mix of bottom-up and top-down approaches.

Even though REDD+ governance in Brazil is based on a mix of top-down and bottom-up approaches, with a significant level of stakeholder participation in the policy arena, the process is characterized by lower levels of collective learning. A stronger level of stakeholder participation in the policy-making process could bring more effectiveness to governance (Pahl-Wostl, 2009) as the implementation of REDD+ is carried out by lower-level entities. However, the study suggests that a higher level of stakeholder participation would make the management of the governance structure in Brazil even more complex.

Research findings suggest that though certain important groups of stakeholders are under-represented in the governance structure, the major problem of these stakeholders is the lack of technical knowledge of REDD+ to make a serious contribution to the process. This is the case of the indigenous peoples and traditional communities, two critical stakeholders that are involved in or impacted by REDD+ activities. These stakeholders were found in a minority situation in CONAREDD+. Their participation is considered symbolic in the REDD+ governance structure by some because they are unable to effectively contribute to the policy-making and governance processes as they do not have technical capacity to understand the national and international legal frameworks and technical aspects involved in the implementation of activities, including controversial issues such as market mechanisms for REDD+.

Pahl-Wostl (2009) argues that the involvement of stakeholders in the design of formal institutions in governance regimes is an approach to improve compliance and performance. However, "this may come at the expense of decreased efficiency since participatory processes are resource consuming" (p. 357). This study suggests that Brazil has not yet found an appropriate balance for its REDD+ participatory governance structure. Nonstate actors complain about their under-representation. On the other hand, the federal government has been challenged to deal with the current level of stakeholder participation, considered unprecedented by some at the national level. But on the negative side, research findings indicate that the participatory governance structure in REED+ has been resource consuming.

6.2 Experimentalist Governance Theory

The main purpose of the grounded theory method is to develop a theoretical explanatory framework for a specific phenomenon. According to Corbin and Strauss (2015), "once analysis has been completed, it makes sense for researchers to compare their theories to

established theories for similarities and differences to be able to locate their theories within the large body of professional theoretical knowledge" (p. 52).

This section intends to discuss the experimentalist governance theory in light of the REDD+ Governance Theoretical Framework that emerged in this study. The experimentalist governance theory (Sabel & Zeitlin, 2008) has been applied across a wide range of policy domains and has recently been applied to climate change (Sabel & Victor, 2015). The theoretical framework that emerged in this study is only applied to the REDD+ governance process in Brazil.

The experimentalist governance theory was proposed by Sabel and Zeitlin (2008) as a conceptual framework to guide research on the rule-making process in the EU through joint actions between EU institutions and member states, in consultation with key civil society actors (Zeitlin, 2016). The intention was to advance an innovative interpretation of EU governance and understand how state actors solved highly complex governance problems by involving different stakeholders in a learning-by-doing process.

The innovative interpretation of the EU governance (Eckert & Börzel, 2012) emerged from the perspective that the new integrated regulatory system remains in a recursive process of framework goals and revision established by the Member States and EU institutions in different areas (Sabel & Zeitlin, 2008; 2010).

An interdisciplinary group of European and North American political scientists and legal scholars, influenced by Sabel and Zeitlin's understanding of the experimentalist governance, explored the applicability of the theoretical framework across a broad range of policy domains in the EU (Eckert & Börzel, 2012), including data privacy (Newman, 2010), financial market (Posner, 2010), energy (Eberlein, 2010), competition (Svetiev, 2010), food safety (Vos, 2010), genetically modified organisms (Dąbrowska, 2010), environmental protection (Von Homeyer, 2010), anti-discrimination (Búrca, 2010), fundamental rights (Schutter, 2010), justice and home affairs (Monar, 2010), and external relations (Tulmets, 2010). These studies aimed at explaining how fragmented governance schemes were addressing highly complex problems of policy coordination of in situation under uncertainty (Burca, Keohane, & Sabel, 2013).

Experimentalist governance is an interactive process that combines existing mechanisms of top-down regulation with a multi-level architecture based on four elements: 1) setting broad framework goals and metrics; 2) discretion granted to lower-level units during implementation; 3) regular reporting, monitoring and peer review of results; and 4) recursive revision of goals, metrics, and procedures in light of the implementation experience. Different

institutional arrangements are needed to operationalize these four elements. For example, the revision of goals in light of the results can be established through a peer review process to compare the differences in terms of the effectiveness of the implementation of initiatives at national and subnational levels or between state and nonstate actors (Sabel & Zeitlin, 2008).

Experimentalist governance takes place when actors work together in a variety of ways to address a problem in a situation of uncertainty, and a recursive peer review improves policy implementation through revised goals, in light of solutions that work in practice and have the potential for scale. Higher levels responsible for coordination interact with lower-levels responsible for local implementation and learn from each other. This problem-solving approach is based on joint actions by involving different actors across levels, who have local and practical knowledge (Sabel & Victor, 2015; Sabel & Zeitlin, 2008).

Sabel and Victor (2015) argue that the experimentalist governance theory can be applied to climate change, in the context of global environmental governance, to solve mitigation problems towards effective cooperation through joint exploration of experimentation and learning by state and nonstate actors. In light of this, the implementation of REDD+ could be characterized as an experimentalist governance case in climate change, considering the uncertainty about addressing the daunting problem of emissions from deforestation and forest degradation in developing countries, which are major climate problems. The experimentalist governance approach could work in REDD+ if supported by actors and groups who are willing to work together and learn from the diversity of experiments through peer review processes to solve the problem and revision of goals in light of the experimentation.

REDD+ in Brazil is rooted in a fragmented governance scheme through the decentralization of forest governance that aims to address highly complex problems of policy coordination in a situation of uncertainty, where all stakeholders agree on the daunting problems related to land use changes but do not have an effective universal solution for them. This justifies a specific discussion of the emerging REDD+ governance theory in light of the experimentalist governance theory in order to enlighten research findings.

In both governance systems, framework goals and metrics are established a priori. In REDD+ goals are not provisional since they are established through legal instruments and national plans, such as the National Policy on Climate Change, the Forest Code, Brazil's NDC (Paris Agreement), and the ENREDD+. Results in REDD+ are forest-related emission reductions and the enhancement of carbon stocks through the implementation of policies and measures. Brazil has a centralized MRV system to report results, which are technically

assessed by UNFCCC experts before being made them available to potential donors.

Similarities and differences were found between the REDD+ governance process in Brazil when compared to the experimentalist governance in the EU, as summarized in Table 36.

Table 36: Comparison – Experimentalist Governance and REDD+ Governance

Elements	Experimentalist Governance in the EU	REDD+ Governance in Brazil
Framework goals and metrics	- They are provisional, and established by joint actions of the Member States and EU institutions	- They are not provisional. Goals are established by the national government through legal instruments and national plans. Metrics in REDD+ are verified emission reductions based on the FREL, which is a benchmark to assess results (emission reductions and enhancement of carbon stocks)
	- Deliberative decision making is driven by the discussion and elaboration of difference	- Deliberative decision making is driven by a consensus approach at the CONAREDD+
Implementation by lower-level units	- Decentralized local implementation with centralized coordination	- Decentralized local implementation with centralized coordination
	- Implementation by national ministries, regulatory agencies, subnational governments, and actors with whom they collaborate	- Implementation by government at all levels, policy implementing agencies, civil society entities, indigenous peoples' organizations
Reporting and monitoring	Lower level entities report regularly on performance-based on agreed indicators, with a peer review process in which results are compared with others	National forest monitoring, including MRV system of REDD+ results centralized at the national level. UNFCCC experts conduct technical assessments of country results
Revision of goals in light of results	Goals are periodically revised for a full and fair deliberation	Not specified

Source: Experimentalist governance: adapted from Sabel and Zeitlin (2008, 2012); REDD+ governance: elaborated by the author (2017).

In the case of the experimentalist governance, broad framework goals are formulated at the national level and cascaded to subnational level and actors involved in the implementation. Lower-level units are authorized or obliged to contextualize these framework goals in locally applying norms and practices. They have considerable autonomy in achieving the established goals (Burca, Keohane, & Sabel, 2013; Eckert & Börzel, 2012).

A decentralized approach for implementation with centralized coordination was identified in both cases. Autonomy is given to lower-level entities during implementation since they periodically monitor and report results and outcomes based on agreed indicators. In REDD+ governance in Brazil, the government at the national level is responsible for the national strategy, policies, measures, benchmarks, and safeguard systems while lower-level entities (policy implementing agencies, subnational and local governments, and civil society

organizations) are responsible for implementation with the participation of local communities, indigenous peoples, and other important stakeholders.

In the case of the experimentalist governance, national ministries, subnational governments, regulatory agencies, and actors with whom they collaborate are the lower-level units responsible for implementation, under a centralized coordination. Implementation involves new findings, novelty, and gridlocks. Questions may be raised by lower levels about the agreed framework and expected outcomes, although they may be uncertain about how to achieve the goals. The multi-level architecture in the experimentalist governance is justified by the fact that lower-level agents influence the decision making because they are part of the problem-solving process (Burca, Keohane, & Sabel, 2013; Sabel & Zeitlin, 2008; Sabel & Victor, 2015).

Sabel and Victor (2015) point out that the experimentalist governance architecture is characterized by decentralized efforts, in which lower levels have the autonomy to implement their own solutions due to the diversity of local circumstances, but they must report results to the upper-level entities responsible for coordination. Actors are encouraged to join the exploration of possibilities with other peers. This bottom-up approach through decentralized efforts is effective if actors have the incentive to cooperate, find local solutions, share information, and jointly explore new solutions. This broad cooperation is motivated by penalty defaults and sanctions for lower-level actors that do not comply with rules.

This study suggests that, in the case of REDD+ in Brazil, there is no penalty default or sanction imposed on lower-level actors in order to encourage cooperation and joint exploration of innovative solutions to curb deforestation and forest degradation. Empirical evidence shows that material interests, including economic incentives and potential opportunities, have been driven cooperation and group consensus in REDD+. These findings are reinforced by Brockhaus and Angelsen (2012) and Korhonen-Kurki et al. (2012) in the context of REDD+, and Olson's theory of groups (1965). Deliberation in REDD+ is driven by the group's material interests, which is a major constraint on the governance process.

Deliberative decision making in the experimentalist governance is driven by the discussion and elaboration of difference in light of results in which consensus is provisional. In the case of Brazil, decision making is driven by consensus among elected members of CONAREDD+, with most of the decisions driven by political rather than technical discussions.

In experimentalist governance, decision making has a multilevel architecture in which decisions of lower-level entities may influence decisions at superior levels without a formal

hierarchy between them. This approach has solved some of the coordination problems through networked deliberative decision making. The study suggests that REDD+ is based on a mix of top-down and bottom-up approaches for implementation since the policy-making process is centralized at the national level with a participatory governance structure, and the implementation has a decentralized multilevel approach by involving state and nonstate actors at all levels.

A major difference between the two governance systems relies on the review process. In the case of the EU, there are formal peer review processes with the participation of lower-level entities, and a recursive revision of goals, metrics, and procedures in light of results and outcomes. According to Sabel and Zeitlin (2012), "these processes of framework making and revision that give precise definition of the deliberation, informalism, and multilateral decision making characteristic of the EU" (p. 4).

Peer review in experimentalist governance is a mechanism for learning systematically from the local and subnational levels and key actors. The diversity of experiences to identify different problems and corresponding solutions at the local and subnational levels feed a learning system that may fit in other cases in similar circumstances. This mutual monitoring and peer review involves consultation, accountability among actors without a traditional hierarchical rule-making structure (Burca, Keohane, & Sabel, 2013).

The REDD+ governance process in Brazil does not have a formal peer review process involving implementing entities. Indeed, goals and metrics are not revised in light of results from implementation due to the lack of a formal process.

The recursive revision of goals, metrics and procedures is a critical element in experimentalist architecture. In the case of the EU, results from different experiments are compared through peer review processes in which lower-level actors responsible for implementation and new participants whose contributions are considered essential to deliberation are involved. As pointed out by Sabel and Victor (2015):

> The results are then compared through various forms of peer review so successes can be quickly identified and if possible generalized, failures rejected early on and faltering efforts corrected in view of the advances of more promising ones. Where experience warrants, the goals themselves are revised—targets tightened, relaxed, or extended to new domains—and the revised goals are the starting point for the next round of local exploration. (p. 5)

Lessons learned from the implementation periodically lead to revisions in the EU, considering reviews in "directives, regulations, and administrative decisions, or in the elaboration of revisable standards mandated by law and the enunciation of new principles which may eventually be given binding force" (Sabel & Zeitlin, 2008, p. 276).

The national level government or a central institution that has the ownership of the experimentalist governance system is responsible for organizing a periodic peer review of local results, consolidating and sharing them among actors, as well as stimulating reforms. On the other hand, institutions involved in the implementation are expected to incorporate improvements according to the outcomes of the system for review led by the central organization (Burca, Keohane, & Sabel, 2013).

The experimentalist governance theory suggests that effective innovation emerges when there exists a recursive revision of goals, metrics, and procedures in light of the implementation process. Concrete experiences of actors with different approaches to similar problems can generate new possibilities, innovative solutions and dynamic accountability in the policy-making process (Sabel & Zeitlin, 2008).

Overdevest and Zeitlin (2014) point out three important aspects of the feasibility of the experimentalist governance architecture in different policy domains. First, experimentalist governance is not a one-size-fits-to-all approach. The architecture needs to be flexible to adapt provisional goals to different contexts and levels of implementation. Second, the recursive learning-by-doing process allows comparisons of different solutions for the same general problem to advance in achieving the common goal. Third, the framework goals are provisional, which allows revisions in various phases of the implementation. These conditions make the experimentalist governance architecture a mix of bottom-up and top-down approaches that can be applied to different institutional arrangements and networks.

Furthermore, the experimentalist governance architecture is only effective where "strategic uncertainty means that effective solutions to problems can only be determined in the course of pursuing them, while a multi-polar distribution of power means that no single actor can impose her own preferred solution without taking into account the views of others" (Overdevest & Zeitlin, 2014, p. 7).

This study suggests that Brazil does not have institutional mechanisms or policy instruments that promote a systematic recursive learning process aiming at improving the policy-making process and implementation of REDD+ experiments. Empirical evidence showed some cases in which the implementation of REDD+ has positively influenced the policy-making process under the MMA through a spillover effect, such as the improvements in the PPCDAm policy cycle, the major public policy to combat deforestation in the Amazon, and the improvement in the national forest monitoring system that will be extended to cover all biomes in Brazil by 2018. Both of these initiatives were motivated by UNFCCC requirements in REDD+. However, research findings suggest that no institutional mechanism

such as a formal peer review process has been implemented or adopted.

The experimentalist governance process may take place in two specific conditions. The first is uncertainty, under which policy makers recognize a highly complex problem but do not know how to solve it. The second condition is the presence of a polyarchic distribution of power, in which no one person or body is capable of imposing a solution without considering the views of others. Under these conditions a new architecture based on a deliberative problem solving approach may emerge from new institutional mechanisms that characterize the experimentalist approach (Sabel & Zeitlin, 2008).

Although the REDD+ governance process in Brazil does not have a recursive revision of goals in light of peer reviewed results, an indispensable element of the experimentalist approach, the process is rooted in one of the basic conditions necessary for experimentalist governance architecture: uncertainty. The Brazilian government and nonstate actors recognize that the deforestation problem is highly complex and must be addressed by collective actions involving state and nonstate actors across levels. A variety of efforts and approaches with the same ends – reducing emissions from deforestation and forest degradation – needs to be implemented at all levels.

Despite the differences around both governance processes in Brazil and the EU, especially in terms of institutional arrangements for peer review process aiming at a recursive conception of rulemaking, this study suggests that REDD+ governance is an ongoing process in Brazil that has been built on certain fundamental elements of the experimentalist governance architecture.

Sabel and Zeitlin (2008) point out that the experimentalist approach in the EU did not emerge at once but rather took shape between the mid-1980s and 2000, when actors recognized the need to learn from diverse approaches to shared problems, in which solutions should be provisional, based on peer reviews to improve accountability and policy making. The first REDD+ experiment in Brazil emerged in 2008 with the launch of the Amazon Fund, still considered the first, largest and most important REDD+ experiment in the world.

7 CONCLUSION AND RECOMMENDATIONS

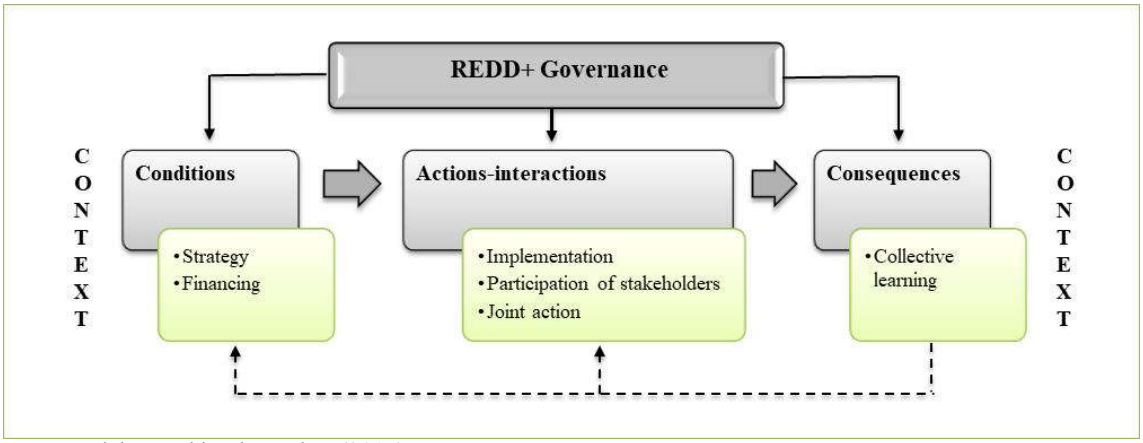
REDD+ is a large scale governance experiment in climate finance (Lederer, 2012). Brazil has the most important REDD+ experiment in the world and is the largest recipient country. The purpose of this study was to understand the governance process to implement REDD+ at the national level in Brazil. Using grounded theory methodology, the 'REDD+ Governance Theoretical Framework', a substantive theory that explains the phenomenon as a continuous and non-linear experimental governance process, emerged from the data.

The substantive theory, which is applied to the REDD+ governance process in Brazil, was elaborated from concepts that emerged from the data based on the perception of research participants and observations. Thirty in-depth interviews were conducted with important state and nonstate actors, knowledgeable people deeply involved in the REDD+ policy arena with different interests, views, and professional backgrounds. The transcripts of the interviews, participatory and non-participatory observations, and field notes were used as primary data. Transcripts were coded with the support of Atlas.ti (qualitative data analysis software). The paradigm model, in which data collection and analysis were conducted through the lens of conditions, human actions-interactions, and consequences in order to explain the phenomenon, was applied throughout the study (Corbin & Strauss, 2015).

The extensive qualitative analysis resulted in concepts that were consolidated into seven high-level categories (or constructs) and 28 related subcategories (or indicators). The emerging theoretical framework was drafted from grounded data collected and systematically analyzed using constant comparison and theoretical sampling technics. The main categories are well differentiated, sufficiently developed in terms of their properties and dimensions, presenting consistency and groundedness. The theoretical framework was integrated in a logical and consistent manner through the explanation of the relationships between categories, based on the perception of policy makers and civil society participants, with rigorous data collection and analysis technics.

The narrative of the theory explains the REDD+ governance process in the move from description to explanation, as recommended in theory development by Corbin and Strauss (2008). The resulting 'REDD+ Governance Theoretical Framework' is formed by the following major categories: *Governance*, *Strategy*, *Financing*, *Implementation, Participation of stakeholders*, *Joint action*, and *Collective learning* (see Figure 13).

Figure 13: The REDD+ Governance Theoretical Framework



Source: Elaborated by the author (2017).

Strategy and *Financing* are the conditions to implement REDD+. Recipient countries are required to establish a REDD+ strategy or action plan as one of the UNFCCC's requirements for a developing country to be eligible to access results-based payments under the regime. The availability of financial resources, in addition to the business as usual national budget, is also a condition for a developing country to implement REDD+ activities.

The process requires actions-interactions between actors and groups during policy making and *Implementation* processes through the *Participation of stakeholders* and *Joint actions*. *Collective learning* is the outcome or expected result from these actions-interactions, which is a consequence of the *Governance* process. Indeed, *Collective learning* is supposed to be the output in the feedback system.

In this conclusion an important research finding related to the *Collective learning* category should be discussed as it is a central element in the theoretical framework. This study suggests that *Collective learning* is related to the effectiveness of the *Governance* process in REDD+. *Collective learning* was integrated into the theoretical framework as a passive category because it did not initiate any type of relationship with other related categories. However, the *Implementation*, *Joint action*, and *Participation of stakeholders* categories lead to *Collective learning* through a direct relationship, which suggests that *Collective learning* is a result or a consequence of actions-interactions between actors and groups in REDD+.

The theory suggests that *Collective learning* should be an outcome of the *Governance* process, in which the collective knowledge developed from the lessons learned during implementation could feed a recursive learning system aiming at improving the policy making and implementation processes through a learning-by-doing approach. Indeed, *Collective learning* can create opportunities to improve the policy cycle. However, research findings indicate that the lack of institutional arrangements to stimulate *Collective learning* and incorporate lessons learned from ground experience into the process has been a constraint on improving the *Governance* in Brazil.

The political power game that emerged as a strong concept in this study is related to divergent positions and interests among different actors and groups across levels, motivated by disagreements on the potential financial benefits in REDD+. A lack of consensus on how the mechanism should work, offsettings, criteria for allocation of resources, and benefit sharing are major points of conflict that seem to be related to policy coordination problems.

In light of this context, the theory indicates the need to improve vertical and horizontal coordination in REDD+ through *Joint actions* between actors and groups, with some degree of centralization at the national level. Policy coordination problems and the need to build coalition between different actors in REDD+ are challenging issues also pointed out by Brockhaus and Angelsen (2012), Corbera and Schroeder (2011), Fatorelli et al. (2015), Gebara et al. (2014), Korhonen-Kurki et al. (2015), and Pahl-Wostl (2009).

This study suggests important practical applications for teaching, policy, and practice as the theory emerged from grounded data to explain a real-world problem. This theory adds to the limited body of literature in the field by extending the knowledge on REDD+ and climate finance. The theoretical framework stimulates discussion and creates opportunities for further research on different topics and policy domains for theoretical advances.

The remaining of this final chapter is organized as follows. The next section presents the study implications for practitioners, including practical insights, new perspectives, and general recommendations. Academic implications and recommendations for future research are discussed in section 7.2. The final section presents the research limits.

7.1 Practical Implications

Deforestation is a daunting real-world problem. REDD+ is a promising cost-effective mitigation mechanism to motivate developing countries to implement policy approaches focused on reducing emissions from deforestation and forest degradation. Successfully implementing REDD+ depends on collective actions between different state and nonstate actors across levels through a learning-by-doing experimentalist approach to address the drivers of deforestation and forest degradation. This study suggests that aligning the interests of stakeholders in the REDD+ policy arena is challenging and necessary to achieve mitigation results, improve forest governance, and balance socioeconomic development with environmental protection.

This study identified constraints, challenges, and opportunities for REDD+ in Brazil. Practitioners can benefit from the theory as it explains a real-world problem from the perspective of policy makers at the national and subnational levels and civil society representatives deeply involved in the REDD+ policy arena. Indeed, anyone interested in the forest and climate policy can benefit from having different viewpoints and perspectives on the REDD+ governance process in Brazil.

The following two sections present practical contributions focused on policy makers at the international, national, and subnational levels.

7.1.1 Practical implications for policy makers at the international level

The results of this study have practical implications for policy makers such as donor and recipient countries at the international level. The theoretical framework and the narrative of how the REDD+ governance process has been structured and implemented in Brazil can help other developing countries to implement a national strategy, system or regime in REDD+. Although REDD+ cannot be considered a one-size-fits-all approach because it depends on national circumstances and capabilities, lessons learned in Brazil from success and failures can spillover to other recipient countries.

Indeed, this theory provides a broad view on how complex REDD+ policy making and implementation based on a mix of bottom-up and top-down strategies is. The narrative of how and to what extent state and nonstate actors interact with each other to address conflicts and divergent positions in REDD+, based on material and financial interests, can be useful for policy makers to understand some of the likely policy coordination problems that have been

affecting the effectiveness of the governance process and the implementation of activities by lower levels.

A performance-based approach in climate finance is an innovation as REDD+ is considered an experimental breakthrough mechanism in international cooperation on climate change. Brazil is the first developing country in the world to be eligible to access results-based payments in REDD+ under the UNFCCC regime by complying with all major requirements. This study can stimulate the international debate based on the principles of good governance in official development assistance (ODA), especially related to aid effectiveness in developing countries. ODA is the traditional modality for North-South cooperation in which donor countries usually participate in the development of the initiative and have some control over implementation.

The logic of results-based payments in REDD+, as in the case of the experiments from Norway and Germany in Brazil, is a paradigm shift compared to the traditional ODA because the control of how and where financial aid is used is a national decision of the recipient country. The performance-based approach in climate finance has attributed country ownership to developing countries to use the financial aid according to national priorities. Therefore, results from the REDD+ experiment in Brazil are important for both donor and recipient countries under the UNFCCC regime.

Lessons learned from the governance process to implement the innovative results-based payments approach are important for the long-term discussion facilitated by the World Bank on good governance, in which donors want to improve the effectiveness of aid in developing countries in different policy domains, including, but not limited to, the environment, education, and public health. The REDD+ Theoretical Framework can be tested and applied in an interdisciplinary way.

Furthermore, this study can be helpful for policy makers that are working on the operationalization of the Green Climate Fund (GCF), the main UNFCCC financial mechanism to support mitigation and adaptation initiatives in developing countries. As the GCF aims to fund scalable and transformational programs, this study provides an opportunity for experts and policy makers to learn about the challenges and constraints faced by a developing country to implement a performance-based mechanism focused on mitigation results.

7.1.2 Practical implications for policy makers at the national and subnational levels

REDD+ governance is an ongoing process in Brazil. Results of this study can be useful for policy makers, especially at the national and subnational levels. As mentioned at the beginning of this chapter, this study suggests that the lack of collective learning between actors and groups has been a constraint on improving the governance process. Indeed, the lack of consensus and conflicts between state and nonstate actors seems to be related to vertical and horizontal policy coordination problems, based on material interests.

The theory suggests that, despite the divergent positions, interests, and power relations, actors and groups need to improve the dialogue on a technical basis, considering environmental integrity, country circumstances and capabilities, in order to find a consensus on the best approach to operationalize Brazil's National REDD+ Strategy through collective actions and further develop a REDD+ system or regime to foster implementation and attract more donors. This requires coordination and rule making at the national level and political will across levels. Indeed, the involvement of important stakeholders, including civil society, indigenous peoples, traditional communities, the private sector, small landholders, and academia, is necessary for policy making and implementation.

In the Chapter 6, the REDD+ Governance Theoretical Framework was compared and discussed in light of experimentalist governance theory (Sabel & Zeitlin, 2008; Sabel & Victor, 2015) to find points of convergence and divergence. Both theories have a similar experimentalist approach on how to solve a real-world problem by involving different actors in a governance architecture based on centralized rule making a decentralized local implementation by lower-level entities.

Brazil is leading the way in implementing REDD+, an unprecedented results-based mechanism in climate finance. This study suggests that some elements of the experimentalist governance theory (Sabel & Zeitlin, 2008; Sabel & Victor, 2015), if applied to REDD+ governance in Brazil, could improve the efficiency and effectiveness of policy implementation through a recursive conception of rule-making.

Research findings suggest that improving the effectiveness of the REDD+ governance process and the policy cycle may depend upon the establishment of a recursive learning system based on the lessons learned from ground experience. In this sense, collective learning would support revisions on the strategy and operationalization of initiatives through joint actions from different actors and groups, aiming at improving the REDD+ governance process, increasing mitigation results and the financial flow from international donors.

The theory suggests that collective learning is a fundamental element in the REDD+ Governance Theoretical Framework, in which inputs from the lessons learned during implementation and innovative solutions implemented by actors for the same problems in different local circumstances could feed a recursive learning system in order to improve policy coordination and the implementation of activities. However, the lack of collective learning has been a constraint on improving governance and implementation.

Actors have been experimenting with innovative solutions to address deforestation problems in different locations and levels of implementation through REDD+ initiatives. However, this study shows that these actors are not systematically learning from each other's experience due to the absence of institutional arrangements that promote knowledge sharing, technology transfer (domestically), and collective learning in order to improve individual and collective performances. This is not officially happening in a systematic way either at project level or at subnational and national levels.

As suggested in experimentalist governance theory (Sabel & Zeitlin, 2008; Sabel & Victor, 2015), the establishment of institutional arrangements for peer review processes to compare results and outcomes from different experiments implemented at different levels can provide accountability. Indeed, a peer review process could provide positive spillovers to improve the policy cycle and horizontal and vertical coordination to further develop a REDD+ regime in Brazil.

Brazil has been the forerunner in implementing the world's largest and most robust REDD+ program. However, the REDD+ governance process is still in its infancy, characterized as experimentalist and based on a trial and error approach. In light of the experimentalist governance theory (Sabel & Zeitlin, 2008; Sabel & Victor, 2015), Brazil could improve its REDD+ governance by learning from diversity in which solutions to shared problems are compared to experiments using different approaches, resulting in revisions of goals, metrics, and procedures in light of what has worked or not in practice.

Here, the choice of one solution, which is always provisional and corrigible, is based on comparable choices of others' experiences, from successes and failures during implementation (Sabel & Zeitlin, 2008; Sabel & Victor, 2015). This experimental learning from diversity and comparison could improve the effectiveness of REDD+ governance, including rule making, deliberation processes, and horizontal and vertical coordination across different levels.

Experimental innovations implemented by lower-level entities would become more prominent at a level where learning networks of state and/or nonstate actors become

effectively connected to start influencing the policy arena from the bottom-up through a multi-level learning process (Pahl-Wostl, 2009), which is a machine for learning from diversity (Sabel & Zeitlin, 2008; Sabel & Victor, 2015).

Empirical evidence shows few cases of either how certain groups of actors are learning from each other in order to improve implementation or positive REDD+ spillover from the policy cycle at the national and subnational levels. However, this is not institutionalized through governance arrangements because it seems actors have been sharing and learning from each other whenever convenient, according to the major groups' self-interests.

This study recommends that two elements of the experimentalist governance architecture (Sabel & Zeitlin, 2008; Sabel & Victor, 2015) could be added to the discovered REDD+ Governance Theoretical Framework in order to improve the effectiveness of the process in Brazil. The first is a regular reporting, monitoring and peer review of results through institutional arrangements involving lower-level entities responsible for implementation and experts from civil society and academia. The second is a recursive revision of goals, metrics, and procedures in light of the implementation experience. A formal peer review process could improve accountability, considering that solutions are provisional and corrigible. Institutional arrangements should also be the subject of reviews in light of what works in practice by producing positive results.

Adding these two elements from the experimentalist governance theory (Sabel & Zeitlin, 2008; Sabel & Victor, 2015) to the REDD+ Governance Theoretical Framework, an information flow and qualified knowledge would be systematically developed and provided for policy makers to improve coordination at all levels and the effectiveness of policy implementation, including better integration across sectors, new socio-economic opportunities for environmental protection, and the increase of REDD+ results (mitigation). An expected outcome would be the increase of the financial flow from private and public donors.

In summary, experimentalist governance approach is rooted in recursive policy-making and learning processes, which are based on the success and failures from the experimentation of new solutions proposed by lower-level entities at different levels. REDD+ governance in Brazil would gain from the establishment of institutional arrangements coordinated at the national level in which lower-level entities are responsible for implementation, besides monitoring and reporting, and would take part in peer reviews, knowledge exchange and best practices through mutual learning between upper and lower levels in order to improve policy making in light of the results from different implementation

experiences. Innovation and new opportunities would be created from a recursive learning system in which lessons learned from experimentation sustain the revision of goals, metrics and procedures.

The theory emerging from this study could thus be improved to another level of abstraction with the emergence of a 'REDD+ *Experimentalist* Governance Theory'.

7.2 Academic Implications and Further Research

Grounded theory is a method frequently used in the research fields of Sociology, Psychology and Nursing. Although the theory was created by Glaser and Strauss in 1967, its use in qualitative research is still incipient in applied social sciences. In some cases, researchers do not use the method comprehensively, employing only certain elements and technics to support data analysis because the method is complex, time-consuming, and centered on the researcher. Indeed, the lack of consensus among grounded theorists on conceptual differences and analysis technics, without a greater concern for the actual application of the method, has not helped to include grounded theory in the universe of practical application (Ikeda & Bianchi, 2009).

Grounded theory methodology has seldom been used at the University of São Paulo School of Economics, Business Management and Accounting (FEA/USP in the Portuguese acronym). Only four PhD theses using the grounded theory method were found in the FEA/USP thesis repository. This study can be used to teach qualitative analysis and grounded theory methodology as a case of practical application in social sciences. Indeed, the theory can be applied in an interdisciplinary way to teach about different substantive areas such as management, governance, climate change, environmental management, government relations, international relations, and global policies.

It is important to mention that the substantive theory developed in this study is at an initial phase, results are exploratory, and therefore further studies are needed to strengthen and refine the REDD+ Governance Theoretical Framework.

This study came up with new concepts and ideas to explain the emerging REDD+ governance process and not just provide empirical data to test an existing theory. Although this theory is substantive and applied only to REDD+ governance in Brazil, the theoretical framework may be applied and tested in other similar cases, including developing countries that are implementing REDD+ activities, or in any other case related to the implementation of performance-based mechanisms in climate finance. Additionally, the theory may be tested in

other areas of ODA such as health and human rights, in which the performance-based approach has been used within international cooperation agreements.

Similarities and differences found in these tests will enhance the development of the theory to another level of abstraction. Qualitative studies can improve and refine the development of the categories in terms of their properties and dimensions. In this case, the use of grounded theory methodology would be recommended to reinforce the consistency of the refinement of the theory. Quantitative studies can use the theoretical framework to guide research design, validate or test the variables (categories, subcategories categories and their dimensions), as well as criticize or corroborate research findings.

The REDD+ Theoretical Framework is a conceptual model formed by a set of categories that are related to each other and integrated into Governance, the core category of the theory. However, parts of the theory could be tested instead of applying the complete conceptual framework to enhance the theory in other illustrative cases. While this study was framed in climate finance and REDD+, it would be interesting to test and expand the resulting theoretical framework to other policy domains.

Indeed, collecting additional data from different actors aiming at more varied type of data is recommended to validate the theory as this study considered only two comparison groups, policy makers and civil society representatives, due to limitation of time and resources. Further studies should include other comparison groups such as indigenous peoples, traditional communities, small landholders, the private sector, and donors.

Based on the lack of theories focusing on REDD+ and performance-based mechanisms, the need for additional research is important to further discussions on the operationalization of the GCF in light of the commitments assumed by developed countries in the Paris Agreement to assure an annual financial flow of USD 100 billion (starting in 2020) for mitigation and adaptation initiatives in developing countries.

Empirical evidence indicates some of the REDD+ experiments or initiatives that are based on the experimentalist approach at different levels. Although this study did not intend to investigate the implementation of REDD+ at program or project levels, understanding how these experiments were designed and implemented by different actors is important in order to understand the emergence of the experimentalist process.

Another important aspect that did not emerge in this study was the importance of the manager profile in the governance structure. Main leadership positions in the governance of REDD+ in Brazil are attributed to institutions and not to individuals. There is not any pre-determined criteria to indicate the head of CONAREDD+ or Amazon Fund, for example, as

leadership positions are attributed to representatives from MMA and BNDES. Although the importance of the leadership role in the management structure of REDD+ did not emerged in the data, the effectiveness of the governance process may depend upon leaders with holistic vision, practical knowledge in public policies, excellent professional background, capacity to build coalitions among actors, and technical skills to promote structural changes.

In light of this, further studies should investigate if pre-determined profile of leaders is a critical component to improve the governance process and rule making in REDD+, considering the challenges faced by the national government with the high complex participatory governance process due to divergence of positions and interests between actors. Indeed, the effectiveness of the current governance management structure with 110 participants should be investigated as the authority maybe diluted among many actors with different agendas and material interests in REDD+. Governance arrangements of collective deliberation should have a limited number of participants, otherwise the excess voids the role that the collegiate should play based on accountability and strong leadership. This study suggests that the current governance structure and its implementation arrangements are experimental. Results and outcomes should be investigated.

Some other suggestions for future studies in REDD+ are listed below:

a. analyze the effectiveness of the mix of top-down and bottom-up strategies used in REDD+;
b. investigate why actors with divergent positions and interests work together in REDD+;
c. investigate how and to what extent the federal government is incorporating lessons learned from lower-level entities when the national strategy becomes fully operational;
d. analyze the REDD+ spillover effect in different sectors in Brazil and other developing countries.

7.3 Research Limits

As it requires sensitivity, creativity and hard work to conduct a research project, grounded theory challenges researchers to be bold; however, the method is complex and time-consuming (Corbin & Strauss, 2015).

As in any other qualitative study, decisions made by researchers, especially during data collection and analysis, are not free from bias and prior assumptions. Values, perspectives, professional background, and previous knowledge on the literature related to the research topic are among the factors that may influence the research and which cannot be completely eliminated (Corbin & Strauss, 2015).

Nevertheless, certain techniques are recommended in order to reduce the intrusion of bias and assumptions into grounded theory studies. The first recommendation is to keep a research journal during data collection and the analysis processes and carry out self-analysis. The second is to use some of the analytic strategies such as making constant comparisons, which enables validation of research findings from different types of data and sources to help interpretation of data (Corbin & Strauss, 2015).

Both recommendations were adopted in this study. A research journal was used throughout data collection and analysis. Notes were taken in a notebook, memos were written, and diagrams were drawn in order to keep systematic records. Constant comparison and theoretical sampling technics were used throughout data gathering and analysis.

Certain limits are assumed in this study due to limitation of time and resources. The first research limit is related to the saturation of the categories. Some concepts that became categories and subcategories presented more groundedness, density and variation than others in terms of their properties and dimensions. Limitation of time prevented extending data collection and analysis, as required in theoretical sampling, until categories reach saturation. In fact, limitation of time was decisive in order to stop data gathering.

Another research limit is related to variation in data. Despite the diversity of research participants and the criteria used to select participants, only two comparison groups were considered in data sampling: policy makers at the national and subnational levels, and civil society representatives. A deep analysis was conducted within and between these two theoretical groups. However, the inclusion of other groups of stakeholders with multiples perspectives would have enriched the analysis by increasing variation and groundedness.

Civil society sampling is another limit. A few important REDD+ experts did not agree to participate in the research. Indeed, empirical results cannot be generalized because the

study was meant to explain a specific phenomenon in Brazil according to the perception of two theoretical groups. As explained by Corbin and Strauss (2015), a theory "probably will never fully explain all aspects of every situation to which it is applied because of variation and contingency" (p. 367).

The limited experience of the researcher in the grounded theory method may have an impact on the quality of data collection and analysis. However, the PhD advisor is a very senior and experienced qualitative researcher, which may have mitigated some of the effects of the researcher's limited experience. And finally, some interesting considerations made by Corbin and Strauss (2015) about theory building:

> An important consideration in theory building is what the researcher brings to the research process in terms of philosophies, experience, professional background, and interests. These factors influence the choice of topic, approach to analysis, and where the emphasis is placed. Therefore, the final theory that is constructed though grounded in data is a representation of both participant and researcher. Another researcher could take the same data and by placing a different emphasis on the data construct a different theory. However, this does not negate the validity of the theory. The most important thing is that whatever theory is produced is grounded and that it gives another insight and understanding into human behavior. It is the accumulation of knowledge over time that is most important, and the more theories professionals and laypersons have to explain what is going on around them, the better able they are shape lives. (p. 29)

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APPENDIX A – Research participants' mini profiles

Participants' titles and affiliated institutions mentioned in this study refer to the period data was collected. Any changes in titles or organizations after data collection are not reflected in the following profiles.

Adalberto Luis Val

Senior researcher at INPA. Biologist with postdoctoral degree from the University of British Columbia, Canada who studies biological adaptations to environmental changes, both natural and man-made. At INPA since 1981, he has been involved with analyses of the needs of the Amazon related to education, science and technology. He is member of Brazilian and international scientific societies and also member of the Legion of Honor of the American Fisheries Society and an elected-member of the Brazilian Academy of Sciences.

Alexandre Prado

Environmentalist and consultant at WRI. Senior manager with more than 20 years of experience championing innovation and sustainability. Focus areas include nonprofit leadership, environmental and climate change policy and finance for sustainable projects. Has held technical positions in environmental organizations on the design and implementation of sustainable development projects and environmental policies. Was economic manager of Conservation International in Brazil for eight years.

Ana Luiza Oliveira Champloni

Financial analyst at MF. Economist with professional experience in the environmental and climate change areas in policy making processes focused on forests, implementation of the Forest Code, payment for environmental services, REDD+ and carbon pricing. She works for the Secretariat of Economic Policy's Environment and Climate Change Coordination and is an important actor in the REDD+ governance structure as a member of CONAREDD+ and one of the leading coordinators of the Thematic Advisory Board on Fundraising and Distribution of non-Reimbursable Resources.

Andre Guimarães

Executive director at IPAM. Agronomist and former Vice president of Development at the International Conservation for the Americas Region with responsibility for ten Latin American countries. Founder of Brasil Florestas, a company focused on the implementation of forest products such as environmental services. Former coordinator at the World Bank Rainforest Pilot Program for the private sector and director of A2R Environmental Funds. Former director of environmental NGOs, including BioAtlântica Institute and IMAZON.

Adriana Ramos

Vice executive secretary at the ISA who has been working in the field of social and environmental policies for over twenty years and coordinates the Socio-Environmental Policy and Law Program at ISA. She is the leading coordinator of the FBOMS working group on forests, executive secretary of the Sustainable Amazon Forum, and member of the Amazon Fund guidance committee to which she has been a major contributor since its creation.

Angela Albernaz Skaf

Manager at BNDES. Economist with MA in Economics and postgraduate studies in Development, Environment, Knowledge Management and Business Intelligence. She has been working at the BNDES since 2004 and currently the Amazon Fund communications and institutional relations manager.

Bernardo Von Haehling Braune

Lawyer at the BNDES Amazon Fund.

Carlos Augusto Klink

Professor of Ecology at the University of Brasília. Former Secretary of Climate Change at MMA (2012-2015) and Deputy Minister of the Environment (January-May 2016). Was a senior program officer at the International Finance Corporation (IFC) within the Brazilian Amazon initiative (2009-2012). Before joining IFC was the agriculture team leader at TNC in Brazil. Has over 23 years of experience working with land-use, climate change, and climate finance, dealing with corporations, financial institutions, trade forums, academia and NGOs. Also consultant for World Bank and the Global Environment Facility. Served on the board of government institutions, private sector, NGOs, and international scientific committees.

Carlos Rittl

Executive Secretary at the Climate Observatory in Brazil since 2013. PhD degree in tropical biology and natural resources and has been working for over 20 years in the environmental and climate change areas, having led the Greenpeace Climate Campaign in Brazil (2005-2007) and WWF-Brazil's Climate Change and Energy Program (2009-2013). Throughout his career, he has worked for the advancement of the debate and progress of public policies on forests, climate change, energy and sustainability in Brazil, engaging in processes such as the multilateral negotiations of the UNFCCC.

Daniel Rossi Soeiro

Manager at BNDES Amazon Fund.

Edel Moraes

Vice president at the CNS and Chico Mendes Memorial. She is an important leader in the defence of social and environmental justice in Brazil, representing forest-dependent communities at CONAREDD+. Also one of the leading coordinators of the Thematic Advisory Board on the Safeguards for REDD+ in Brazil.

Erika de Paula Pedro Pinto

Researcher and coordinator of IPAM managing projects focused on REDD+, PES and new development models for family agriculture in the Amazon appropriate for the socioeconomic conditions of the population. She is the leading coordinator of the Coalizão working group on the evaluation of ecosystem services.

Everton Lucero

Secretary of climate change and forests at MMA. As a diplomat, he has been a member of the Brazilian Foreign Service for over 20 years and in June 2016 was appointed secretary at MMA. Responsible for coordinating the implementation of national policies on climate change and forests and overseeing the implementation of actions to reduce ozone-depleting substances. Between 2013 and 2015 took part in the Brazilian negotiation team of the Paris Agreement and acted as the Brazilian National Focal Point for the UNFCCC. Was also member of several national and international committees.

Fabio Feldmann

Environmentalist, lawyer and consultant. He was congressman (federal deputy) for three terms and is the author of a significant part of Brazilian Environmental Legislation, including the environmental chapter in the 1988 Brazil Constitution. He advises several national and international NGOs and is a board member of important private and public organizations such as the Renova Foundation, in which he represents the interests of the public sector. He runs a consultancy firm focused on environmental and sustainable development issues.

Felipe Rodrigues Gomes Ferreira

Climate change secretary and head of the Climate, Ozone and Chemical Safety Division at MRE. He has considerable experience in political science focused on intergovernmental relations, especially in climate change, REDD+, international regimes, UNFCCC, and the Antarctic Treaty System. As a diplomat, he served as the leading Brazilian REDD+ negotiator at UNFCCC and was a major contributor to the 2013 Warsaw Framework for REDD+. He is a member of CONAREDD+, representing MRE.

Iara Pietricovsky de Oliveira

Director at the INESC and member of the management board. Anthropologist with MA in Political Science. She is responsible for the initiatives developed in cooperation with agencies and international organizations. Member coordinator of Brazil Network and Brazilian Network for People's Integration.

Leticia Guimarães

Program manager at MMA, responsible for coordinating the implementation of the National REDD+ Strategy and related activities. She is the Brazil REDD+ focal point at UNFCCC. She has over ten years of experience as a policy analyst and project manager in land use, land-use change and the forestry sector. Also a CONAREDD+ member and one of the leading coordinators of the Thematic Advisory Board on Fundraising and Distribution of non-Reimbursable Resources.

Magaly da Fonseca e Silva Taveira Medeiros

President of the Climate Change and Environmental Services Regulation Institute in the State of Acre. She has been a government officer since 1990, working for the state of Acre in environmental related agencies, including the Secretary of the Environment, the State of Acre Environmental Institute Technology Foundation, Secretary of Planning and Acting Director of Environmental Studies. She is a CONAREDD+ member, representing the state of Acre.

Maria Gabriela Albuja Bucheli

Researcher at IDESAM and economist. Taking an MA in Management of Protected Areas. Worked at JP Morgan in financial analysis of environmental projects and at the PIATAM Institute in the economic valuation of natural resources.

Mariano Cenamo

Founder and executive secretary at IDESAM. Considerable experience working in forest carbon projects over the last ten years. Through a close cooperation with the state of Amazonas, he played a fundamental role in the construction of the Amazonas State Policy for Climate Change. More recently he has been involved in many projects and initiatives related to REDD+ and forest conservation, providing consultancy and support to institutions such as the World Bank, the Amazonia state government and the Sustainable Amazon Foundation.

Marte Nordseth

Senior adviser at the Norwegian Ministry of the Environment. Responsible for projects sponsored by the Government of Norway's International Climate and Forest Initiative in Latin America, particularly Brazil, in close coordination with climate negotiations.

Maurício Moleiro Philipp

Climate change coordinator in the state of Mato Grosso Secretary of the Environment. Forestry engineer with postgraduate degree in Forest Fire Control. Executive secretary of the Jurisdictional REDD+ System Management Committee in the state of Mato Grosso. CONAREDD+ member.

Peter Herman May

Full Professor in the Department of Development, Agriculture and Society of the Federal Rural University of Rio de Janeiro. Researcher and coordinator of the National Institute of Science and Technology in Public Policies for Development Strategies (INCT-PPED) on Biodiversity, Natural and Cultural Resources fields, and vice coordinator of the Professional MA in Sustainable Development Practices (PPGPDS / UFRRJ). Author and editor of a number of works in the areas of ecological economics, agroforestry, REDD+ and payment for ecosystem services.

Paulo Moutinho

Senior researcher at IPAM. PhD in Ecology. Studies the causes of deforestation in the Amazon and its consequences for biodiversity, climate change and local population. Has been working in the Brazilian Amazon for more than 20 years and was co-founder of IPAM. Co-author of the so-called 'compensated deforestation reduction' concept, which has contributed to the development of the REDD mechanism at the UNFCCC level. Associate member of The Woods Hole Research Center in the US. Also taught for several years at the Federal University of Pará.

Pedro Gandolfo Soares

Program manager at IDESAM. Has been working with the development of REDD+ projects and PES activities in the Brazilian Amazon in partnership with civil society entities, private foundations and subnational governments. Coordinated the first Municipal Law on Environmental Services and REDD+ in the Amazon, in Porto Velho in the state of Rondônia, and supported the design of state-wide proposals for REDD+ throughout the Brazilian Amazon. The leading coordinator of the Coalizão working group on REDD+.

Pedro Telles

Coordinator at the Greenpeace focused on advocacy, campaigns, analysis and planning of public policies and engagement of civil society in political processes. International coordinator of the Urban Revolution project at Greenpeace Brazil and manages a team that conducts the international political work related to climate change. Also a Professor in Advocacy and Public Policy at Fundação Getúlio Vargas and member of several civil society organizations. Experience includes Oxfam, The Elders, Brazil Fund for Human Rights,Vitae Civilis, and Overseas Development Institute (ODI). MA in Development Studies with postgraduate studies in economic analysis and international relations and policy.

Sidney Almeida Filgueira de Medeiros

Rural Inspector at MAPA. Technical manager of projects related to ABC Plan technologies such as the recovery of degraded pastures, crop-livestock-forestry integration, planted forests and animal waste treatment. CONAREDD+ member.

Thelma Krug

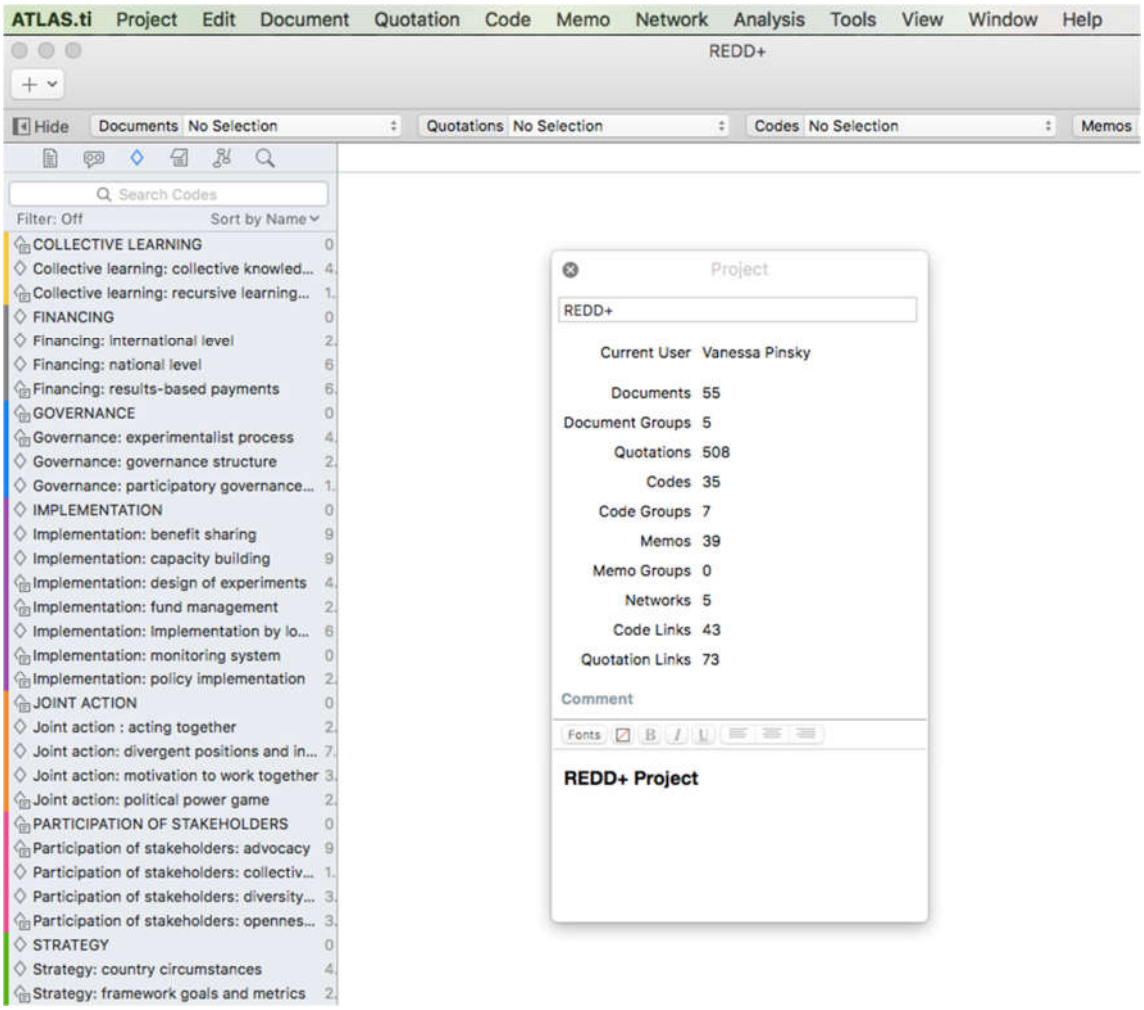
Director of the National Policies on Combating Deforestation Department and CONAREDD+ chair at the MMA. She is a senior research from INPE and an expert on land use, land use change and forests. Since 2002 she has been a major contributor to IPCC and in 2015 was elected as one of the three vice-chairs of IPCC. She has been a major contributor and facilitator to the climate negotiations at UNFCCC, especially in the REDD+ negotiations that culminated with the adoption of the WFR. She has held several important positions, including Deputy Secretary of Policies and Programs for Science and Technology at MCTIC and National Secretary for Climate Change and Environmental Quality at MMA. In this position, she was responsible for the proposition of the National Policy on Climate Change and the National Fund on Climate Change, as well as taking part in the creation of the Amazon Fund.

Valmir Ortega

Environmentalist and consultant at Geoplus with over 20 years of professional experience in the environmental sector. Former Secretary of the Environment in the state of Pará, ecosystems director at IBAMA, sustainable development program director at MMA, environmental planning superintendent at the state of Mato Grosso do Sul Department of Environment. Also served as a director of programs at the Conservation International.

APPENDIX B – Evidence on Atlas.ti

Figure 13: Evidence of the Data Analysis – Atlas.ti Software



Source: Atlas.ti project screenshot (2017, September 6).

APPENDIX C – Interview guide

1. REDD+ initiatives have been financed with multiple goals, not limited to environmental and economic benefits, but also by regulatory and ethical issues. In your opinion, what are key motivations for donor and recipient countries to work together in REDD+?

2. In your perception, what were main criteria considered by donors when choosing Brazil as a major REDD+ recipient?

3. How is the implementation process in REDD+ at the national level? Please comment on institutional arrangements.

4. How is the participatory governance process in REDD+?

5. REDD+ finance has been very heterogeneous: different agreements (bilateral, multilateral, grants to NGOs), mechanisms ('fast-start', results-based, offsets), and funding levels (national, jurisdictional, local). In this context, how are the REDD+ experiments crafted, which seem to work and fail, and how does governments (Brazil and its donors) know which are working or not? Is there any review process?

6. How do you evaluate the relative importance of REDD+ efforts as an incentive focus on mitigation versus other local incentives?

7. REDD+ experiments in Brazil have generated results, information, and learnings. Do you know whether and how Brazil has organized this knowledge (from generating to sharing)?

8. What is the relative importance of information sharing and knowledge transfer in REDD+? How is the process?

9. Do you know whether and how lessons about success and failure of the Brazilian experiments are being learned by other recipient and/or donor countries? Please comment on any practical implication (such as knowledge spillover) that you know.