Not seeing the forest for the carbon in the trees?

The role of fighting tropical deforestation in global climate governance

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Für Matilda

Irgendwann wirst Du verstehen, was ich die ganze Zeit mit Arbeit gemeint habe.

Contents

Abbreviations

AES	Amerian Energy Services
AIJ	Activities Implemented Jointly
CBD	Convention on Biological Diversity
CCD	United Nations Convention to Combat Desertification
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CI	Conservation International
COP	Conference of the Parties
EDF	Environmental Defense Fund
EU-ETS	European Union Emissions Trading System
FAN	Fundacion Amigos de la Naturaleza
FAO	Food and Agriculture Organisation of the United Nations
FOE	Friends of the Earth
FONAFIFO	Fondo Nacional de Financiamento Forestal
G7	Group of Seven
GEF	Global Environmental Facility
IFF	International Forum on Forests
IISD	International Institute for Sustainable Development
INPE	Brazilian National Institute for Space Research
IPAM	Instituto de Pesquisa Ambiental da Amazônia
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
MRV	Monitoring, Reporting and Verification
NGO	Non-governmental organisation
PES	Payments for Environmental Services
PSA	Pago por Servicios Ambientales
RED	Reducing Emissions from Deforestation
REDD	Reducing Emissions from Deforestation and Degradation
REDD+	Reducing Emissions from Deforestation and Degradation and the conservation, sustainable management of forests and enhancement of forest carbon stocks
SBSTA	Subsidiary Body for Scientific and Technological Advice
TNC	The Nature Conservancy
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFF	United Nations Forum on Forests
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VER	Verified Emission Reduction
WRI	World Resources Institute
WWF	World Wildlife Fund
WMO	World Meteorological Organisation

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Not Seeing the Forest for the Carbon in the Trees?

An Introduction

'Immediate action on REDD is a critical part of the climate change solution. Preserving forests also provides other valuable benefits. Biodiversity and soil conservation. Flood control. Combined, such services are worth billions — perhaps trillions — of dollars to the global economy.'

(Ban Ki-Moon, UN Secretary General, September 23rd 2009)

'There is a much bigger industry in the definition of REDD+ than there is in REDD+, which is hilarious, you know. The debate about whether there should be a REDD+ market — there is a REDD+ market! But it is a market for consultants and academics and governments. It is not a market for the communities and the countries that actually have forests. And that, that needs to change!'

(Interview with Michael Korchinsky, Founder of Wildlife Works, June 2nd 2011)

1. Introduction

Reducing Emissions from Deforestation and Degradation and the 'conservation, sustainable management of forests and enhancement of forest carbon stocks' (UNFCCC, 2010: 1/CP.16 III C) — known by its acronym REDD+ — is a mechanism to address tropical deforestation which is currently being negotiated under the United Nations Framework Convention on Climate Change (UNFCCC). At its core is the idea to pay tropical developing countries for the reduction of deforestation within their borders. It is as yet unclear whether this will be done through an international fund, through an integration of REDD+ into the carbon market or through a combination of the two. REDD+ was put onto the agenda in 2005 through a sub-

mission to the UNFCCC by Papua New Guinea[1] and Costa Rica and has since gained wide support from developing and industrialised countries alike. It is also supported by a broad coalition of environment and development non-governmental organisations (NGOs). Industrialised countries have pledged more than US $ 4.2 billion through multilateral initiatives alone to develop REDD+, conduct pilot projects and generate the necessary technical and institutional infrastructure in developing countries (Climate Funds Update, 2012).

REDD+ itself and the fact that it has received such widespread support in several respects presents an irritation: First of all, problems caused through deforestation — particularly with regard to climate change — have been described for decades. Nevertheless, there has been no binding international agreement concerning forests or deforestation so far. Analysts have described the field as a 'non-regime' (Dimitrov et al., 2007) as effective measures are missing. Furthermore, tropical deforestation had only played a marginal role within the UNFCCC prior to 2005. There had been an attempt to include the avoidance of deforestation — or, put differently, the conservation of forests — as an eligible project type in the Clean Development Mechanism (CDM), which is one of the flexible mechanisms of the Kyoto Protocol. But this was dropped in 2001 over controversies concerning the technical feasibility of the necessary monitoring, reporting and verification (MRV) and concerns about the general legitimacy of such projects. In light of this history, how could REDD+ gain such widespread support and develop so rapidly — right at a time when climate negotiations at large have started to stall?

Furthermore, to pay tropical developing countries to refrain from doing something, which in the view of many experts should not be in their interests in the first place, also seems irritating. If forests, as Ban Ki-Moon highlighted in the quote at the beginning of this introduction, provide important services that are also of immediate economic and societal interest to developing countries, why would they need additional compensation payments to refrain from deforesting?

Last of all, even though there is no agreement yet within the UNFCCC negotiations on whether REDD+ will be integrated into the carbon market, this aspect has drawn considerable attention. REDD+ projects have already become a reality in the voluntary carbon market. This market differs from government mandated compliance markets like the CDM whose credits can be used to fulfill binding reductions commitments. As emission reductions from the voluntary carbon market cannot be used for compliance purposes they are bought by companies for corporate social responsibility and marketing reasons. In the cases of both

1. The initial proposal was limited to reducing emissions from deforestation (RED). It was subsequently broadened to include forest degradation (REDD) (UNFCCC, 2007: 1CP13 iii) and the ´conservation, sustainable management of forests and enhancement of forest carbon stocks´ (REDD+) (UNFCCC, 2010: 1CP16 III C) (see also Pistorius, 2012).

the voluntary and the compliance markets the commodity to be traded are carbon credits based on the avoidance of deforestation and degradation. Hence, what is being traded is *not cutting down trees*. In many ways this seems to be the epitome of an intangible good. But how exactly can *not doing something* be made tradable?

This dissertation project originated from these irritations. I use them here to first introduce REDD+ in more detail and flesh out the research questions that guided me through the project. I then situate my project within the existing literature on REDD+ (Section 3). Thereafter, I justify why I have chosen a poststructuralist approach (Section 4) over possible alternatives and introduce my theoretical framework in detail (Section 5); I combine Michel Foucault's concept of governmentality with Laclau and Mouffe's hegemony and discourse theory. In Section 6 I elaborate on the methodology and methods used. This is followed by a summary of the individual papers that constitute this thesis (Section 7).

But for now, back to my first irritation: How could REDD+ have gained such broad support?

2. Articulating the research questions

Forests play a significant role in the global climate system. They store large amounts of carbon and their destruction results in substantial greenhouse gas emissions.[2] Deforestation currently constitutes between 12 per cent and 25 per cent of annual carbon dioxide emissions[3], the majority of which stems from the destruction of tropical forests.[4]

While concrete numbers on the contribution of deforestation to global emissions only became available in the 1970s, the link between forests and the climate system has been known

2. Deforestation causes the release of a variety of greenhouse gases — carbon dioxide, methane and nitrous oxide. When the contribution of deforestation to global greenhouse gas emissions is being discussed studies generally only take into account carbon dioxide emissions.

3. This relatively broad range in estimates derives from a difference in modelling approaches, varying data sources and a remaining uncertainty of these models (Solomon et al. 2007: 517-518). In addition there are large differences in the emissions that are subsumed under the forestry category and in the exact definition of what constitutes a forest. While some studies e.g. categorise emissions from peatland conversion under forest related emissions (as peatland conversion are oftentimes directly related to the destruction of tropical forests) others account for them separately (see for example Van der Werf 2009). Furthermore, as there is no uniform forest definition, the minimum values for patch size, height and crown cover vary. The size of the deforested area an assessment produces, depends on the the forest definition and the minimum values use (GOFC-GOLD 2011: 1-3 – 1-4)

4. Deforestation has additional effects on the climate system. It changes the evapotranspiration — the sum of evaporation and plant transpiration — of a given area, which results in precipitation and temperature changes in the regional climate. It furthermore has effects on the earth's surface albedo (Solomon et al. 2007, pp. 185, 508).

since the 19th century. It is for example indicated in the works of Svante Arrhenius (1907: 51-52), a Swedish chemist and physicist who was among the first scientists to establish a relation between carbon dioxide emissions and global warming (Methmann and Stephan, forthcoming). The link was only further substantiated in the second half of the 20th century when scientific interest in the climate system surged. During the 1970s carbon cycle scientists started to describe forests as an important sink for greenhouse gases and, therefore, deforestation as a significant source (e.g. Harris et al., 1975: 120; Hampicke, 1979). These conclusions — emphasising the role of tropical forests — were also part of the First Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), prominently featured in the summaries for policy makers (IPCC, 1990a: xxxii; IPCC, 1990b: xliii).

The effects of tropical deforestation for the climate system were not the only cause for concern. Global forest inventories, which started to be conducted after World War II, and the increasing availability of satellite images during the 1970s and 1980s made the retreat in forest cover visible and contributed to a perception of tropical deforestation as a global crisis, threatening biodiversity and other key ecologic functions (Boyd, 2010: 858-863)[5]. By the end of the 1980s tropical deforestation had caught the public attention and had become an issue for policy makers. Satellite images showing countless smoke columns and massive areas of destroyed forests created a sense of urgency to tackle the problem (Humphreys, 1996: 17). The governments of the G7 expressed the need for an international effort to address the issue and the will to draft an international forest convention in their declaration at the 1990 summit in Houston (G7, 1990: §66-67). However, the plan to do this in the context of the Earth Summit in Rio de Janeiro in 1992 did not materialise. A number of developing countries refused such a convention, arguing that it would infringe upon their territorial sovereignty (Humphreys, 1996: 94-95). What came out of the Earth Summit was merely a 'non-legally binding authoritative statement of principles' on the 'conservation, management and sustainable development' (UNCED, 1992a) of forests. To facilitate exchange on these issues the UN subsequently created an Intergovernmental Panel on Forests (1995-1997), succeeded by an International Forum on Forests (1997-2000) and in 2000 the United Nations Forum on Forests (UNFF, 2008). The achievements in terms of agreements, however, did not go beyond another 'Non-Legally Binding Instrument on All types of Forests' (UNFF, 2007: 1-10). There were also attempts to address tropical deforestation under the Convention on Biodiversity (UNCBD) and the Convention to Combat Desertification (UNCCD). But neither of these resulted

5. Prior to the 1970s tropical deforestation was not perceived to be a global problem. It had been raised previously, however, at a local or regional level, often in colonial contexts, and then primarily concerned with the secure supply of timber (see for example Agrawal, 2005: 25-86).

in binding agreements or the creation of major instruments. In the absence of intergovernmental regulation, non-governmental initiatives such as the Forest Stewardship Council (FSC) tried to fill the void by promoting sustainable forest management through the creation of certification schemes (Cashore et al., 2004). In terms of curbing deforestation, success has also been very limited there. The inability to address deforestation by both governmental and non-governmental actors led Humphreys (2008) to talk about a 'crisis of global governance'. The magnitude of what is now being discussed under REDD+ and the broad support it has received thus far present a stark contrast to the past inability to create an international institutional framework to address the problem of tropical deforestation.

The development of REDD+ also differs distinctively from the role tropical deforestation has played within the international climate change regime prior to the proposal of Papua New Guinea and Costa Rica in 2005. Despite the early scientific consensus, deforestation did not play any important role in the Framework Convention on Climate Change. Only once does the convention directly refer to forests or deforestation of developing countries, calling its signatories to consider actions for funding and technology transfer to help developing countries, with 'forested areas and areas liable to forest decay' (UNCED, 1992b: §4.8). The Activities Implemented Jointly (AIJ) programme, launched at COP 1 in Berlin in 1995, included a few projects targeting forestry issues.[6] The most known is the Noel Kempff Mercado Climate Action Project in Boliva, wich is considered to be the first 'REDD+ type' project. Forest carbon projects in developing countries came into the spotlight in the aftermath of the Kyoto negotiations, albeit as one of the key controversies at the time: After initial dispute about the role of accounting for sinks in industrialised countries (Lövbrand, 2009),[7] a controversy evolved over whether and to what extent forestry projects should be able to be credited under the CDM (Boyd et al., 2008). Favoured by the US, Norway and Japan as well as the GRILA group consisting of a number of Latin American countries, the inclusion of forestry projects — particularly avoided deforestation projects — was opposed by the European Union and many developing countries including China, India and Brazil (Boyd et al., 2008: 101). The NGO world was also split: while US-based conservation NGOs (see for example TNC, 2001) promoted avoided deforestation projects, European environmental NGOs (see for example Hare, 2000; Kill, 2001) opposed them. The opponents of an inclusion argued that cheap forestry credits would flood the carbon market, presenting an easy way for industrialised

6. Among the 156 registered AIJ projects, 18 were forestry related. Ten of these were avoided deforestation projects — of which the majority was located in Latin America and financed through US-based organisations (UNFCCC 2002).

7. The dispute was concerned with whether industrialised countries' forests should be counted towards their reduction commitments and thus potentially enabling them to offset emissions increases in other sectors through afforestation or reforestation.

countries to dodge their reduction commitments, while undermining the environmental integrity of the Kyoto Protocol. Furthermore, they raised concerns regarding the measurability[8] of reductions and potential problems with leakage[9] and permanence[10] (Schlamadinger et al., 2007: 278; Boyd et al., 2008: 100-101). The dispute stretched over several years. It was only solved during COP 7 in Marrakech, where a compromise was achieved which, while accepting afforestation (planting trees on land that has not had forest cover during the past 50 years) and reforestation (planting trees on land that has been deforested at some point during the past 50 years), excluded avoided deforestation as an eligible project type from the CDM (UNFCCC, 2001: 11/CP.7 Annex C).[11]

In light of the initial neglect of deforestation in the climate policy realm and the subsequent controversy that resulted in an exclusion of avoided deforestation from the CDM, it is an even bigger surprise that a proposal for a REDD+ mechanism could gain massive attention and widespread support only a few years later. Taking into consideration the contrast between the discussions on REDD+ and the history of international forest governance at large and the role tropical deforestation has played in climate governance in particular, I formulate as the first research question for this dissertation project the following:

How can the massive attention and broad support for REDD+ be explained in light of the marginalised and controversial role deforestation played during earlier phases of international climate negotiations?

Let us now turn to the second irritation: Why pay tropical developing countries to avoid doing something that does not seem to be in their interest in the first place? In the current debate on deforestation and climate change, deforestation is framed as a problem of missing or false economic incentives. The idea is to correct these failures by creating a price for forest ecosystem services — such as carbon sequestration — and by compensating tropical develop-

8. As the carbon content of forests cannot be measured directly, complex measuring and accounting methods are necessary to obtain results. These, however, have a certain level of uncertainty, which during the CDM negotiations was perceived by many actors to be too high to allow for accurate accounting (for more details see articles three and four of this dissertation project).

9. Leakage refers to the possibility that, as a result of forest protection measures that are being credited in one forest, deforestation activities — and with them the emissions — simply move to another forest. Hence, instead of having been reduced, the emissions have leaked elsewhere.

10. The problem of permanence or non-permanence refers to the possibility that a forest that is being afforested, reforested or protected today might be destroyed at some point in the future. Hence, credited missions reductions might not be permanent. Various instruments such as temporary credits or buffer funds have been devised to address this issue.

11. Avoided deforestation was not excluded from Joint Implementation, the mechanism that allows offset projects in industrialised Annex-I countries (UNFCCC, 2001: 11CP7 Annex B). However, as of today no such project has been realised.

ing countries for the opportunity costs[12] that they incur when refraining from deforestation. According to the underlying rationale, tropical deforestation takes place in order to generate revenues, either directly through logging and selling timber or indirectly through clearcutting to enable activities such as agriculture or mining. From this vantage point, developing countries miss out on some of these revenues if they reduce deforestation. Hence, they would face opportunity costs they should be compensated for.

While the opportunity cost concept represents a central part of the REDD+ debate that is referred to by many actors, the issue becomes much more diffuse with regard to its concrete implementation. There are two aspects that contribute to this. First of all, REDD+ negotiations under the UNFCCC have not yet been finalised. What has been agreed to is that REDD+ should be a 'results-based' mechanism to be implemented in phases (UNFCCC, 2010: 1CP16 IIIc). After an initial capacity-building phase in which developing countries are supposed to develop national strategies and action plans, demonstration activities should eventually carry over into 'results-based actions that should be fully measured, reported and verified' (UNFCCC, 2010: 1CP16 IIIc). A large group of actors argue that REDD+ should be integrated into the carbon market to raise the necessary funds once developing countries can provide compliance-grade credits (see for example Eliasch, 2008: xviii-xix; Zarin et al., 2009: 4-11). This, however, is fundamentally opposed by a number of other actors, making it one of the most controversial and most difficult issues to solve within the negotiations on REDD+.[13]

Second, the question how REDD+ should be implemented domestically is left to the discretion of the tropical developing countries themselves. This leaves room for significant variability. A very diverse suit of measures has been discussed in this context, ranging from an increase of protected areas (Scharlemann et al., 2010) and the promotion of community forest management (Locatelli et al., 2011) to the introduction of taxes (Barua et al., 2012) and the creation of payment for ecosystem services (PES) schemes (Börner et al., 2010; Tacconi et al. 2011). Thus, while paying actors to refrain from deforestation is a central facet, REDD+ is more than a mere payment or market system. But taking this into consideration, how do the

12. Originating from economics, *"[o]pportunity cost is the anticipated value of 'that which might be' if choice were made differently."* (Buchanan, 2008). In the case of deforestation it is assumed that landowners forgo profits by not deforesting as they are not able to seize the value of the timber or agricultural products that could have been produced on this land were the forest cleared.

13. At the country level a carbon market integration of REDD+ is supported by the members of the Coalition for Rainforest Nations as well as a number of industrialised countries such as the US and Norway. It is also being pushed by the World Bank's Forest Carbon Partnership Facility (FCPF). Among the major environmental NGOs US-based conservation NGOs such as The Nature Conservancy, the Environmental Defense Fund and Conservation International as well the World Wildlife Fund are in favour, while Greenpeace opposes it. There are a number of actors who argue that REDD+ is destined to become part of the carbon market sooner or later and hence should be opposed in principle: Friends of the Earth as well as a number of smaller grassroots organisations such as Carbon Trade Watch or the Indigenous Environmental Network share this position.

different aspects interact? What are the prerequisites for them to work? And what are the consequences of an implementation of REDD+?

Approaching the issue from a governmentality perspective (see the theory section for more details) I understand REDD+ as an attempt to make deforestation — and with it the problem of climate change — manageable and governable. These efforts to make it governable concentrate on particular spaces: Deforestation predominantly takes place in forest frontier regions — the borders between settled and forested areas where tropical forests come under pressure through incursions by farmers, settlers or corporations (Wunder, 2004: 4-5). Hence, most aspects to reduce deforestation focus on these frontier regions. With this in mind, we can frame REDD+ not only as an effort to make deforestation and climate change governable but also as an attempt to govern forest frontier regions and the people that live within them.

I also use the term forest frontier figuratively to denote the tropical developing countries within the international climate regime. The integration of developing countries into the UNFCCC has differed significantly from that of industrialised countries. The former thus far do not have any binding reduction commitments and they are subject to laxer reporting requirements — the key governing mechanism of the UNFCCC. With this in mind I argue that tropical developing countries are at the margins of the UNFCCC, representing its tropical forest frontier. Anticipating my post-structuralist framework, which I introduce in detail in Section 5, allows me then to formulate my second set of research questions:

How is deforestation, and together with it the mitigation of greenhouse gas emissions, being made governable through REDD+?

How does the introduction of REDD+ affect the government of tropical forest frontiers?

This leads me to the third irritation: How is avoiding deforestation turned into a commodity to be traded on the carbon market? This aspect is worth a thorough investigation despite my previous remark that REDD+ is more than a mere market mechanism: First, even though it has not been agreed upon within the UNFCC negotiations there is a strong drive to include REDD+ into the carbon market, putting it into the realm of possible developments we should take into consideration. Second, if a carbon market integration becomes reality, it will be the central element of REDD+. And third, despite the still pending integration into the compliance market, REDD+ type projects are already part of the voluntary market.

The carbon market has received some attention from social scientists (for an overview see Stephan and Paterson, 2012: 546-550). Being a recent creation, it allowed those who view

markets as deeply social institutions that depend on complex social routines and practices — such as scholars working with a sociology of markets (Fligstein and Dauter, 2007; Engels, 2009a) or commodification of nature approach (Prudham, 2009) — to investigate how new markets evolve. Among the issues that have been scrutinised in detail are the role of counter-factuals in generating carbon offsets (Lohmann, 2005); the role technical devices have in the process of 'making things the same' (MacKenzie, 2009); the different factors that influence how companies act on the carbon market (Engels, 2009b); the tension between carbon market practices and the materiality of carbon (Bumpus, 2011) or the interrelation between virtue and virtuality in the context of carbon markets (Paterson and Stripple, 2012). A question that arises with regard to this thesis is to what extent these insights also apply to a carbon market version of REDD+.

Let me first sketch how a carbon market integration of REDD+ — should it materialise — will look like: What is being discussed within the UNFCCC is an integration of REDD+ into the carbon market at the country level, which is often referred to as national level integration. In this respect REDD+ differs from the CDM, which is a project level mechanism. So how does it function? The idea is for tropical developing countries to reduce their deforestation rates below an agreed upon baseline. The difference between the new, reduced deforestation rate and the baseline is the amount of emission reduction credits the country receives. The tropical developing country can then sell these credits on the carbon market to industrialised countries or companies, which can use the credits to comply with reduction commitments they have under international agreements or through domestic emissions trading systems.

Thus far, afforestation and reforestation activities under the project-based CDM and Joint Implementation (the second offset mechanism of the Kyoto Protocol) have been the only way to generate forest carbon credits for compliance markets. However, very few forestry projects have been realised, resulting in only 22 million Certified Emission Reductions (CERs) or a miniscule market share of 0.9 per cent of all CDM credits generated by the end of 2012 (UNEP Risoe, 2013). In addition to these Kyoto Protocol mechanisms there is the previously mentioned voluntary carbon market, in which REDD+ activities can already be credited at a project level. REDD+ projects generated 37 million Voluntary Emission Reductions (VERs) — 29 per cent of the market share — in 2010 and eight million VERs — 9 per cent of the market share — in 2011 (Peters-Stanley et al., 2011; Peters-Stanley and Hamilton, 2012).[14],[15] The

14. A CER is a tradable credit representing emission reductions in the amount of one tonne of CO_2 equivalents. Non-CO_2 emissions are converted into the amount of equivalent CO_2 (CO_2e) emissions according to their respective Global Warming Potential (GWP) (for a detailed discussion see MacKenzie, 2009: 443-447; Paterson and Stripple, 2012: 571-573). A VER is the credit type that is traded on the voluntary market.

15. It is difficult to distinguish a trend from the available data: While the financial and economic crises have certainly made it increasingly difficult for project developers to secure support from investors, this is not the

amount of credits that are expected from a carbon market integration of REDD+ eclipse these numbers. Coren et al (2011) for example estimate that at a price of US $ 20/tCO$_2$e, the amount of credits annually generated through avoided deforestation activities alone (excluding degradation or the enhancement of carbon stocks) could be as high as 1.8 billion tCO$_2$e.

Based on my post-structuralist theory framework, and tying into the social science literature that has analysed carbon markets as social institutions based on complex routines and practices, I develop the irritation I presented earlier into a third set of research questions:

How is avoided deforestation converted into tradable carbon credits? What are the key practices and technologies for doing so?

How does REDD+ differ in this regard from afforestation/reforestation projects already existing under the CDM?

What are the consequences of a carbon market integration of REDD+ with regard to the perception of forests and the manner in which deforestation is being regulated?

3. The social scientific debate on REDD+

The amount and breadth of social scientific literature[16] on REDD+ has risen tremendously over the course of this dissertation project. The few contributions that made it into peer reviewed journals in the first years after discussions on REDD+ commenced within the UNFCCC in 2005 contextualised this new development in existing international climate and forest governance (Streck and Scholz, 2006; Laurance, 2007; Humphreys, 2008), compared and assessed different REDD+ proposals (e.g. Karsenty, 2008) or were themselves additional proposals (see for example Dutschke and Pistorius, 2008; Johns et al., 2008). In the absence of an existing REDD+ programme with concrete projects or measures, contributions subsequently

only explanation for the significant reduction in market share from 2010 to 2011. What has to be taken into consideration as well is that REDD+ projects are new project types, leaving developers and consultants with little experience and requiring the development of new methodologies. Furthermore, while REDD+ projects have already produced a considerable amount of reduction credits, most of these have come from a small number of projects. Hence, the decline of market share may also be the result of a delay in the registration and verification of additional REDD+ projects. Meaningful conclusions can only be drawn once the data for subsequent years becomes available.

16. In addition to the contributions reviewed in this section, there is a broad body of literature from forestry, carbon cycling and remote sensing experts concerning the measurement and monitoring of deforestation and forest degradation or fluxes in forest carbon.

focused on what can be described as lesson drawing: The assessment of various existing forest and climate policy measures to transfer lessons learned to the development and implementation of REDD+ (e.g. Caplow et al., 2011; Doherty and Schroeder, 2011; Lederer, 2011). With the implementation of the first REDD+ pilot projects these contributions were complemented by assessments of REDD+ specific on-the-ground experiences (e.g. Cerbu et al., 2011; Murdiyarso et al., 2012).

An aspect that stands out in this REDD+ literature is the strong policy orientation combined with a distinct tendency to be policy prescriptive: 'most of the empirical studies conducted so far focus on how to make REDD work to reduce deforestation and channel funds to developing countries rather than the problems that such mechanisms … pose …' (Hufty and Haakenstad, 2011). A critical engagement — in the sense of scrutinising REDD+, its underlying assumptions, broader effects or reflecting on the political process in which it is emerging— is mostly absent. There are a few exceptions: Okereke and Dooley (2010) assess the proposals made during the early UNFCCC negotiations on REDD+ to discern the underlying justice principles; Schroeder (2010) — drawing on the Earth System Governance framework (Biermann, 2010) — analyses to what degree indigenous peoples gained agency in the REDD+ negotiations; Nielsen (forthcoming) as well as Hiraldo and Tanner map some of the key narratives in the debate on REDD+; and McDermot, Levin and Cashore (2011) draw on institutionalist approaches to assess how scientists have influenced the way REDD+ is being debated.

There is a big gap in the literature concerning the question of how REDD+ became such a broadly accepted climate policy measure so rapidly. Only Boyd (2010) has provided some insights on the emergence of REDD+: Drawing on Foucauldian discourse theory he provides a genealogical perspective on forest governance highlighting how deforestation has become an object of global governance and subsequently an object of global climate governance.

The literature is also extremely thin with regard to reflections on what governing through REDD+ entails: Thompson et al. (2011) — albeit lacking a discernible theoretical framework or a clear definition of what they mean by governance — argue that REDD+, at its development stage, already has discernible effects, providing 'a particular framing of the problem of climate change and its solutions that validates and legitimises specific tools, actors and solutions while marginalising others' (Thompson et al., 2011: 100). Hitting closer to home — with regard to the theories utilised in this dissertation — Decasper Chacón (Decasper Chacón, 2009), in her master's thesis, draws on Agrawal's (2005) notion of environmentality to discuss the effects of REDD+ on forest governance. Gupta et al. (2012) draw on governmentality studies to highlight the disciplining effects of monitoring, reporting and verification practices in REDD+.

The literature is very scarce with regard to reflections about the prerequisites and effects of a carbon market integration of REDD+. Only recently, Corbera (Corbera, 2012) conceptualised REDD+ as an 'experiment in payments for ecosystem services', criticising the simplification of nature and the crowding out of non-monetary motivations for conservation it entails.

4. Choosing a theoretical perspective for the analysis of REDD+

With this thesis, I contribute to closing these research gaps. The aim is to provide a critical perspective on the emergence of REDD+, to analyse what governing through REDD+ entails and to scrutinise the prerequisites for and effects of a possible carbon market integration of REDD+. Part of the reason why I have chosen a poststructuralist approach to do this are a number of limitations from alternative approaches when it comes to elaborating on the irritations I presented and answering the research questions of this project.

While regime theory (Krasner, 1983; Keohane, 2005) approaches might help to contextualise and understand REDD+ within the broader dynamics of the international climate and forest regimes (to the extent that one assumes that the latter exists), they lack adequate tools to explain its emergence. First, regime approaches pursue a state-centric perspective — non-governmental actors are only of marginal interest, if at all. But as shown in the different papers of this thesis, the emergence of REDD+ is heavily shaped by non-governmental actors — NGOs, international organisations and the epistemic community. Furthermore, most regime approaches take states' preferences as given. However, as paper two — *From Pariah to Messiah: The Role of Avoiding Deforestation in International Climate Governance* — shows, a number of states have changed their preferences with regard to avoided deforestation. Hence it is important to be able to map and conceptualise these changes, something a regime approach cannot do. Lastly, regime approaches do not provide the instruments necessary to understand how deforestation and climate change are being made governable through an instrument like REDD+.

In comparison, constructivist approaches have more explanatory power. Due to the rapid diffusion of concepts, methods and practices that has taken place in the case of REDD+ and the distinguished role of institutions like the World Bank's Forest Carbon Partnership Facility and UN-REDD or even of individuals like Kevin Conrad,[17] policy diffusion approaches

17. Kevin Conrad, a Columbia Business School graduate, founded the Coalition for Rainforest Nations to put REDD+ on the agenda and promote it. He did so, too, as a UNFCCC negotiator for Papua New Guinea. Many of my interview partners — despite pointing to the controversies around his person — have highlighted the importance of his role in the early years of the REDD+ debate.

(Tews, 2005; Holzinger et al. 2007) or the concept of policy entrepreneurs (Dolowitz and Marsh, 1996: 345-346) provide helpful entry points to the case of REDD+. However, one quickly runs into the limitations of the constructivist framework. The transfer and diffusion approaches provide powerful explanations in instances where a clear set of norms is diffused in an almost linear fashion. This is not the case in REDD+: We can observe an almost instant break in 2006/2007 when avoiding deforestation transformed from a highly controversial to a highly accepted issue within the climate policy world. As I point out in the second article of this dissertation project, this is linked to a number of discursive shifts and the re-articulation of norms in the opposite directions. As a result, a broad variety of actors now support REDD+ despite (at least partially) contradicting and incompatible perceptions of what it is and what it entails. In contrast to the poststructuralist approaches, then, the constructivist literature is insufficiently equipped to conceptualise these contingent moments in the discourse and the related discursive struggles.

Apart from the poststructuralist framework I have chosen, the political economy literature (see for example Bumpus and Liverman, 2008; Newell and Paterson, 2011; Paterson 2011, Stephan, 2011) is probably best suited to provide explanations to the research questions of this thesis. The business opportunities REDD+ creates and the material interests and conflicts related to REDD+ are manifold, providing a familiar terrain for political economy approaches and their focus on material aspects and relations. In addition, these theories provide helpful insights into the prerequisites and consequences of a possible commodification of avoided deforestation and forest carbon.[18] But with this focus on material aspects come the limitations of political economy approaches: Struggles without imminent material implications, e.g. the contradictory perceptions of REDD+ indicated above, are not in the focus of materialist approaches. Accordingly the ability to conceptualise how governing through REDD+ is being realised is limited to material aspects and production relations.

A poststructuralist theoretical framework as chosen for this research project and outlined in detail in the following section overcomes or sidesteps the shortcomings of these alternative approaches. By providing the tools to deconstruct taken-for-granted concepts it enables us to get a better understanding of how REDD+ came into being and how such a broad and diverse set of actors is able to relate to this project. Taking into account both linguistic *and* material aspects broadens the view and the ability to grasp the full range of developments within the field of forest and climate governance. By drawing on the governmentality concept I furthermore have a rich toolkit available with which to analyse what governing through

18. With regard to political economy approaches to carbon markets see for example the works of Bitter (2011), Bumpus (2011) or Böhm et al. (2012).

REDD+ entails and to conceptualise its indirect linkages.

5. A poststructuralist perspective on global climate and forest governance

To analyse REDD+ and its emergence I combine Michel Foucault's concept of governmentality and Ernesto Laclau and Chantal Mouffe's hegemony and discourse theory. A poststructuralist framework based on these theories is perfectly suited to analyse what a 'regime of practices' (Dean, 1999: 18; Glynos and Howarth, 2007: 120-127)[19] — e.g. a societies' health, education or penal system — entails and how it functions. It furthermore allows us to analyse how a particular mode of governing such regimes prevails.

Before going into details about governmentality and hegemony and discourse theory I would like to outline how I apply the theoretical framework — derived from these approaches — in the context of this cumulative dissertation. In each of the empirical papers (papers two to five) I draw either on governmentality or hegemony and discourse theory for my main theoretical approach, depending on which particular irritation I am engaging with. This results in a structure (see Section 7) that alternates between papers, which apply either governmentality or hegemony and discourse theory. Proceeding in this manner allows me to put the two approaches into conversation. While I use the approaches separately in the empirical papers, the theoretical paper of my dissertation titled *Third Side of the Coin: Hegemony and Governmentality in Global Climate Politics* demonstrates how an integration of the two could look like and highlights the advantages of such.[20] In the remainder of this section I proceed as follows: After sketching out the common characteristics of poststructuralist approaches. I introduce both governmentality and hegemony and discourse theory in more detail.[21] I close by highlighting how the two approaches complement each other, emphasising the added value

19. Both governmentality scholars (e.g. Dean, 1999: 18) and hegemony and discourse theory scholars (e.g. Glynos and Howarth, 2007: 120-127) use this concept.

20. The decision to focus on either one of the theoretical approaches in the empirical papers, was mainly made for pragmatic reasons: The limited word count of journal articles does not allow for both the presentation of a detailed theoretical framework that itself draws on two complex theoretical strands and the detailed presentation of empirical results. Hence, to maximise the space for the presentation of the empirical results, I decided to respectively focus on one of these strands in my empirical papers.

21. As the paper format only allows for very brief and sometimes fragmented elaborations of one's theoretical approach, I use this introduction to give a detailed summary of the theoretical concepts that are drawn upon. A reader well versed in Foucault's governmentality approach and Laclau and Mouffe's hegemony and discourse theory might not need this summary and could choose to skim through the rest of this section. She should note, however, that I draw on Collier's (2009) and Dean's (1999) readings of Foucault's governmentality concept.

of a synthesis with regard to an analysis of the regime of practice that has evolved at the nexus of climate and forest governance around the problem of (tropical) deforestation.

5.1 The centrality of discourse in poststructuralist theorising

One of the most defining aspects of poststructuralist theorising is the central role of discourse. In a poststructuralist context, discourse is often defined as 'an ensemble of ideas, concepts, and categories through which meaning is given to social and physical phenomena' (Hajer, 2006: 67). While poststructuralists do not question the existence of the material world, they argue that it can only have meaning for people if it is represented in discourse. And depending on how it is represented in discourse, its meaning can vary. A flood, for example, destroying river communities can be understood as the wrath of god, a sign of climate change, or simply a result of inadequate land planning. Depending on the meaning that dominates, different responses to the event are perceived to be appropriate.

As the prefix indicates, poststructuralist approaches build on structuralism. Structural linguist De Saussure (1966) showed how signs — the individual elements of language — are comprised of a signified (a thought concept) and a signifier (the sound image that denotes it), the relationship between which is arbitrary and non-essential. Instead, the meaning of a sign is solely constituted through its differential relations to other signs or their totality, the linguistic system. The latter he perceived to be closed and stable. Poststructuralists accept the idea of a non-essential relationship between signifier and signified but criticise the idea of a fixed and stable system (Derrida, 1997). They argue instead that the linguistic system — and, similarly, discourse — merely gives the impression that it is fixed. It is always almost complete — just not quite yet. But in actuality discourse is not fixed but rather contingent: Established structures can destabilise or break down, and meaning can change.

5.2 Governmentality

These basic assumptions also underwrite Michel Foucault's concept of governmentality, which he developed over a series of three lectures between 1975 and 1979 (Foucault, 2003; Foucault, 2007; Foucault, 2008). There is no essay or book written by Foucault on the subject of governmentality. All that exists are transcripts of recordings of the lecture series. A feature of the lecture format — in contrast with a monograph where one is forced to present a more

consistent argument — is the various and at times contradicting hints on how to understand and define governmentality. My reading of Foucault broadly follows Collier, who argued that Foucault's governmentality concept contains a 'topological approach' to power (Collier, 2009: 80) — an interest in mapping how different forms of power and governmental mechanisms are (re-)deployed and combined in a variety of different contexts. I combine this with Dean's (1999) 'analytics of government', best described as a research heuristic based on Foucault's governmentality concept.

Apart from the notion of governmentality, Michel Foucault is probably most widely known for his discourse analytical work (see Section 6 on methodology and methods) and his understanding of power. Originating from his discourse theoretical assumptions, power for Foucault is always linked to knowledge. It is productive and can be found everywhere, yet it cannot be owned or controlled (Gordon 1980: 119). Foucault developed a micro physics of power which he investigated in such diverse fields as the clinic (Foucault, 1973), the prison (Foucault, 2002) and sexuality (Foucault, 1990). During the above mentioned lecture series at the College de France, Foucault broadened his view and included a macro perspective within the notion of governmentality. Foucault tried to discern how rule is exercised at state level and how states have tried to govern their territory or their population. Governmentality is often understood to be a distinct form of power formed through an ensemble of 'institutions, procedures, analyses and reflections, […] calculations and tactics […] which has as its target population, as its principal form of knowledge political economy, and as its essential technical means apparatuses of security.' (Foucault, 1991: 102). Foucault also referred to this indirect and decentralised form of power as 'government' (Foucault, 1991: 87, 95-96). According to Gordon (1991: 2) this notion of government can best be grasped through the expression 'conduct of conduct' — including both the self-conduct of individuals according to particular norms as well as the conducting of others. From this perspective, governmentality is a historical phenomenon that emerged with the onset of modernity as a new form of rule increasingly replacing sovereignty, or a sovereign's rule over its territory through direct and coercive power.

Starting from the assumption that governmentality is a distinct phenomenon — or a series of phenomena if one considers the differentiation into liberal and neoliberal forms of governmentality — many scholars work with ideal types of governmentalities, which they apply in a top down manner: There is, for example, a multitude of analyses in which the contemporary development of different regimes of practices is compared to an ideal picture of neoliberal governmentality abstracted from Foucault's lectures on neoliberal thought. Not surprisingly, many of these analyses conclude that neoliberal rationalities or technologies are at play in these fields. This has resulted in criticism of governmentality studies, with the argument

that they turn into 'self-fulfilling prophecies' (Rothe, 2011: 4) — that is, as scholars tend to account for aspects that fit the ideal type they are looking for, while discarding others that do not, they create a harmonised account of reality, concealing its specificities and contradictions. As a result they may reproduce the ideal type they began with. This leads Keller (2010) to the conclusion that governmentality studies have, analytically, been depleted.

While I fully acknowledge this problem, I would not go as far as Keller. Instead, I return to what I indicated at the beginning of this section and propose to turn to Collier's (2009) reading of Foucault's lectures. Collier refutes the understanding of Foucault's lectures as outlining a historical succession of formations of rule, from which ideal types could be discerned. Collier argues that even though Foucault might have followed such an understanding in his first lectures he has subsequently abandoned it in favour of a 'topological approach' to power (Collier, 2009: 80). Foucault was interested in mapping how, in different contexts, various forms of power and governmental mechanisms are combined and deployed. From such an understanding of governmentality, the application of ideal types of governmentalities is not helpful. Instead, bottom up perspectives are required to make sense of the issue- and context-specific power configurations. Paper three, *Governing the Forest Frontier*, presents one such example: Through a bottom up analysis I am able to map the multifaceted power structures and governmental technologies in action in the case of REDD+ - technologies of agency and performance (Dean, 1999: 167-170) enmeshed with disciplinary and coercive forms of power.

Moving away from an understanding of governmentality as a distinct historical phenomenon and perceiving it as an analytical perspective that can be applied broadly also enables me to refute some other criticisms that have been brought against governmentality studies, particularly within the realm of International Relations. Serious doubts have been articulated concerning the applicability of governmentality to the international context. Starting from an understanding of governmentality as a historical phenomenon, Joseph (2009; 2010a; 2010b) for example argues that the explanatory power of governmentality studies is confined to Western nation-states. When it comes to the international system or authoritarian, non-Western societies, crucial elements of governmentality — like the population as an object of government (in the international system) or a liberal society in which a free subject could develop (in authoritarian, non-Western societies) — simply do not exist. Hence, governmentality as he understands it cannot be meaningfully applied to these realms.

Confining oneself to a singular understanding of governmentality as a historical phenomenon misses a large part of the potential of this approach and is, as Collier shows, unnecessary. As this dissertation and other existing governmentality studies on environmental issues show, governmentality can be a powerful analytical tool even though the object of government is not the well-being of a population but that of the environment (Luke, 1999b;

Luke, 1999a), forests (Demeritt, 2001; Baldwin, 2003) or the climate (Oels, 2005; Bäckstrand and Lövbrand, 2006; Paterson and Stripple, 2010; Methmann, 2011; Lovell, 2013). Furthermore, governmentality studies also give helpful insights into government that takes place in non-Western contexts (see for example Agrawal, 2005; Li, 2007; Bose et al., 2012).

5.2.1 Dean's analytics of government

As previously mentioned, Foucault's descriptions of governmentality remain somewhat diffuse and contradictory. When using governmentality for empirical analysis it is helpful to operationalise a clear analytical framework. To do so for the analysis of REDD+ I draw on Dean's (1999: 20) *analytics of government*. It can be characterised as a research heuristic which Dean has developed based on Foucault's notion of governmentality. It consists of four different dimensions: rationality and forms of knowledge; technology; forms of subjectivity; and the field of visibility.

Every regime of practice is underwritten by a *rationality* and particular *forms of knowledge* constituting its *episteme* (Gordon 1980: 194) — that is, the limits of what is being accepted and perceived to be reasonable within a given field, and the way in which an issue is being rendered thinkable. REDD+ for example is underwritten by a rationality of costs and missing financial incentives. From this perspective deforestation occurs because most ecosystem services provided by forests do not have a price in our current economic system. Hence, while it creates opportunity costs, protecting forests does not provide sufficient monetary benefits. Creating a price for these ecosystem services and/or compensating the owners of forested land for the opportunity costs that they incur is perceived to be the adequate solution.

The rationalities and forms of knowledge are usually linked to concrete *governmental technologies* that try to translate the abstract norms found in the rationalities and forms of knowledge into concrete behaviour. Creating markets — such as the carbon market — is one example. It plays an important role in climate governance and in the discourse on REDD+ but is also a governmental technology that has been applied in various other fields. The rationality that structures a regime of practice and the technologies that are being applied also form and presuppose particular identities or *forms of subjectivity*: Individuals accept the norms dominating a field and follow them without being forced to do so. Paper three, *Governing the Forest Frontier*, shows that most of the key solutions that are currently being discussed — opportunity cost payments or PES systems — presume subjects that behave as perfectly rational actors — homines oeconomici.

Table I: Governing deforestation through REDD+

Rationality	• Tropical deforestation as a driver of climate change • Deforestation is a problem of missing economic incentives. This can be remedied through: monetisation of ecosystem services; compensation of opportunity costs These rationalities are related to various forms of knowledge: • Carbon cycle science • Opportunity cost calculations • Opportunity cost curves
Technology	• Governing through markets based on: a) a carbon market integration of REDD+ b) payments for ecosystem services —> technologies of agency —> technologies of performance • Remote sensing creates a 'carbon panopticon' (Lövbrand and Stripple, 2011a) —> guides coercive forces —> disciplinary power
Field of visibility	• Preoccupation with the MRV of forest carbon causes a carbonification of forests • Opportunity cost logic turns subsistence agriculture into inefficient slash-and-burn farming
Forms of subjectivity	• Carbon forester • Rational, utility-maximising carbon entrepreneur • The noble savage living in harmony with nature

Within a regime of practice, the rationalities and governmental technologies shape a particular *field of visibility*: They render some aspects visible and others invisible and thus constitute how we observe a problem or what we perceive to be a suitable solution. The field of visibility that is created through REDD+ is, similarly to the climate regime at large (Methmann and Stephan, forthcoming), very constrained and focused on carbon. What is highlighted is forests' ability to store carbon. Other aspects — forests as habitat for biodiversity or home and source of livelihood for forest communities — move into the background and become invisible. As I show in papers four and five, a *carbonification of forests* occurs.

5.2.2 Strengths and weaknesses of the governmentality approach

The strength of governmentality as an analytical tool to understand power and rule lies primarily in its ability to connect practices at the micro level with macro structures. Second, the possibility to grasp and highlight regulatory structures that are present even though the state is not directly involved adds to the popularity of governmentality. In this context, Miller and Rose's (2008: 34) notion of *government at a distance* must be highlighted. They develop this concept from Foucault's lecture, additionally drawing on Latour's idea of *action at a distance* (Latour, 1987 quoted in ; Miller and Rose, 2008: 26), to denote the '"indirect" mechanisms for aligning economic, social and personal conduct with socio-political objectives.' (Miller and Rose, 2008: 26). As shown in paper three: *Governing the Forest Frontier*, I go beyond Miller and Rose's understanding of the concept by using it to capture not only the indirect government of people but also the indirect regulation of nation states in the international system. Through REDD+, developing countries will be subject — to a much larger degree than they are now — to monitoring and reporting requirements by the UNFCCC. The resulting (indirect) effects significantly strengthen the way tropical developing countries are being governed from a distance. States can simply walk away from international agreements and, thus, sanctions or other coercive regulatory instruments might have little leverage over them. It is hence important to have concepts at hand that help in understanding the indirect mechanisms and power structures that are at play on the international level.

Governmentality as an analytical approach, however, also has its limits. Solely drawing from the theoretical toolkit Foucault offers provides us with little means to find out how particular ways of governing a regime of practice (particular governmentalities, if we once more perceive governmentality to be a historical phenomenon) emerge and why they and not others become dominant. Foucault for example gives a detailed description about neoliberal thinking and governing in his lectures. He does not provide insights, however, as to why neoliberal forms of government gained this dominance. One can draw similar conclusions from the literature on climate governmentality: There are detailed accounts on how various aspects ranging from the individual (Paterson and Stripple, 2010) to the state (Lövbrand and Stripple, 2006; Lövbrand and Stripple, 2011b) or even the international level (Oels, 2005) are being governed but we find little insights on why these forms of government prevailed. Oels (2005) for example argues that biopolitical management, the dominant mode of governing climate change during the 1980s and early 1990s, has been increasingly replaced with an advanced liberal mode of government. She does not provide any explanations, however, of how this change occurred. To conclude, governmentality studies have their blind spot when it comes to accounting for contingency and providing insights into processes of change. To compensate for this weakness I combine governmentality with Laclau and Mouffe's he-

gemony and discourse theory.

5.3 Hegemony and discourse theory

The particular characteristics of Laclau and Mouffe's hegemony and discourse theory are their distinction between the social and the political, and their notion of hegemony. These aspects are particularly helpful when trying to modify the governmentality approach and overcome the outlined weaknesses. Before turning to these elements of their theory, I briefly sketch Laclau and Mouffe's theoretical roots and introduce their concept of discourse. I particularly highlight the differences to Foucault's work, arguing that even though differences exist, their approaches are not irreconcilable.

Laclau and Mouffe developed their theory during the 1980s as a critique to Structural Marxism (Althusser, 2006). From their perspective, Structural Marxism — like other Marxist perspectives — suffered from two interlinked aspects of economism that need to be overcome: epiphenomalism and reductionism. Epiphenomalism refers to the perception that the social, political and legal superstructure is entirely determined by the economic base. As a consequence 'the superstructure cannot play any independent role in history' (Torfing, 1999: 20). Reductionism refers to the tendency to reduce superstructural phenomena to a single contradiction in capitalism: the class contradiction between labour and capital (Mouffe, 1979: 169-170). Laclau and Mouffe developed their own approach in response to these shortcomings, drawing on Gramsci's (1992) ideas on hegemony and the state, Derrida's (1997) critique of structural linguistics, Wittgenstein's (1958: 3) language games and Foucault's notion of discourse and genealogy (Laclau and Mouffe, 2001).

5.3.1 Discourse

For Laclau and Mouffe, discourse is a relational and differential system through which meaning is constituted. It 'is the primary terrain of the constitution of objectivity as such.' (Laclau, 2005: 68). The links to De Saussure's structural linguistics are obvious not least because Laclau and Mouffe define signifiers as the smallest discursive units and argue that they are different from each other, but do not have any essential meaning or positive value. As Howarth puts it, a discourse is 'a system of signifiers without positive terms, in which the identity of each element depend on its differences with others' (Howarth, 2009: 311). As the discursive system can never be fully closed and stable, Laclau and Mouffe's theoretical concept focuses on the (re)production of discourse and the way in which signifiers are con-

tinually being related to generate meaning. The act of relating two discursive elements and hence modifying their identity is what they call *articulation* (Laclau and Mouffe, 2001: 105).

There are two different types of relations that exist between discursive elements: relations of difference and relations of equivalence. The relation of difference is omnipresent: it stems from the simple fact that all signs are non-identical. Hence there exists a relation of difference between every element in the discourse. This logic of difference (Laclau and Mouffe, 2001: 130) is not yet sufficient in generating meaning, as it can only say that elements are not identical to each other. In order to generate meaning, relations of difference have to be combined with relations of equivalence.

Relations of equivalence come into being when discursive elements are being equated. However, they are only being equated with regard to certain aspects because — as stated in the logic of difference — discursive elements can never be identical. What happens is that element x is equal to element y with regard to specific a aspect a (Nonhoff, 2007: 179). Laclau and Mouffe talk about split elements (Laclau, 1996: 38) containing both a differential moment which makes them distinct from each other and an equivalential moment that gives them their similarities.

In contrast to what is generally perceived to be Foucault's concept of discourse — differentiating between discursive and non-discursive elements — Laclau and Mouffe have an all-embracing notion of discourse. It is not limited to speech and writing but also covers actions and material aspects. According to their definition, any act that has a relational character and hence a structuring and meaning-generating result is discourse (see Laclau, 2005: 68). Thus, discourse 'weaves together semantic aspects of language and pragmatic aspects of action' (Howarth, and Torfing 2005: 14). As such, Laclau and Mouffe perceive their concept of discourse as being similar to Wittgenstein's language games (Laclau, 2005: 106). In line with Wittgenstein, they argue that it is not only how we linguistically denote something but also how and in what context we use it that constitutes the meaning of an object. Take a brick by way of example: It could be used in the process of building a house. But it could also be used in a street fight. Thus, depending on how it is used, it is either a construction material or a weapon (Laclau, 1990: 100-103).

Even though their understanding of discourse differs, the approaches of Foucault and Laclau and Mouffe are not irreconcilable. Some scholars argue that even though Foucault mentions 'non-discursive' as a category he does not do so consistently in his work (Denninger et al., 2010: 213). Furthermore, even if he consistently differentiated between the two, the category of non-discursive could not really be upheld from a poststructuralist perspective. Denninger et al (2010: 213) argue that the distinction between discursive and non-discursive aspects stems from a categorical error: The discursive immanence of the social is of-

ten — mistakenly — perceived to be an ontic[22] category. As a consequence, people tend to point out the fact that material artefacts like diseases or weapons exist independently of discourse and hence must be non-discursive. While there is no question about their independent existence, Denninger et al. (2010) argue that one should think about the immanence of discourse as a methodological category: While diseases exist independently of discourse, they only achieve meaning to us through it — and hence there is no analytical benefit in flagging them as non-discursive. From this perspective Foucault's notion of discourse can easily be reconciled with Laclau and Mouffe's. The distinction between *discursive element* and *non-discursive element* as it is used by some Foucauldian scholars should then be replaced with differentiating between *linguistic* and *non-linguistic elements of discourse.*

5.3.2 Hegemony: From the political to the social

Having outlined the discourse theoretical foundations of Laclau and Mouffe's theory, I now turn to their understanding of hegemony and their differentiation between the social and the political. For Laclau and Mouffe the social and the political are two distinct ontological categories. Let me start with the former: The social is constituted by the everyday practices we follow, the daily routines we have developed — collectively and as individuals — and the truths they are based upon. What makes customs customs and turns routines into routines is the fact that they are deeply sedimented into our life. They are the elements of discourse that have been stable for an extended amount of time. Hence, we have become so used to them that they have been naturalised. They are not questioned but appear as something that has always been there.

Even though temporarily there can be a significant degree of stability, regimes of practices and discourses are never absolutely fixed and fully stable. New events or developments can appear contradictory to established routines or customs. This can result in the calling into question of existing truths. Suddenly, what appears to be fixed structures and unquestionable truths becomes something mutable. Laclau and Mouffe call such events *dislocations*. When truths and routines are called into question they are not part of the social anymore. They are being politicised, entering the sphere of what Laclau and Mouffe define as the political. If a practice does not seem natural anymore, there is room for discussion and struggle about what sort of practice should replace it. The questioning of such truths and the attempts to establish new ones constitutes what Laclau and Mouffe understand as the political. Put more formally, the political is the institution and contestation of social relations and practices

22. Whereas *ontology* refers to what theories and their categories allow us to know about reality, the *ontic* refers to what is physically out there — independent of if and how theories conceptualise it.

(Laclau and Mouffe, 2001: 153).

It should be clear that the notion of the political, as it is used by Laclau and Mouffe, goes beyond a narrow understanding of the political as politics. Politics is what we can see in and around the German *Bundestag*, the Brazilian *Palácio do Planalto* or the Indonesian *Dewan Perwakilan Rakyat*. It is also what takes place at the Conferences of Parties (COPs) to the UNFCCC. It is the strategic manoeuvring to achieve decisions. Often, however, this simply aims at passing a new regulation on the basis of established truths and values. In this case we look at politics whose process and outcome are not political. Instead, from Laclau and Mouffe's perspective, something is perceived to be political if it

> 'has to do with the establishment of that very social order which sets out a particular, historically specific account of what counts as politics and defines other areas of social life as *not* politics.'
>
> (Edkins, 1999: 2, emphasis in the original)

This has been called a post-foundational understanding of the political (Marchart, 2007).

Having described the distinction between the social and the political, let us take a step back for a moment and consider where Foucault's notion of governmentality fits in. Foucault inter alia used governmentality to describe the indirect and non-coercive forms of government that have emerged with the modern state. This is what I have described as a historic understanding of governmentality. As this mode of governing tends to engage subjects in a participatory and non-conflictive manner it enables those in power to govern 'in ways that do not disturb or modify a dominant practice or regime in a fundamental way' (Howarth, 2009: 321). Hence, governmentality (as a historic phenomenon) falls into what Laclau and Mouffe define as the social. Governing without creating disturbances avoids politicising issues or actors. Furthermore, if we consider governmentality as a topological approach (Collier, 2009: 80) we have the theoretical tools to map in detail the power structures and dynamics that exist within the social (see also Section 5.4).

Having outlined, Laclau and Mouffe's concept of discourse and their distinction between the social and the political, I now turn to their notion of hegemony. It gives us an understanding of how issues move between the social and the political: How is something politicised — how does it move from the realm of the social into the realm of the political? Or, how does something become depoliticised — how does it move from the political to the social?

To fully grasp hegemony, one should differentiate between two aspects: I refer to them as the *qualitative* and *quantitative* dimension of hegemony. While the former has to do with the

structure of the discourse and its articulations, the latter points to their proliferation and the frequency of their occurrence. I start by elaborating on the qualitative aspect. Before doing so I would like to introduce the notion of the *demand*, which Laclau (2005: 72-77) in his later work starts to use with regard to political discourses. Discourses are political if they are concerned with establishing truths or routines for problems and processes that cannot be accommodated by the dominant order. They are also political if they aim at destabilising this dominant order. In a political discourse, the smallest discursive unit that is being articulated is a demand. Demands are aimed at overcoming deficits and grievances which a) have come into being due to new challenges the existing order cannot accommodate, or b) have to do with the dominant order itself.

Keeping this in mind, I continue with the description of what I call the qualitative dimension of hegemony. Following Nonhoff (2007: 181-184) I distinguish between hegemonic structures at different discursive levels: At the smallest level we can find *hegemonic articulations* (Nonhoff, 2007: 183). These are articulations in which a demand to overcome a grievance is articulated with regard to the universal — the general benefit of society. 'We need to avoid deforestation, as it reduces greenhouse gas emissions and is thus an important climate protection measure' would be such a demand; Global warming is often perceived to be a universal threat, and in many instances articulated as a threat to humanity as such.

At a more aggregate level, if several hegemonic articulations are being combined, we can talk about a *hegemonic project* (Nonhoff, 2007: 183). In this case the demands are combined into a *chain of equivalence*. As I have pointed out in the previous paragraphs on Laclau and Mouffe's understanding of discourse, all signifiers and hence demands are different. If multiple demands are being combined through equivalential relations into a chain of equivalence, they are all split, containing a differential and equivalential moment. Their differential moments ensure that they are distinct demands. The equivalential moments of the demands point to a specific aspect *a* that they share (*x* equals *y* equals *z* with regard to aspect *a*). However, as there can be no positive relations in a discursive system, this specific aspect *a* has to be a discursive element (e.g. another equivalential chain) outside of this equivalential chain. It is thus a *constitutive outside* without which the chain of equivalence would have no meaning. The relationship between the chain of equivalence and its constitutive outside is deeply antagonistic. Consider the case of REDD+: As I show in paper two, *From Pariah to Messiah*, a broad variety of different actors can relate to REDD+ and support it because their demands have been combined in the context of this project. Apart from the demand for climate protection, there are demands for biodiversity protection, poverty alleviation, sustainable development, indigenous rights and many more that are supposedly fulfilled if REDD+ is implemented.

Furthermore, what occurs is that one of the demands that has become part of the chain of equivalence starts to represent the entire chain and all other demands. In his later works Laclau calls this a *popular demand* (Laclau, 2005: 225). Operating through a strong antagonism, this demand has the ability to split the discursive space that constitutes the social into two. Linked to this demand — and sometimes it is the demand itself — a symbol develops that stands for the entire chain of equivalence, representing all demands and unifying all antagonistic relations onto itself. Laclau calls this element an *empty signifier* (Laclau, 2005: 98-99). Such a signifier has to be emptied of its own signified in order to have the ability to represent the other signifiers of the equivalential chain and point to their respective signified. Empirically, there are no pure, fully emptied signifiers. What can be found, however, are signifiers which have been emptied to a degree that makes it impossible to clearly determine their meaning (Stäheli, 1999: 149-150).

There is also the possibility that a signifier has not yet sufficiently been emptied. Instead, actors struggle over it, trying to articulate it in contradicting ways. As a consequence, the meaning of this signifier is 'indeterminate between alternative equivalential frontiers' and hence 'suspended' (Laclau, 2005: 131). It remains in this state as long as no party can prevail in establishing its position as dominant. In this case, Laclau talks about a *floating signifier*.

In my case study, 'reducing emissions from deforestation and degradation' is the popular demand that subsumes the other demands concerning biodiversity, poverty and so on. However, REDD+ does not yet function as an empty signifier. It is being used both by actors that strive for a carbon market integration of REDD+ and by those that despise such integration. As long as these positions cannot be reconciled, REDD+ represents a floating signifier.

As I have indicated, in addition to this qualitative dimension of hegemony — the manner in which something is articulated — there is also a quantitative dimension. The role of a project like REDD+ is not only determined by the way it is structured discursively, such as whether it can develop an empty signifier or not. Also of importance is the extent to which articulations are being picked up and reproduced by a broader audience and, hence, whether these articulations dominate a field. These two aspects of hegemony are deeply linked: To be broadly reproduced, the articulations of a hegemonic project need to have a powerful chain of equivalence which can help integrate a diverse group of actors. However, while this condition has to be met for hegemonic articulations or projects to be widely reproduced, it is no guarantee that this will happen.

Table II: Key discursive elements and relations in Laclau and Mouffe's hegemony and discourse theory[23]

Articulation	• The act of relating two discursive elements to generate meaning
Hegemonic articulation	• A demand that is articulated with regard to the universal (= the benefit of the entire society)
Demand	• Smallest discursive element in a political discourse • Aims to establish new truths or routines and thus overcome societal deficiencies or grievances
Popular demand	• The demand in a chain of equivalence, which represents all other demands of the chain —> see also empty signifier
Relation of **difference**	• A relation of difference exists between all discursive elements • Derived from the assumption that they are non-identical
Discourse	• 'A system of signifiers without positive terms' (Howarth, 2009: 68) • Meaning is generated through the differential relations between signifiers • Covers both the realm of language and action
Relation of **equivalence**	• A relation of equivalence comes into existence if two signs are being equated with regard to a specific aspect • x equals y with regard to aspect a
Chain of equivalence	• Several signifier or demands are being equated with regard to a an aspect a, which functions as the constitutive outside • x equals y equals z … with regard to aspect a • Creates an antagonistic relationship between x, y, z and a
Signifier	• Smallest element of a discourse • Points to/represents a signified
Empty signifier	• Signifier in a chain of equivalence that is being emptied from its original meaning • Achieves the ability to represent all signifiers/demands in a chain of equivalence
Floating signifier	• Signifier within a chain of equivalence • Signifier is not emptied • Actors articulate the signifier in a contradictory manner —> the signifier is floating; it is suspended 'between alternative equivalential frontiers' (Laclau, 2005: 131)

5.4 Combining governmentality with hegemony and discourse theory

Having introduced both governmentality and hegemony and discourse theory in detail, I now turn to their synthesis and highlight how Laclau and Mouffe's approach can be used to fill some of the gaps and weaknesses of the governmentality concept.

First, Laclau and Mouffe's notion of articulation — the relating of two discursive elements through which their identity and meaning is modified — is helpful when mapping the topology of power within a given regime of practice. In this context, articulation as a mere theor-

23. Some authors (see for example Nonhoff, 2008) distinguish between a significantly higher number of different types of discursive relations. To reduce complexity I have limited myself to the minimum necessary for my theoretical framework and my empirical analysis.

etical concept is only of secondary importance. What is relevant is the research strategy that results from it (see also Section 6 on methodology and methods). As a researcher interested in creating a topology of power, I am interested in how different discursive elements — rationalities, governmental technologies and forms of subjectivity, to stick to Dean's heuristic — are related and combined. Hence, I am interested in these articulations and their resulting power structures and dynamics. Drawing on the notion of articulation to create a topology of power, then, strengthens the bottom up perspective that comes with the topological approach.

Second, Laclau and Mouffe's concept of hegemony and the focus of their approach on contingency of discourse and the mechanisms that structure its (re)production, allows us to analyse how breaks and changes in the dominant discourse or mode of government come about. This has been — as I pointed out before — another weakness of the governmentality approach. As a result. this dissertation project is not only able to map what governing through REDD+ entails (see paper three: *Governing the Forest Frontier*), for which the governmentality approach alone would have been sufficient, it also provides insights on how REDD+ managed to receive such broad support despite the controversy that existed around avoiding deforestation just a few years earlier (see paper two: *From Pariah to Messiah*).

Third, Laclau and Mouffe make a clear distinction between the social and the political. In his governmentality concept as well as his work at large, Foucault does not explicate what he understands as the political (see paper one: *Third Side of the Coin* for more details). This might be one of the reasons why governmentality scholars have subsequently — though providing rich analyses on the functioning of different regimes of practices — been very quiet about their consequences. Introducing Laclau and Mouffe's understanding of the political to governmentality studies allows us to draw such conclusions: In *Carbon* (Methmann and Stephan, forthcoming) a book chapter that is not part of this dissertation project, Chris Methmann and myself combine governmentality with Laclau and Mouffe's post-foundational understanding of the political. We were thus able to highlight how climate governance has been depoliticised through its obsession with managing carbon.

Combining governmentality with hegemony and discourse theory does not only iron out the weakness of the former. One can also turn this argument upside-down and show where the governmentality approach strengthens some of the weaknesses of hegemony and discourse theory. Where Foucault's work misses an explicit definition of the political, Laclau and Mouffe's approach lacks a clear understanding of power. Hence, their framework benefits greatly from bringing in the insights from Foucault's rich body of work on power. Particularly interesting are the links between the micro and the macro level that exist in Foucault's theory. As mentioned, Laclau and Mouffe's distinction between the political and the social

provide the basis for analysing the broader effects of regimes of practices. What is missing in their concept are useful instruments that help us to understand how the social functions. What are the (micro) structures and mechanisms that hold the social together? Laclau and Mouffe argue that the social is structured through social logics. With logic they describe a 'system of rules' centring around such diverse issues as 'kinship', 'the market' or 'chess playing' (Laclau, 2005: 117). I am not questioning the theoretical integrity of the concept of social logic. As, however, pretty much anything can be considered a social logic, it loses its analytical power when applied to empirical cases. If, as I argued before, the indirect and non-coercive modes of government are an essential part of what makes up the social, holds it together and prevent things form being politicised, it makes sense to draw on the instruments governmentality studies provides — Collier's (2009) topology of power or Dean's (1999) analytics of government — to analyse the structures and dynamics of the social.

To sum up: The integration of governmentality with hegemony and discourse theory that I propose utilises the strengths of the respective approaches and allows us to holistically approach regime of practices — in the case of this dissertation the regime that has evolved around deforestation and climate change. I draw on governmentality to map the power relations and governmental technologies that structure a regime. When it comes to understanding how a particular way of governing a regime has prevailed over alternative approaches, I turn to Laclau and Mouffe's work, particularly their distinction between the political and the social and their notion of hegemony.

6. Methodology and methods

Now that I have outlined my poststructuralist theoretical framework I would like to sketch the methodology and methods that guided me through this research project. Prior to doing so, I make some general comments on poststructuralist methodology: As I pointed out at the beginning of the theory section, poststructuralist scholars start from the assumption that all meaning about the world is generated through discourse. As this meaning, though it might be temporarily stable, is not fixed, there are no universal laws that have to be followed nor are there essential truths to be discovered. From a poststructuralist standpoint there are no ahistorical, transcendent explanans. The ontology we bring to our object of study — what we think *is* or *can be* — is already contingent. Neither are there pure explanandums. They are always contextually embedded and what we can grasp is spatially and temporally specific (Wullweber, 2010: 45-46). As a consequence, poststructuralist scholars refute the deductive-

nomological model as well deductive or inductive methodologies as they are practised by the positivist scientific mainstream (e.g. King et al., 1994). Before I outline what replaces this model, I can only urge the readers who do not share my meta-theoretical vantage point to refrain from discarding what I subsequently present as unscientific but to judge it based on its internal validity: 'whether, given [the poststructuralist] assumptions, [the] conclusions follow rigorously from the evidence and logical argumentation that [are] provide[d].' (Jackson, 2011: 22)

6.1 Logics of critical explanation

The methodology I sketch out here largely resembles what Glynos and Howarth (2007) term 'logics of critical explanation'. Their book is an elaboration of a possible approach to poststructuralist research that is congruent with the meta-theoretical assumptions of poststructuralism — but more than a mere 'anything goes' attitude.

Glynos and Howarth's view on the start of the research process already differs significantly from the positivist scientific mainstream: Research problems are not to be discovered; they are to be constructed. As there are no pure explanandums, there are no objective problems poststructuralist scholars decide to solve. Instead, there is a phase of *active problematisation* (Glynos and Howarth, 2007: 33-34) through the scholar at the beginning of each research project. What might start as an 'irritation' (Wullweber, 2010: 47) has to be actively constructed as a research problem.

The notion of *articulation* as it is used in Laclau and Mouffe's theory — the relating of two or more elements — should be kept in mind in this methodological context as well. What happens during the problematisation phase is a relating of various empirical elements which are subsequently complemented with theoretical elements. In this manner, research problems are being actively constructed and plausible explanations are being offered. One should not forget the *contingent* character of these articulations: they are neither absolute nor permanent but always depend on the spatial and temporal context (Glynos and Howarth, 2007: 177-183).

The active problematisation is the start of what Glynos and Howarth have termed the *retroductive circle*, involving 'a to-and-fro movement between the phenomena investigated and the various explanations that are proffered' (Glynos and Howarth, 2007: 34). Following the initial assumptions, the theoretical framework is refined to better fit the research problem. The adjustment of the theoretical framework in turn might alter the perception of the research problem: 'theory and empirics are in a constant movement' (Wullweber, 2010: 47). There is no ultimate end to this process, no essential truth to be found. Instead, the result is a

persuasive narrative, an explanation that is plausible within the dominant regime of truth (Glynos and Howarth, 2007: 190-191). Wullweber (2010: 49) aptly observes that this results in a 'postpositivist paradox': even though its ontological assumptions might differ, poststructuralist research still has to be plausible within the dominant positivist understanding of social science.

6.2 Being Critical

Before turning to the concrete methods I drew upon I would like to specify how *being critical* has been understood in the context of this research project. There are a broad range of perceptions on what being critical means. While there is no room for critique for a diehard positivist, other scholars follow a partisan approach based on particular normative values. Then there is a middle ground between these extreme positions: The idea of *immanent critique* as pursued by members of the Frankfurt School, for example, allows for critique on the basis of the internal logics and values of the object under scrutiny (Glynos and Howarth, 2007: 191-192). As a poststructuralist scholar I also operate within this middle ground. While poststructuralism allows room for critique, it is not a partisan approach, as the space for critique does not derive from a set of external norms or values. Instead it is derived from the metatheoretical foundations on which poststructuralism rests: Assuming that every routine or regime is contingent entails that it is the result of a sedimentation process succeeding discursive struggles. This standpoint allows one to deconstruct any regime or routine to highlight how this sedimentation has taken place and which alternatives have been excluded along the way. While, however, the possibility for critique is generally independent of a researcher's history and personal values, we have to acknowledge that they always (at least implicitly) influence his critique.

Hence, from a poststructuralist perspective, critically engaging with something like REDD+ involves deconstructing it and making its contingent character visible. The goal is to show how the discourse on REDD+ has evolved and to highlight where alternative representations of REDD+ or deforestation and climate change have been excluded (see also Glynos and Howarth, 2007: 197-199). Doing so gives us a better understanding of the object under scrutiny and its implications and limitations. Highlighting the contingent character of something like REDD+ opens up the possibility to question and hence politicise it. To do so, REDD+ has to be contrasted with alternative approaches or reviewed on the basis of a set of values researchers bring to their case. This is where the normative dimension of being critical

becomes apparent. Central values that I compare REDD+ against in the context of this project are *democratic participation* and *transparency* as well as *environmental effectiveness*.[24] However, it should be clear to poststructuralist scholars that from their meta-theoretical standpoint their values or the perspective they introduce are contingent, too. While they might offer a laudable argument, it can only be *one* possible view on the issue.

6.3 Conducting discourse analysis

As mentioned in the introduction, this research project started out with a number of irritations about REDD+: Rewarding people for not doing something that should not be in their interest seemed to counterintuitive to me. The fact that a policy proposal with this idea at its core could create such resonance within the climate negotiations rendered REDD+ even more curious. What followed was a process of active problematisation. Moving back and forth between theory and empirics, I developed these irritations into the research questions I spelled out in Section 2 and subsequently chose to combine governmentality with hegemony and discourse theory in order to provide plausible answers.

Following initial explorative investigations based on proto-explanations, I decided to conduct a discourse analysis to structure and interpret the empirical material I had collected. The corpus for this analysis consists of policy proposals, reports and press releases, (both from parties to the UNFCCC or their agencies and NGOs) as well as research papers from forestry and climate system sciences and IPCC reports — totalling 135 documents (see the Appendix for a full list). Furthermore, I have analysed the Earth Negotiations Bulletin (ENB)[25] coverage of the UNFCCC and IPCC negotiations concerning tropical forests and deforestation from 1992 to 2012; articles that have appeared in the ECO newsletter[26] on tropical forests and de-

24. The respective conclusions of the papers particularly reflect these values. Environmental effectiveness stands for the ability to address causes of climate change and prevent other environmental harms. An instrument like REDD+ that is exclusively focused on carbon and hence might cause unintended side effects such as biodiversity loss (see papers three, four and five for details) is perceived to be problematic from this vantage point. Democratic participation and transparency refer to the ability of having a broad public discussion on an instrument like REDD+. If a discourse is highly technical, as it is in the case of REDD+, disguising its effects and obscuring who wins and who loses makes a meaningful public discussion impossible. REDD+ remains depoliticised and is simply managed by a science and policy elite.

25. ENB is published by the International Institute for Sustainable Development, a Canadian NGO. It covers the negation rounds and key meetings that have taken place within the framework convention process since February 1995. ENB writers produce daily summaries of each negotiation, which also serve as a key information resource for UNFCCC negotiators. The ENB reporting has been used to get an overview how forests/deforestation has been discussed within the UNFCCC and how it evolved over time.

26. ECO is a newsletter published by the Climate Action Network. It is published daily for each major negotiation round offering CAN's commentary on developments within the UNFCCC, which it deems important. It was chosen here to get an overview of how the environmental NGO community has viewed the

forestation between 1991 and 2012; and articles in Joint Implementation Quarterly (JIQ)[27] concerning forest carbon projects that have appeared between 1995 and 2012. In addition to these written texts I conducted 21 interviews with a duration of 30 to 90 minutes with forest carbon/REDD+ experts from different stakeholder groups: UNFCCC negotiators from both industrialised and tropical developing countries; NGOs favouring and opposing REDD+; IPCC lead authors on forest issues; developers of voluntary REDD+ projects; forest carbon specialists from voluntary carbon standards; independent verifying companies; and carbon consultancies.

The discourse analysis I conducted had both an archaeological and a genealogical component. Both methods were developed by Foucault. His archaeological approach to discourse is concerned with uncovering the regularities and rules that govern systems of thought — what he calls 'discursive formations' (Foucault, 2002: 41). The goal is to determine the boundaries of what can be said and thought at a particular point in space and time. I used this approach to map the current REDD+ discourse and understand how the issue is being articulated and which aspects are being excluded. Foucault's genealogical approach, which he developed after his archaeological method, is a historical mode of analysis aimed at writing 'the history of the present' (Foucault, 1995: 31): The idea is to trace the historical development of a discursive field such as forests/deforestation in the context of climate change in order to get an understanding of its state in the present. The goal is not to write a uniform or singular narrative but rather to describe the discourse in its temporal and spatial specificity. I conducted the genealogical analysis to get an understanding of where REDD+ comes from and to identify discursive shifts that enabled the broad support it is currently receiving. The analysis took me back to the 1990s when the idea to integrate avoiding deforestation into a carbon market was first articulated (Dudek and LeBlanc, 1991). I went even further back to explore the first detailed assessments of the role of forests and deforestation in the climate system (Arrhenius, 1907) as well as the conceptual origins of the environmental market idea (Coase, 1960; Dales, 1968; Montgomery, 1972).

To realise the mental elbow room necessary for the retroductive movement during the discourse analysis I pursued a twofold coding strategy. Drawing on grounded theory I started with an open coding process in which the codes where derived in-vivo from the coded material (Strauss and Corbin, 1998: 101-122). In addition, I pursued a theoretically guided coding strategy to code the material based on theoretically derived categories (from government-

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role of forests/deforestation within the climate change negotiations.

27. The JIQ is a tri-monthly publication of the Dutch Joint Implementation Network. It was chosen to get an overview of how the business community specialising in carbon markets perceives forest carbon in general and REDD+ in particular.

ality studies e.g. rationality, field of visibility; from discourse and hegemony theory e.g. chain of equivalence, antagonism). Moving between the two allowed me to let them speak to each other and minimise the possibility that I would exclude aspects because they did not fit the theoretically derived categories.[28] In practical terms, the coding was realised by utilising a coding software (MAXQDA).

7. Outline of the dissertation

Now that I have presented the research questions that guided me through my dissertation project, outlined the theoretical framework I adopted for the analysis and specified my methodological approach, I would like to present the outcome that has resulted from this project. The dissertation consists of the following five papers:

1. Third Side of the Coin: Hegemony and Governmentality in Global Climate Politics
2. From Pariah to Messiah: The Role of Avoiding Deforestation in International Climate Governance
3. Governing the Forest Frontier: A Governmentality Analysis of REDD+
4. Bringing Discourse to the Market: The Commodification of Avoided Deforestation
5. How to Trade 'Not Cutting Down Trees': A Governmentality Perspective on the Commodification of Avoided Deforestation

Paper one lays out the theoretical framework of this dissertation project, drawing on both governmentality and hegemony and discourse theory. The subsequent papers alternate between hegemony and discourse theory and governmentality, starting with the former. While the full papers follow this introduction, I also summarise the scope and main findings of each paper here.

28. It has to be noted, however, that the theoretical background is also always implicitly involved in the open coding process. Even though a researcher refrains from using theoretical categories she will never be able to fully exclude her context — including her theoretical experience and disposition.

7.1 Third Side of the Coin: Hegemony and Governmentality in Global Climate Politics[29]

The paper outlines the theoretical basis for this thesis and shows how Foucault's concept of governmentality can be combined with Laclau and Mouffe's hegemony and discourse theory. The merits of such an approach are demonstrated by drawing on empirical examples from the case of REDD+. As I have already summarised the theoretical framework of this thesis in detail, I will only briefly outline the argument of the paper. It consists of three sections. The paper starts by showing how the notion of articulation helps us to avoid the *harmonisation trap* current governmentality studies often venture into: Instead of applying governmentality ideal types in a top down manner, creating a harmonising tendency, the concept of articulation facilitates a bottom up perspective better equipped to capture case-specific patterns and dynamics. The second section discusses the limited ability of scrutinising change within governmentality studies. To overcome this limitation, Laclau and Mouffe's understanding of hegemony is introduced. It provides the researcher with the means to identify the discursive structures that permit a broad variety of actors to relate to a project like REDD+, thus enabling its rapid rise and dominance. The last section introduces Laclau and Mouffe's understanding of the political. Their distinction between the political and the social — and, linked to them, politicising and depoliticising moves — provides the theoretical means to critically engage with the broader consequences of the policies and programmes under scrutiny. In the case of this paper, it allows one to draw conclusions about the effect of REDD+ on the global climate regime at large.

29. This paper is a chapter in the volume *Governing the Global Climate: Rationality, Practice and Power* edited by Johannes Stripple and Harriet Bulkeley and published by Cambridge University Press. It was co-authored with Chris Methmann and Delf Rothe. At the time of writing this paper the three authors were doctoral candidates in Political Science at the University of Hamburg. Chris Methmann, Delf Rothe and myself each developed an integration of Governmentality and Hegemony and Discourse Theory and applied it to our respective research fields of climate mainstreaming, climate security and REDD+. This paper presents the synthesis of this work. Although this should be regarded as a truly joint product, the writing was split up as follows: For the original draft I wrote the introduction, section two and the empirical parts of section three and four. I furthermore incorporated the majority of the revisions that were requested during the review process.

7.2 From Pariah to Messiah: The Role of Avoiding Deforestation in International Climate Governance[30]

This second paper investigates in detail the massive attention and broad support REDD+ receives despite the marginalised and controversial role of deforestation during earlier phases of international climate negotiations. In its investigation the paper draws on Laclau and Mouffe's hegemony and discourse theory to map the narratives of the current discourse on climate change and tropical deforestation. It attempts to identify the structures that enable such a large number of diverse actors to relate to and support REDD+. It furthermore compares the narratives from the current discourse with the debate taking place between COP 3 in Kyoto in 1997 and COP 7 in Marrakech in 2001, when avoided deforestation was explicitly excluded from the CDM. This comparison aims to identify discursive shifts that have since occurred.

The paper starts by outlining a theoretical framework and provides a brief overview of the historical development of the issue. The subsequent section presents the results of the discourse analysis. After outlining how deforestation is being problematised in the current discourse on REDD+, the proceeding section analyses four narratives that frame REDD+ as an appropriate solution:

- a developing country contribution/developing country ownership narrative;
- a cost-effectiveness narrative that distinguishes REDD+ from other mitigation measures;
- a technological improvement narrative that articulates the ability to measure and monitor forest carbon as present or within close reach; and
- a co-benefit narrative that presents REDD+ not only as a greenhouse gas mitigation measure but also as the solution to a variety of other problems.

In the final section, the paper shows that the discursive structure created through these narratives constitute REDD+ as a hegemonic project to which many diverse actors can relate. However, the paper shows that the acronym REDD+ is not yet an empty signifier in the classical sense. This is due to the funding question — whether REDD+'s long term funding should be secured through an international fund or an integration into the carbon market — which has not yet been resolved. REDD+'s meaning is left suspended between the fund and

30. Earlier versions of this paper were presented at the workshop "The Transformation of Global Climate Governance: Assessing Architecture, Agency and Accountability" as part of the European Consortium for Political Research's Joint Sessions of Workshops in 2011 and at the International Studies Association's Annual Convention in 2012.

the market option, making it a floating signifier. Its state as a floating signifier, however, has not harmed the support for REDD+. On the contrary, it allows both carbon market proponents and opponents to support the project. The paper further argues that REDD+'s status as a hegemonic project is built on sand: If a solution that reconciles both positions cannot be found, and one group manages to assert its position, the broad support for REDD+ will crumble and REDD+ will lose its hegemonic character.

7.3 Governing the Forest Frontier: A Governmentality Analysis of REDD+

After I investigated how REDD+ came about and was able to secure such broad support, the third paper of this thesis investigates what governing through REDD+ entails, at both the international and the domestic levels. To put it differently, this paper analyses how not only deforestation and climate change but also the forest frontiers of the world are being rendered governable through REDD+. As mentioned before, forest frontiers in this context refer to both frontier regions in developing countries — which are remote and where deforestation has been difficult to control for governments — and tropical developing countries as such who, with regard to mitigation, have had a marginal role within the UNFCCC and hence represent the frontier at the international level. In this paper I draw on the governmentality framework, combining Collier's (2009) topology of power with Dean's (1999) analytics of government, to conduct the empirical analysis.

The paper starts by scrutinising the rationality that underwrites REDD+, highlighting the idea of a monetisation of ecosystem services. It then turns to the central governmental technologies which are discussed in the context of REDD+: a carbon market integration at the international level and payment for ecosystem service schemes at the domestic level. The third section highlights two contradicting forms of subjectivity that are being presupposed in the discourse on REDD+ and questions whether these will actually be found in this form once REDD+ is being implemented: the *homo oeconomicus* and the idea that people always act as utility maximising rational actors and the image of the *noble savage* who lives in harmony with nature and does not need any incentives to protect it. Furthermore, the paper shows how REDD+'s measurement and accounting practices almost exclusively focus on carbon and opportunity costs and hence drastically narrow the field of visibility within this regime of practice. This lopsided picture, for example, presents subsistence farming as a promising target for REDD+.

Drawing on Collier's topology of power, the paper highlights how REDD+ combines lib-

eral with disciplinary and coercive mechanisms and forms of power. I argue that through this combination of governmental technologies, REDD+ significantly improves the ability to govern deforestation and forest frontier regions at a distance at both the international and the domestic levels.

7.4 Bringing Discourse to the Market: The Commodification of Avoided Deforestation[31]

The last two papers focus on a (possible) carbon market integration of REDD+. The focus lies in the prerequisites and consequences of a successful commodification of avoided deforestation. In contrast to Actor-Network Theory, which shares many poststructuralist traits, neither Foucault and the subsequent governmentality studies nor Laclau and Mouffe and the Essex School[32] pay particular attention to commodification or market creation processes. Hence, this and the subsequent paper not only provide a new perspective on a carbon market integration of REDD+ but are also novel with regard to the theoretical angle they develop.

Bringing discourse to the market starts by developing a discourse theoretical framework for the analysis of commodification processes which is then applied to the case of REDD+. The first part of the paper takes the existing sociology of markets (Fligstein and Dauter, 2007; Engels, 2009a) and commodification of nature (Prudham, 2009) literature as a starting point and translate some of their key insights concerning different aspects of the commodification process — qualification, commensuration, legitimisation and disentanglement — into a discourse theoretical setting. The resulting theoretical framework adds to the existing literature on commodification as it provides the ontological means to account for conflicts that need to be silenced during the establishment of new markets and their routines, or tensions in existing markets that might result in problems or their collapse. In other words, the theoretical framework allows one to account for the political character of markets.

In the second part of the paper I use this framework to discuss the prerequisites and consequences of turning avoiding deforestation into a tradable good on the carbon market. More specifically, I discuss to what extent avoided deforestation has been successfully qualified, commensurated and legitimised as a tradable good. In doing so, I identify some of the key differences between the commodification of forest carbon in the context of REDD+ and the situ-

31. This paper appeared in a 2012 special issue of Environmental Politics 21(4), pages 621-639 on *The politics of carbon markets*.

32. An exception is Stäheli's (2007) discourse analysis on ‘spectacular speculations‘, which inter alia draws on Laclau and Mouffe's work to analyse speculation in the financial economy.

ation under the CDM. The commodification of avoided deforestation under the CDM has failed because various disputes concerning the qualification and commensuration could not be resolved and because a number of actors did not perceive it as legitimate to trade avoided deforestation on the carbon market. Furthermore, the paper shows that the forest carbon offsets generated through afforestation/reforestation projects under the CDM have not been fully disentangled: the temporary credits (tCERs) which have been introduced to address the permanence issues of forest carbon projects have complicated the possibility to commensurate these credits.

Based on the discourse theoretical framework, I furthermore argue that the commodification of avoided deforestation simultaneously causes and depends upon what I call the *carbonification of forests*: By qualifying forests as carbon sinks and solely measuring and accounting them in terms of tons of carbon or tCO_2e stored per hectare other meanings of forests are rendered invisible. This, as I outline in the paper, can potentially lead to unintended side effects.

7.5 How to Trade 'Not Cutting Down Trees': A Governmentality Perspective on the Commodification of Avoided Deforestation[33]

This last paper develops a governmentality perspective on commodification and market creation. In doing so, it closes a particularly surprising gap in the governmentality literature: Even though a large part of this literature focuses on neoliberal regimes and highlights the important role of governing through markets, there is thus far no direct engagement with commodification or market creation processes. Starting with some of the insights of the sociology of markets and commodification of nature literature — similar to the previous article[34] — I mainly draw on Dean's (1999: 20-27) analytics of government to develop my theoretical perspective. The empirical analysis starts by showing how a rationality of commodifying avoided deforestation has emerged within the climate discourse, thus qualifying and legitimising it. It furthermore describes how carbon measurement and accounting

33. This paper is a chapter of the volume "Interpretive Approaches to Global Climate Governance: (de)constructing the greenhouse" edited by Chris Methmann, Delf Rothe and myself (2013) and published by Routledge . As with all the other contributions (apart from the introduction and the chapters that are reprinted papers), the chapter has gone through a double-blind peer review process.

34. I decided to make this paper part of the dissertation project despite it having some structural and empirical overlap with the previous paper. The paper shows how a governmentality perspective on markets can look and highlights supplemental empirical aspects (e.g. carbon forester argument), thus providing additional insights important to the overall dissertation project.

practices turn avoiding deforestation into forest carbon credits, the commodity traded on the carbon market. The notion of *field of visibility* — a dimension of Dean's analytics of government — also highlights the reduction of meaning caused through the process of commodification. Furthermore, the paper highlights the emergence of a new type of subject as an enabling aspect for the emergence of REDD+: the *carbon forester*, a new type of carbon market professional, which combines forestry and remote sensing abilities with carbon accounting capabilities.

8. Conclusion

This dissertation project set out to scrutinise REDD+, with the goal of closing some of the research gaps concerning its emergence, its mode of operation and its effects. My first research question was concerned with the broad backing for REDD+. This thesis has shown how a number of structural traits of the discourse on deforestation and climate change have enabled this large scale support. Central to this is the successful construction of a chain of equivalence around REDD+, not only articulating it as a solution to global warming but also to biodiversity loss, poverty and other societal grievances. However, I have also highlighted that the large scale support for REDD+ might only be temporal. Being a floating signifier — suspended between proponents and opponents of a carbon market integration — REDD+ currently allows groups with contradicting positions to support it. If no compromise is found to reconcile these positions, the support for REDD+ will crumble.

My second research question asked how deforestation and, with it, forest frontiers are being made governable through REDD+. I have shown that although market liberal thinking dominates, we are looking at an assemblage of different mechanisms and forms of power. REDD+ as it is currently developing combines liberal governmental mechanisms with disciplinary and sovereign power. I have also highlighted how this melange of different forms of government strengthen the ability to govern forest frontiers at a distance, at both at the international and domestic levels. I have also pointed to some of the consequences of this mode of governing. The focus on opportunity costs and carbon emissions that comes with REDD+ creates a highly limited field of visibility. Forests are carbonified. They are only acknowledged as carbon stocks, rendering other meanings of forests invisible. Furthermore, subsistence farming is framed as a cost-efficient target in reducing deforestation.

My third set of research questions dealt with a possible carbon market integration of REDD+. I have highlighted the measurement and accounting practices that are involved in

converting avoiding deforestation into a commodity tradable on the carbon market. The commodification of avoided deforestation has become more likely compared to the CDM debate, as struggles concerning the scientific accuracy and reliability of measuring reductions in forest carbon emissions have increasingly been settled. Furthermore, the buffer fund solutions that are being explored to ensure the permanence of forest carbon credits differ from the temporary credits under the CDM. The latter have thus far prevented a full disentanglement of forest carbon credits. However, the new consensus on what represents proper measurement and accounting of forest carbon is a fragile one and it is not unlikely that it will unravel again. With regard to the consequences of a carbon market integration of REDD+, I have shown that the carbonification forests will be further intensified compared to a fund-based REDD+, potentially resulting in unintended side effects for both people and ecosystems.

In addition to these empirical results, this thesis presents a number of theoretical innovations. By combining Foucault's governmentality concept with Laclau and Mouffe's hegemony and discourse theory the thesis provides a theoretical framework that has clear advantages over the respective theories alone. By bringing hegemony and discourse theory into governmentality studies one can avoid the latter's harmonising tendencies, supply the means to account for contingency and change and, by laying out a clear definition of the political, provide the ability to contextualise the broader societal effects of different forms of government. Vice versa, governmentality provides a clearer understanding of power, adds a link between micro and macro structures and supplies a finely graduated toolkit to analyse what Laclau and Mouffe describe as the social. Furthermore, this thesis developed a poststructuralist perspective on commodification. It has the ability to highlight the political moments in market creation and commodification processes which are being overlooked in other approaches.

Having summarised the academic achievements of this dissertation I would like to highlight a few results that make this thesis relevant to an audience outside of the ivory tower. It cannot be disputed that, at first sight, REDD+ represents a big chance to address the issue of deforestation: Articulating avoided deforestation as a climate change issue has resulted in unprecedented attention to the issue in the policy world. A broad variety of actors support REDD+, mobilising significant financial resources for capacity building and demonstration activities. But the results of this thesis show that there is no reason to be overly enthusiastic: REDD+ increasingly turns out to be an ultra-complex mechanism based on many assumptions which we do not know will turn out to be correct (e.g. assuming that people always act as rational utility maximisers). Experience with existing policy mechanisms, e.g. the EU's emissions trading system, has shown that it is unrealistic to assume that a mechanism like

REDD+ will simply work as envisioned — at least any time soon.

One of the reasons why REDD+ has been so attractive is the win-win notion that surrounds it: The climate, biodiversity and the poor as well as businesses and governments will all profit from REDD+. The open issues seem to be only of a technical nature: How do we ensure that we can properly account for forest carbon and set up REDD+ in the most efficient manner? I show in paper two — *From Pariah to Messiah* — how this win-win aura has been constructed. The subsequent papers go on to deconstruct it, revealing a number of clear trade-offs. By linking financing solely to the reduction of emissions reductions, REDD+ is preoccupied with carbon. Carbon is put above aspects such as biodiversity protection or poverty reduction. The way in which REDD+ is currently structured makes it very difficult to consider and avoid all the negative impacts on these other aspects. Furthermore, the technical nature of the debate has more profound effects: We are not debating with a broad audience on which goals a REDD+ mechanism should fulfill, or in case of trade-offs which goals should be prioritised. These important issues, which have profound ethical and distributional effects, are buried in a very technical debate which, through its specificity, excludes a broader societal public from participating. To avoid these pitfalls a broader analytical perspective on REDD+ is necessary. Although the social scientific engagement with REDD+ is slowly broadening (take this thesis or the special issue of the journal *Current Opinion in Environmental Sustainability* in 2012 by way of example) the policy debate is still very much framed in a cost-benefit narrative focusing on the commodification of carbon.

A narrow technocratic approach is not unique to the issue of deforestation but a general problem of climate and environmental governance and policy making as such. A critical perspective as provided by the poststructuralist framework of this thesis provides the means to reflect on the way of doing things. Policy makers would benefit from taking into account such perspectives to broaden their view beyond rational choice and cost-benefit analyses to make well-informed decisions before implementing a new policy. In proposing this I certainly do not suggest that issues be discussed indefinitely. The idea is to develop a more balanced view and to leave the realm of a purely technical debate in order to enable broader societal discussions.

9. References

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2

Third Side of the Coin

Hegemony and Governmentality in Global Climate Politics

Benjamin Stephan, Delf Rothe and Chris Methmann[1]

1. Introduction

Even though their ambitions were very different, the theories of Antonio Gramsci and Michel Foucault – 'the imprisoned leader of the Italian communist party and the anticommunist campaigner for reform of the penal system' (Ekers and Loftus 2008: 701) – show a number of commonalities, including a common interest in the study of modern forms of rule, considering elements other than pure government through the state. And, though different, their notions of power go beyond the narrow understanding of power as solely repressive. Hence, it comes as no surprise that over the past years a number of authors have suggested combining Foucault's concept of governmentality with Gramsci's notion of hegemony (Gill 1995; Jessop 2007; Ekers and Loftus 2008; Okereke, Bulkeley and Schroeder 2009; Joseph 2010; Bulkeley and Schroeder 2011).[2] In this chapter, we seek to take this line of thought further by drawing on Ernesto Laclau and Chantal Mouffe's revision of Gramsci's hegemony concept.

1. Authors in reverse alphabetical order.

2. Most of these works draw on a historical-materialist reception of Gramsci. As Barnett (2005) rightly states, they herein face certain metatheoretical tensions that cannot be easily reconciled. A number of authors tried to solve this problem by simply subsuming governmentality under a more or less orthodox historical-materialist framework (Gill 1995; Jessop 2007; Joseph 2010). Others apply Foucault's concept of governmentality and Gramsci empirically on equal footing (Ekers and Loftus 2008; Okereke et al. 2009; Bulkeley and Schroeder 2011), but never address the metatheoretical tensions. To overcome this problem, we draw on the poststructuralist reading of Gramsci as developed by Ernesto Laclau and Chantal Mouffe (Laclau 1990; Laclau 1996; Laclau and Mouffe 2001; Laclau 2005).

Their hegemony and discourse theory, we argue, helps to solve crucial problems that surface in the emerging climate governmentality literature – problems identified in the second half of the 1990s in a (self-)critique of governmentality studies in general (Weir et al. 1997) and that still haunt the literature on 'green governmentality' (Rutherford 2007): accounts of governmentality often neglect the heterogeneity and 'messiness' of governmental regimes, disregard the role of contestation and resistance and display a lack of critical engagement in the spirit of Foucault's genealogical project (see Chapter 4). This critique obviously does not apply to the literature *par tout*. Yet we provide examples from climate governmentality studies showing that some of these critiques are still valid. Furthermore, we demonstrate how a discursive theory of hegemony helps to remedy these problems. Hegemony theory first provides a more profound concept of discourse and articulation that pays attention to heterogeneity and assemblages; second, a more sophisticated understanding of political agency, hegemonic struggle and discursive change; and, third, a basis to critically assess the political effects of regimes of government.

We illustrate the merits of a combined hegemony/governmentality framework with the emergence of Reducing Emissions from Deforestation and Degradation (REDD+) in global climate politics. It is a good example of heterogeneity, change and contestation in governmentality because REDD+ – an increasingly complex governance program – has gained very broad support and has rapidly moved ahead since it was first proposed in 2005, even though the issue of deforestation within international climate negotiations was highly controversial during the 1990s and early 2000s (Stephan 2012a). We focus on this case for reasons of space and simplicity. Yet our suggestions for combining the two approaches have been corroborated in other issue areas (Methmann 2010, 2011; Methmann and Rothe 2012; Stephan 2012a, 2012b, 2013). The next section outlines how REDD+ can be analysed from a governmentality perspective and also discusses how the concept of discursive articulation emerging from the writings of Laclau and Mouffe can enhance such an analysis. The subsequent sections then turn to the role of agency and change in and the political effects of REDD+. Finally, we draw conclusions about combining hegemony and governmentality.

2. Articulation: Rendering Forests as an Object of Governance

Both the governmentality perspective and hegemony and discourse theory are interested in how particular practices or 'regimes of practices' (Dean 1999: 18; Glynos and Howarth 2007: 125–6) are constituted. The term *regimes of practices* refers to a set of activities and techniques that addresses a particular issue without necessarily constituting a coherent policy programme or following an overall logic. A society's penal system bringing together very diverse practices of surveillance, control, punishment, self-government and so forth would be an example of such regimes of practices. Similarly, the way society is dealing with climate change or addressing deforestation can be conceptualized as a regime of practice. In the following paragraph we briefly point out how the regime of practice concerning deforestation and climate change has evolved historically. Drawing on Laclau and Mouffe's notion of articulation (Torfing 2005: 15) we then sketch the governmental landscape that characterizes this regime of practice.

Even though negotiations under the REDD+ label[3] only began after a submission by Papua New Guinea and Costa Rica to the UN Framework Convention on Climate Change (UNFCCC) in 2005, the issue ties into a forest carbon discourse that goes back to the ninth Conference of Parties (COP) to the UNFCCC in Milan, the seventh COP in Marrakesh and even to the third COP in Kyoto in 1997 (cf. Boyd et al. 2008). At that point, however, only afforestation and reforestation were accepted as eligible project types under the CDM. Avoiding deforestation in developing countries, by contrast, was excluded and did not play any role under the Kyoto Protocol.

Bäckstrand and Lövbrand (2006) use a governmentality-inspired approach to shed light on this early debate. Starting their analysis by carving out three distinct forms of governmentality[4] – ecological modernisation, green governmentality and civic environmentalism – they argue that forest carbon projects can best be understood as a combination of ecological modernization and green governmentality. In short, the economic modernization discourse framed forests as a cost-effective mitigation option. Green governmentality, with its emphasis on global carbon control and management, provided the technologies and practices to

3. The negotiations started as Reducing Emissions from Deforestation (RED). They were subsequently broadened to include degradation (REDD) (UNFCCC 2007: 2CP13) and 'the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries' (REDD+) (UNFCCC 2010: 1CP16 III C).

4. Even though they draw on the concept of governmentality, Bäckstrand and Lövbrand talk about competing discourses, not governmentalities. In our opinion, however, in this case discourse and governmentality can be equated. This becomes particularly clear if you compare their article with the work of Oels (2005), who in analysing the climate regime as a whole describes similar phenomena but talks about different governmentalities.

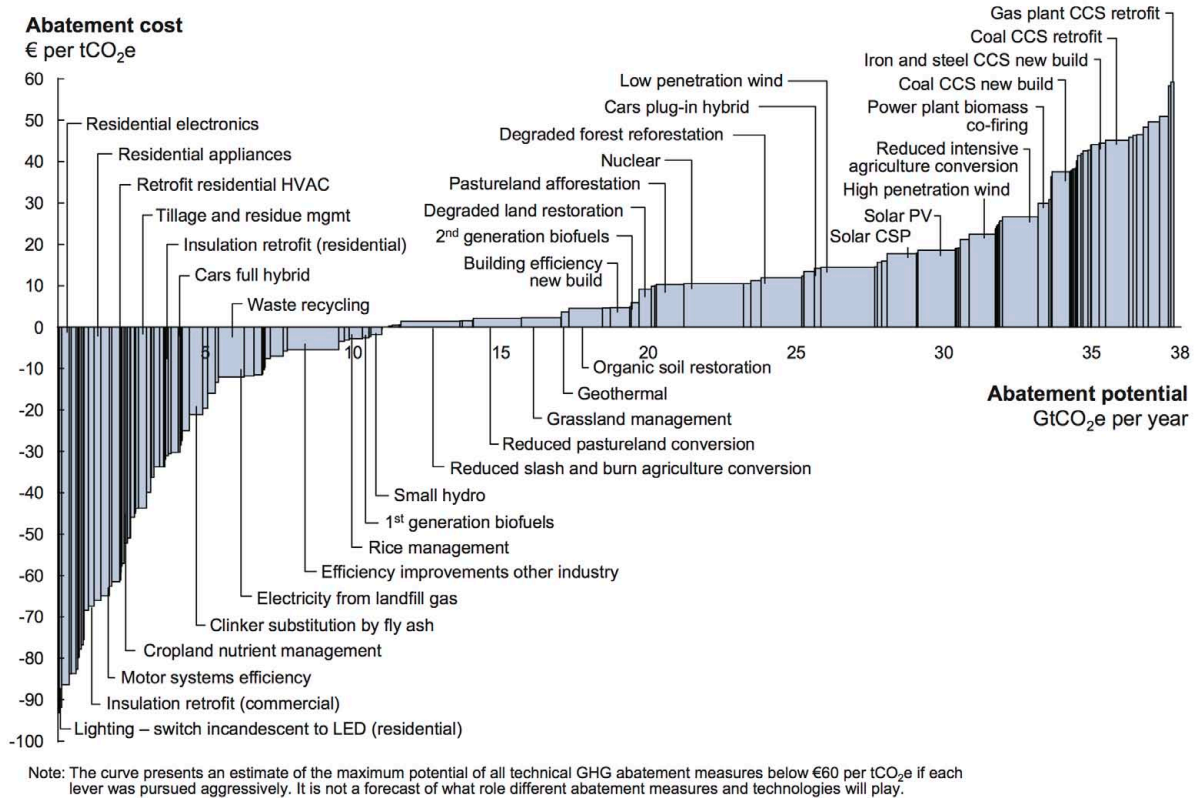
render forests governable. Angela Oels (2005) arrives at a similar conclusion for the overall Kyoto Protocol.

Applying such *ideal types* of governmentalities is not unproblematic, though (Weir et al. 1997). The problem is twofold. First, many scholars treat governmentalities as rather stable and uniform formations. This seems to originate from a reading of Foucault's lectures that understands sovereignty, biopolitics and liberal and neoliberal governmentality as a historical succession of formations of rule (as, for example, proffered by Dean 1999). Second, using them as schematic templates, scholars tend to isolate and highlight aspects which fit these categories, while discarding others that do not. Rainer Keller (2010: 47) thus even talks about a 'depletion' of the governmentality concept. While there is no need to come to such drastic conclusions, we agree that a top-down application of ideal types creates a harmonizing tendency which does not account for contingency and resistance. It obscures the heterogeneity of governmental assemblages and makes it unnecessarily difficult to account for the contingency of social structures. What is more, reading Foucault's governmentality lectures as a succession of independent formations of rule misses the point (Collier 2009). While Foucault put forth such an understanding in his earlier writings, he abandoned them later on in favour of what Collier (2009: 80) calls a 'topological approach' to power: mapping how different forms of power and government coexist, are constantly refined, (re-)deployed and combined in various contexts. Such a reading of Foucault points to an escape route from the harmonization trap. Not applying preconceived governmentality ideal types but, rather, trying to map and grasp the case-specific constellation of power configurations and governmental technologies provides the researcher with a detailed understanding of the specific dynamics of each regime of practice.

Enter hegemony theory. The notion of 'articulation' (see Torfing 2005: 15) provides a helpful conceptual tool with which to map the governmental landscape of the regime on deforestation and climate change – or any other regime, for that matter. Articulation is embedded in Laclau and Mouffe's discourse theory, which provides a number of additional helpful insights. First, discourse is not to be reduced to the phenomenon of language. Discourse, in their view, encompasses the relational structuring of words, objects and practices. Every phenomenon in the world, in this perspective, receives its meaning through its relation with other elements. Following this, we should not separate discourse and practice, but look rather at their interplay (Howarth 2009: 311–12). Second, every discourse is founded upon a 'field of discursivity' (Laclau and Mouffe 2001: 135); that is, it is radically contingent and unstable. In principle, all discursive elements are floating, that is social meaning is continuously renegotiated. What turns discursivity into discourse, though, is the practice of 'articulation' (Laclau

and Mouffe 2001: 105, 109–13): combining and thereby partially fixing the meaning of several elements. The products of this articulatory practice are 'nodal points' (Laclau and Mouffe 2001: 113) which structure and bring together a broad range of discursive elements. They constitute the basis for temporarily stable and influential, that is hegemonic, discourses. In this sense, the concept of discourse draws attention to the heterogeneity of discursive formations – not only their common 'rules of formation' as in Foucault (1972). It forces scholars to adopt a bottom-up perspective by retracing how the object of governance and the circumjacent regime of practice are articulated in discourse.

Figure 1: McKinsey's Global GHG Abatement Cost Curve Version 2.1



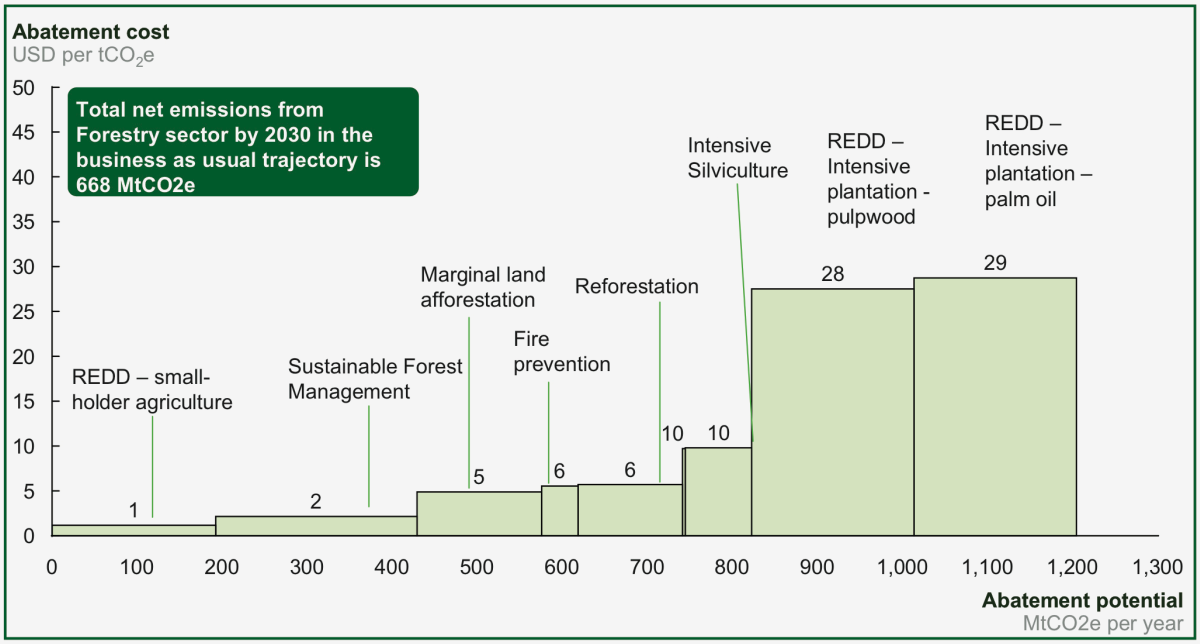
Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

(McKinsey & Company 2010, 8)

The example of REDD+ illustrates that one can hardly speak of one ideal-typical governmentality informing this regime of practice. We subsequently outline how it articulates a variety of different elements into a specific topology of power. We start by sketching out the rationality underwriting REDD+ and by assessing the governmental technologies through which REDD+ is supposed to work. Furthermore, we highlight new forms of subjectivity REDD+ is dependent on and we outline the field of visibility created through this method of

addressing deforestation.[5]

Figure 2: Abatement Cost Curve of the Indonesian Forestry Sector[6]



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below EUR 60 per tCO2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play. Assuming a 4% societal discount rate

(DNPI Indonesia 2010, 21)

With regard to the *rationality* underwriting REDD+ we can distinguish between two central aspects articulated within the discourse on climate change: framing deforestation as a driver of climate change and avoiding deforestation as an efficient mitigation measure. Both articulations have been prominent in the scientific realm for a long time. The first articulation goes back to the 1970s and 1980s when natural scientists – and subsequently the IPCC in its summaries for policy makers in its first assessment report – began to emphasize the role of deforestation (IPCC 1990a: xxxii; IPCC 1990b: xliii). When avoiding deforestation became an issue for policy makers during the CDM and in the current REDD+ debate it was, however, rearticulated in line with an economic rationale. Ever since, avoiding deforestation is not only

5. Outlining the regime of practice of deforestation and climate change, we loosely follow Dean's analytics of government. It is a research heuristic based on Foucault's notion of governmentality, comprising the four dimensions of rationality, technologies, subjectivities and field of visibility (Dean 1999: 30–3).

6. As shown in this figure, abatement cost curves are often used for the analysis of reduction potentials within the forest sector, too. This tool produces a very narrow field of visibility, excluding other cost factors or aspects that cannot sufficiently be accounted for or in cost analyses at all (for a detailed discussion, see Stephan, forthcoming) and thus has become quite controversial (see for example Dyer and Counsell 2010).

a potent mitigation option but also one of the most 'efficient' and 'cost-effective' ones. This has been prominently established by the Stern Review (2006: XIII–XXVI, 215–19). McKinsey's (2010) abatement cost curves – a graphical depiction of the cost and potentials of various mitigation options – provides a similar conclusion (see Figure 1). Both received a lot of attention during the early REDD+ debate. Many – particularly developing – countries are using abatement cost curves in assessment exercises to determine their reduction potentials and highlight the most cost-effective ones (see Figure 2).

An economic rationale also becomes obvious when we look at the concrete governmental *technologies* proposed to tackle deforestation. They are based on an understanding that deforestation is a problem of missing or false incentives, resulting from a missing valuation of forest ecosystem services in the economic system. Policy makers therefore have to create a price for the carbon stored in forests and compensate agents of deforestation. Within the UNFCCC negotiations countries have agreed that REDD+ should be implemented in phases – starting with capacity-building initiatives and pilot projects – on the basis of results-based payments (UNFCCC 2010: 1CP16 IIIc). Many actors have proposed that REDD+ be integrated into the carbon market once developing countries can produce compliance grade credits. In this case, developing countries would receive emissions reduction credits according to the amount of emissions they avoid by reducing their supposed level of deforestation. They can then sell these credits to industrialized countries or companies which can use them to offset reduction commitments they might have under an emissions trading scheme.

How developing countries actually reduce deforestation and implement REDD+ remains a domestic responsibility, however. A broad variety of measures has been discussed. Payments for Ecosystem Services (PES) schemes have especially received a lot of attention. In a PES scheme landowners receive direct payments, the amount of which is set either at the value of the service they provide by protecting a forest or by the opportunity costs they face through not deforesting. Both the carbon market and the PES option heavily rely on the ability of scientists and foresters to determine the amount of carbon stored in forests and to measure and monitor deforestation. They use field inventories, satellite imagery and complex counterfactual modelling to determine the amount of greenhouse gas emissions avoided by protecting a forest. Hence, these scientific and technical practices enable the commodification of avoided deforestation (Stephan 2012a, 2013). It is obvious that REDD+ thus assembles a broad range of technologies of government not easily associated with one particular governmentality.

Governing deforestation in this manner also results in the emergence of new types of *subjectivities*. As Methmann (2011) argues in the case of the CDM, a carbon market-based implementation of REDD+ will be dependent on so-called carbon market professionals (Voß 2007:

340). While policy makers decide to initiate carbon markets, project developers, brokers, verifiers and bankers bring them into being. In the case of REDD+ Stephan (2013: 65–6) highlights the emergence of the carbon forester – actors able to combine a forestry background with a carbon accounting expertise – as an important step for the commodification of avoided deforestation.

Together the linguistic (e.g. the framing of avoiding deforestation as a cost-efficient mitigation measure) and nonlinguistic discursive practices (e.g. the measurement techniques) articulate a *field of visibility* in which forests are reduced to their function as carbon stocks: the measurements and calculations done by carbon foresters present how much carbon is stored in forests, while the carbon market monetizes only this one aspect. All other meanings of forests are being obscured. Stephan (2012a: 632–333, 2013: 62–65) calls this the carbonification of forests.[7]

Even though we have had very limited space to sketch out how deforestation and climate change are being made governable through REDD+, it has become clear that there is a close interaction between heterogeneous science and forestry elements – in governmentality studies usually regarded to be aspects of biopolitics – and market components – part of neoliberalism or advanced liberal government (see e.g. Oels 2005; Bäckstrand and Lövbrand 2006). Other than ideal-typical applications of governmentality, however, a focus on articulation identifies the productive interplay of diverse elements. In the case of REDD+, this diversity generates a particular dynamic. Carbon measurement practices – often perceived as an element of biopolitics – have been a problem in earlier attempts to commodify avoided deforestation. Their levels of uncertainty almost rendered them useless for the market. In other cases, obtaining usable measurement results would have induced transaction costs that exceeded any profits such a system could provide. Using the notion of articulation to assess the regime of practice in a bottom-up manner – as we propose in this chapter – enables us to identify the productive interplay between elements of biopolitics and advanced liberal government that a categorical reading would rather obscure.

7. A similar argument is made by Gupta and colleagues, who talk about the 'carbonization of forests' (2012: 729).

3. Hegemony: REDD+ Becoming the Dominant Approach

In the last section, we demonstrated how the concepts of discourse and articulation as provided by Laclau and Mouffe direct our attention to the heterogeneous elements from which governmental regimes are assembled. This obviously raises a series of questions: How is coherence among these elements established? How is it that such a heterogeneous governmental regime manages to become dominant? And how do we explain change in governmental techniques and rationalities? Here we contend that the concept of hegemony can highlight how regimes of government become hegemonic and are challenged and changed (see also Glynos and Howarth 2007).

Within a Foucauldian approach, the question of change is a difficult one. It is well known that Foucault abandoned his method of archaeology because it was not able to explain discursive change (Dreyfus and Rabinow 1982). His turn to genealogy, thus, puts particular emphasis on the delicate interplay between continuities and discontinuities in different rationalities of government (Foucault 1986). His later works pay attention to the historicity of governmental regimes and trace their evolution through time, but the analysis often remains rather descriptive (see Chapter 4). Foucault himself rarely provided explanations for change. Of course, it would contradict his entire approach to excavate particular 'laws of history', or boil developments down to single causes. Nonetheless, the driving forces for change in governmental rationalities and techniques often remain somewhat obscure. A case in point for this tendency is Foucault's analysis of neoliberalism (2008: 75). He perfectly traces the emergence of a neoliberal governmental rationality but pays only scarce attention to the political agency involved in popularizing it, and the practices of coalition building and consensus formation that eventually made it hegemonic (Mirowski and Plehwe 2009). This argument is also reflected in a number of critical comments regarding Foucault's neglect of collective forms of resistance. Resistance here is bound to the micro level (Kulynych 1997: 328). Foucault (1978: 96) claims that 'there is no single locus of great refusal, no soul of revolt, source of all rebellions, or pure law of the revolutionary'. Foucauldian analyses seem to downplay not only the possibility of resistance, but all forms of collective political agency. This tendency is mirrored in some of the Foucauldian analyses of climate change. Angela Oels (2005), for example, in her analysis of climate governmentalities, diagnoses a shift from a biopolitical to an advanced liberal rationality that took place with the adoption of the Kyoto Protocol. While she provides a rich analysis of how climate change is 'rendered governable' through these two rationalities, she does not account for the social and discursive forces that facilitated this shift – for example, the discursive struggles within civil society that eventually turned carbon trading into a legitimate and consensual instrument of climate governance (Stephan 2011). In

sum, we would argue that a governmentality perspective is indeed well equipped to map changes in the way social and environmental spaces are governed, but it rarely accounts for the political agency that triggered these changes.

It is here that Laclau and Mouffe's reading of Gramsci's idea of hegemony comes in. Given the fluidity and radical contingency of meaning that mark all society, hegemony is that very discursive operation which seeks to tame this field of discursivity. Hegemony seeks to construct a stable and consensual discourse in order 'to arrest the flow of differences, [and] to construct a centre' (Laclau and Mouffe 2001: 112). Laclau and Mouffe have sought to further qualify this discursive operation of hegemony by adding the concepts of antagonism and empty signifier. Any stabilization of discourses depends on the existence of an antagonistic outside – a common enemy (Laclau and Mouffe 2001: 125). And this antagonism comes to be represented in the form of an empty signifier – a signifier that stands for the unity of the discourse vis-à-vis its external negation. Laclau has shown how populist movements constitute around particular empty signifiers which represent the individual demands of its members and unite them in a coherent movement opposing the – antagonistic – established order (Laclau 1996). A case in point is the antiglobalization movement in many countries such as France or Germany that constituted itself around the demand for a Tobin Tax. Thereby it created a chain of equivalence between this particular tax and a broad range of demands such as social justice, peace, economic democracy and the like, as a challenge to the enemy figure of 'globalized capitalism'. In this sense, the creation of a hegemonic discourse depends on the creation of a 'constitutive outside' (Staten 1984) and the articulation of an empty signifier. And these insights obviously also apply to the establishment and maintenance of a particular regime of government. Erik Swyngedouw (2010), for example, has argued that the 'fetishization' of CO_2 represents such a nodal point which holds together all attempts to govern global warming, thereby creating a dangerous or even apocalyptic climate change as a 'constitutive' outside.

Looking at the case of REDD+ we can find some of the discursive structures Swyngedouw identified in the climate change discourse as a whole. As shown in the previous section, the regime of practice implemented through REDD+ also fetishizes carbon. Its narrow focus on emissions obscures the complexity of causes for and consequences of deforestation. It is interesting to note how the threat of deforestation and the threat of climate change are being related: dealing with deforestation is articulated as the prerequisite for addressing climate change and is usually constructed as the more pressing issue (e.g. Eliasch 2008: xx): A recurring narrative argues that while we still have a window of several years within which we can address climate change with various mitigation measures, deforestation needs to be dealt

with instantly – otherwise the forests are gone.

Even more interesting in the case of REDD+ is the question of how the issue of avoiding deforestation, very much contested a decade earlier, could suddenly gain such widespread support. Because of the low expected mitigation costs of avoided deforestation projects, critics of including it into the CDM successfully framed it back then as an easy way out for industrialized countries, which would thus prevent domestic reduction efforts and prolong a lock-in into carbon-intensive technologies (e.g. Hare 2000). Some furthermore articulated it as an attack on the sovereignty of developing countries (cf. Laurance 2007: 20–21) while others presented it as a potential biodiversity disaster and as a threat to forest-dwelling communities (cf. Lövbrand 2009: 409).

We can observe significant differences in the narrative structure since the issue has reemerged under the REDD+ label. Avoiding deforestation is still perceived as a cost-efficient mitigation option. With regard to mitigation strategies of industrialized countries, however, this is not perceived as a problem anymore. Cheap REDD+ credits, so the story goes, will enable industrialized countries to take on higher reduction commitments (e.g. Eliasch 2008: xii). Beyond being a solution for mitigating climate change, REDD+ is also portrayed as a remedy for other societal grievances, namely poverty, the increasing destruction of indigenous peoples' livelihoods and biodiversity loss. Through REDD+ the demands to overcome these grievances are combined in a chain of equivalence and REDD+ serves as the signifier that represents them all (Stephan 2012b). Being able to accommodate such a broad spectrum of demands has allowed a variety of very diverse actors to come out in favour of REDD+. Initially put forward by Papua New Guinea and Costa Rica on behalf of a few tropical developing countries and supported by a number of U.S.-based conservation nongovernmental organizations (NGOs), REDD+ is now supported by nearly all UNFCCC parties, most big international environmental NGOs, many development organizations, a number of indigenous groups and a small but increasing number of business actors like BP or the multinational bank BNP Paribas (Stephan 2012b). In fact, the emergence of REDD+ is the result of ongoing coalition building forming a coherent discourse.

However, as REDD+ is a rather nascent project one has to wait and see whether it can develop into an empty signifier in its pure form. Thus far, some crucial aspects have not been decided yet – for example the question of whether REDD+ should obtain its funding through integration into the global carbon market or through nonmarket sources. Up until now, this enabled both the actors in favour of market solutions and those that strongly oppose them to support REDD+. Hence, as REDD+ is still partially contested, it represents what Laclau (2005: 129–33) calls a 'floating signifier'. If the undecided aspects are resolved in a manner that keeps the chain of equivalence intact and enables subjects with divergent views to con-

tinue identifying with it, REDD+ will have become an empty signifier. If this is not the case, the support for REDD+ will crumble (Stephan 2012b).

4. (De)Politicization: The Political Effects of REDD+

Hegemony theory provides at least one more contribution to the study of governmentality: a more sophisticated understanding of the political. One of the main impacts of Foucault's writings on political thought and analysis is, obviously, a redefinition of the field of the political. Traditional accounts locate politics in a particular sphere of society – the parliament, parties and the government, politics among nations or class struggle. Foucault in contrast highlighted how relations of power traverse the whole society and how government is achieved through a multiplicity of institutions and practices beyond the state (Rose and Miller 1992). In light of his huge influence on political theory and political science, it is quite striking that Foucault was not a very frequent user of the terms *politics* and *the political* as such. In this sense, although he was clearly a political and critical intellectual, Foucault never thoroughly engaged with what he saw as the political. For example, as Weir and colleagues (1997) argue, Foucault tried to separate his explicit political engagement from his mostly historical analyses. As a result, they diagnose that much of the critical ethos of Foucault's genealogical approach is not reflected in present-day governmentality studies (see also Chapter 4). Instead, most of the literature restricts itself to a more or less 'diagnostic' approach and so 'precludes problematizing effects, and thus presumably eliminates the possibility of assigning the costs to existence of any form of governmentality, including neoliberalism' (Weir et al. 1997: 509).

We think that the studies of climate governmentality partly mirror this problem. Recent accounts of carbon accounting, for example, have highlighted the many ways individuals and collectives are rendered governable in terms of their carbon footprint (Lövbrand and Stripple 2006, 2011; Paterson and Stripple 2010). Again, these analyses provide invaluable insights into the political reason of carbon accounting: how climate change becomes an object of government that can actually be acted upon. However, the evaluation of these effects is sometimes inconclusive. For example, Paterson and Stripple (2010: 359) contrast, with regard to individual carbon accounting, the virtues of their diagnostic approach with a more critical perspective. They argue that the critiques widely seen of such 'marketized' governance miss the mark. To operate by shaping and producing individuals as particular types of subjects

(managing their carbon budgets, etc.) is precisely how power operates in neoliberalism. Rather than using individual freedom as a depoliticization strategy, it acts through channelling ways that individuals exercise their freedoms.

We are convinced that the notion of the political implicitly entailed in Foucault can be enriched with what is found in Laclau and Mouffe, allowing the governmentality analyst to evade the choice between fundamental criticism and simple diagnosis. In Foucault's fragmentary notes from his governmentality lectures, Michel Sennelart has unearthed an account that comes close to an explication of the political. There, Foucault remarked that 'nothing is political, everything could be politicised, everything may become political' (quoted in Sennelart 2007). We think that these brief remarks, perhaps not surprisingly, come very close to the concept of the political found in Laclau and Mouffe. Such a 'postfoundational' (Marchart 2007) understanding of the political is not so much interested in the everyday struggle within a separate sphere of 'politics' but rather in the political 'which sets out a particular, historically specific account of what counts as politics and defines other areas of social life as not politics' (Edkins 1999: 2).

Recall that for Laclau and Mouffe all discourses are the radically contingent outcome of a hegemonic struggle. Once a discourse is settled, it excludes some notions and ideas, and thus gives rise to an antagonistic outside as the necessary 'Other' of social life. This assumption allows for distinguishing between two layers within society (Laclau 1990: 33). The 'social' represents the sedimented structures of a given discourse which are taken for granted, where a particular discursive representation has become hegemonic, so that it is not questioned anymore. By contrast, 'the political' refers to those areas of social life where this implicitness has dissolved. This sphere is marked by contestation, instability and hegemonic struggle. In this sense, the political is a latent feature in all areas of social life which comes to the fore when their implicit foundations are called into question. Within the space of the political there are two types of operations. A politicizing treatment of a particular problem brings the underlying antagonisms to the fore and aims for the transformation of sedimented social structures. Depoliticization, by contrast, involves all counter-strategies which seek to conceal the contingency of reality, sew the gaps in hegemonic discourses and channel dislocations in such a way that fundamental social structures remain untouched.

Such an understanding of the political and depoliticization connects well to the Foucauldian concept of governmental power. Not only do both approaches seek to transcend the narrow institutions of the state in their accounts of power and politics, but governmentality can also be understood as a particular form of depoliticization. It is concerned with the 'right disposition of things' (Foucault 2007: 96), which, as long as it remains unchallenged, creates sedimented social structures – what Laclau and Mouffe call the social. Government seeks to

manage grievances, problems and demands in a way that does not disturb the dominant order (Howarth 2009: 321). This forms the heart of the liberal doctrine of government. Ever since the emergence of liberal governmentality, it is obsessed with not 'governing too much' (Hindess 2005: 394). Liberalism, hence, 'identifies a domain outside "politics", and seeks to manage it without destroying its existence and autonomy' (Rose and Miller 1992: 180). By constituting this domain as an autonomous and 'natural' entity and managing its disturbances, governmentality depoliticizes it and hence constitutes it as part of the social. In the case of global climate change politics as a whole, Methmann (2011) has shown that, notwithstanding the missing success of the current climate regime – the (weak) reduction commitments of the Kyoto Protocol not being met, a successor agreement not in sight and global emissions trends that further increase despite the urgent need to reverse them – no one challenges the modus operandi. Instead, a 'global carbon governmentality' successfully stabilized the climate regime by reconciling existing antagonisms and creating climate change as the external threat.

As REDD+ is only just being implemented, one cannot say much about its effectiveness yet. But considering the outcome of previous efforts to tackle deforestation and the emerging complexity of the proposed REDD+ mechanism, it is highly questionable whether it will achieve the desired impact. If REDD+ is integrated into the carbon market and hence has the character of an offset mechanism it will be a zero-sum game at best, as the buyers of REDD+ certificates will use them to prolong activities that cause emissions (see Greenpeace et al. 2011). We can already see, however, additional depoliticizing effects REDD+ has on the global climate regime: it seems to soften one of the few antagonisms that occasionally resurfaces in global climate politics – the North-South divide. Ever since anthropogenic climate change has become an issue in international relations, one of the key questions has been who is responsible and hence should pay for mitigating it. Highlighting the 'common but differentiated responsibility' the UN Framework Convention on Climate Change (UNFCCC, 1992: §3.1) notes that industrialized countries should take the lead in mitigating climate change. This view was widely shared among developing and developed countries during the 1990s and is also reflected in the Kyoto Protocol, which only includes reduction commitments for industrialized countries.[8] In the face of sharply rising emissions from emerging economies, however, more and more industrialized countries have started to argue that developing

8. Not every industrialized country was a strong supporter of the common but differentiated responsibility clause excluding developing countries from reduction commitments. The United States, for example, had been critical of it prior to the agreement of the UNFCCC. And while the United States signed the Kyoto Protocol in 1997, the US.. Senate made it clear that it would not ratify the treaty, including reduction commitments, for the United States as long as developing countries are excluded from reduction commitments (U.S. Senate 1997).

countries – particularly emerging economies – have to do their share as well and take on reduction commitments. Thus far, however, they have refused to do so – a central conflict in the current negotiations on a post-Kyoto agreement. REDD+ seems to be a win-win option for everyone and hence dissolves this antagonism: tropical developing countries – among them large emerging economies like Brazil and Indonesia – contribute to mitigating emissions by reducing deforestation. Because of incoming investments and expected co-benefits like poverty reduction, they simultaneously profit from doing so. Industrialized countries, which are expected to provide these investments, benefit from a cost-efficient reduction option to offset some of their own emissions. All that remains to be done, it seems, is to maximize the benefits of REDD+ by making sure that it is carefully designed and managed. Questions on justice and responsibility – the few politicized – that is, highly disputed – aspects left in the climate change discourse – are increasingly buried under discussions on complicated technocratic management issues like nested approaches, Reference Emissions Levels and buffer funds within the REDD+ negotiations.

The hegemony theory of Laclau and Mouffe, however, not only opens a perspective on practices of depoliticization, but also considers possible entry points for a repoliticization of sedimented discourses or governmental practices. As every social or discursive order is marked by a fundamental instability, there is always the possibility of resistance and opposition (Howarth 2009: 317).[9] A starting point for the study of opposition in hegemony is the category of discursive dislocations or dislocative moments. This concept refers to uncontrollable moments that break up the established discursive order, thereby questioning hegemonic knowledge and revealing the contingency of meaning. Dislocations can be found in critical discourse moments, that is unforeseen events like 9/11 or Hurricane Katrina that cannot be represented and explained in given discourses and hence can grow into fundamental challenges.

The failure of COP 15 in Copenhagen presented a critical moment for the discourse on climate change as a whole – and hence for REDD+. However, the modus operandi of the international climate regime has not been substantially questioned or challenged and hence negotiations on REDD+ and other issues continue, and practices remain unchanged. So far REDD+ as a whole is only opposed by a small number of actors[10] whose position has been

9. This coincides with the notion of productive power in the governmentality concept stating that power – other than domination – can only be exercised over free subjects who always have the possibility to resist (Foucault 1982: 790).

10. On a country level, Bolivia has been an outspoken critic of REDD+. Among nonstate actors REDD+ is being opposed by some indigenous groups and smaller environmental and development NGOs (see for example Cabello and Gilbertson 2010). Among the big international environmental NGOs, only Friends of the Earth has voiced fundamental criticism of REDD+.

largely marginalized in the discourse. Among other points of criticism, they challenge claims that REDD+ will help protect biodiversity and provide livelihoods to forest dwellers. Instead, they articulate REDD+ as a threat to forest communities that cannot help protect biodiversity as it is exclusively focussed on carbon emissions (Friends of the Earth International 2008: 10; Cabello and Gilbertson 2010).

Beyond larger critical moments, subjects also experience dislocations in the everyday and routinized practices. The contradictions and irritations that are continuously brought about by such micro-dislocations can be utilized by political projects to challenge the existing regime of practices (Howarth and Glynos 2007: 105). This is the case if political projects are able to articulate the dislocation in a way that links them with their own political demands. Actors that are critical of REDD+ – such as the members of the No-REDD Platform[11] – are carefully monitoring the implementation process, trying to highlight and link cases where REDD+ has not brought about the promised impact. We have to wait for a further implementation of REDD+ to determine whether this results in a broader repoliticization of REDD+. Furthermore, the complicated measuring, monitoring and calculation procedures on which REDD+ is based entail many potential micro-dislocations as well. As Barry (2002) shows, scientific and technical procedures can not only have depoliticizing effects, but calculations that are inaccurate or do not produce clear results and technologies that fail cause dislocations which might then be used to repoliticize an issue.

5. Conclusion

This volume provides ample evidence that poststructuralist approaches have gained widespread currency in the study of global climate politics. And as many have argued, governmentality and hegemony – two important media of exchange within this conceptual economy – are actually two sides of the same coin. In this chapter we pursued a twofold target: to provide a new perspective on the third side of the governmentality-hegemony coin – the edge connecting heads and tails – by exploring how governmentality and hegemony connect in a purely poststructuralist theoretical framework, and to show the empirical value of this novel perspective for the study of REDD+ in global climate politics. This chapter showed that Laclau and Mouffe's reading of hegemony is best equipped for this endeavour as it shares a common meta-theoretical ground with Foucault's notion of governmentality. As the empiric-

11. For details on the No-REDD Platform see http://noredd.makenoise.org.

al investigation revealed, governmentality and hegemony can best play out their strength when they are not straitjacketed into a single theoretical corset. If applied in a work-sharing fashion, the combination of the two is a valuable tool with which to paint a more elaborate picture of the discursive constitution of climate governance that overcomes important shortcomings in parts of the climate governmentality literature.

First, the concept of hegemonic struggle and articulation provides the missing link between Foucault's everyday and mundane micro-practices of power, and broader macro-structures of governmental power. Using a bottom-up approach, our perspective revealed that current REDD+ discourse draws on a creative articulation of very diverse elements. It brings together an economic efficiency discourse and the idea of a comprehensive carbon management. It relates economic practices (environmental markets and direct payments) to scientific measurement practices that create a narrow focus on carbon (emissions), as opposed to considering the causes for these emissions. And it assembles a whole set of novel subjectivities – from project developers to carbon brokers, verifiers and bankers. Second, drawing on the notion of hegemony we sketched out why REDD+ today receives such broad support despite earlier resistances to address tropical deforestation under the Kyoto Protocol. This success is based on a hegemonic struggle including the rearticulation of avoided deforestation into REDD+, representing a broad range of political demands and the forging of a coalition around this novel, relabelled nodal point. Lastly, Laclau and Mouffe's notion of the political enables the study of how these types of discursive struggles, which render different social and environmental phenomena governable, are intrinsically linked to processes of politicization and depoliticization. We have shown how REDD+ contributes to the depoliticization of global climate politics by replacing debates about equity and justice with technocratic discussions and thus covering up existing antagonisms – such as the divide between North and South in international climate politics. These depoliticizing moments, however, are not set in stone. What might look like a simple technocratic management issue can cause dislocations that may repoliticize how deforestation or climate change are dealt with.

This chapter provided only a first step to develop this analytical perspective, which tried to drill deeply into the piecemeal and ongoing discursive construction of climate governance. Further research has to follow. An interesting aspect would be a detailed analysis of the different ways oppositional articulations are integrated into and reformulated within hegemonic discourses. In this context, the role of social movements and NGOs in the articulation and stabilisation of dominant governmentalities are of particular interest. Finally, more should be done to understand the process and implications of depoliticization in concrete and specific areas of global climate governance beyond the mere identification of a general trend towards a post-political governance.

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3

From Pariah to Messiah

The Role of Avoiding Tropical Deforestation in International Climate Governance

1. Introduction

REDD+ — Reducing Emissions from Deforestation and Degradation and the 'conservation, sustainable management of forests and enhancement of forest carbon stocks' (UNFCCC, 2010: 1CP16 III C) — is a new policy mechanism which is currently being negotiated under the UN Framework Convention on Climate Change (UNFCCC). Through this mechanism, which is meant to be financed by either an international fund or the integration of REDD+ into the carbon market, developing countries are supposed to be compensated for the costs accruing to them when reducing deforestation within their borders. REDD+ was put onto the UNFCCC agenda in 2005 through a submission by Papua New Guinea[1] and Costa Rica and gained widespread support — from both governmental and non-governmental actors in industrialised and developing countries. It is expected to play a key role in a future agreement on climate change and industrialised countries have pledged more than US $ 4 billion through multilateral initiatives alone for the further development and implementation of the

1. The proposal called for Reducing Emissions from Deforestation (RED). In the ensuing negotiations, the issue was broadened to include forest degradation (REDD) and sustainable forest management (REDD+) (see Section 3 for more details). For ease of reading I will only refer to it as REDD+ even though this is not in all instances historically correct.

mechanism (Climate Funds Update, 2012).

This broad support comes as a surprise if we consider the history of international climate governance. During the first years of the UNFCCC, tropical deforestation did not play any important role despite existing knowledge on its effects on climate change. When it became an issue in the wake of the adoption of the Kyoto Protocol, it was very controversial: Faced with the question of whether afforestation/reforestation and avoided deforestation should become eligible project types under the Clean Development Mechanism (CDM), parties to the UNFCCC could not come into agreement and an intense struggle evolved. A compromise was reached in 2001 at COP 7 in Marrakech: Afforestation/reforestation was included in the CDM while avoided deforestation was excluded. Less than five years later REDD+ emerged, displaying large similarities to what was debated earlier. Yet this project receives broad support — including support from many of the actors that had opposed an inclusion of avoided deforestation under the CDM. In light of this stark contrast, the key research questions this paper addresses are: How can the broad support for REDD+ be explained in light of the controversial role of deforestation during earlier phases of international climate negotiations? How did the status of avoiding tropical deforestation change from pariah to messiah?

The bulk of the existing social science literature on REDD+ (for an overview see Hufty and Haakenstad, 2011) provides us with little insight on these questions. An exception is Boyd (2010) who — drawing on a poststructuralist framework — traces how tropical deforestation was first seen as a global and subsequently a climate change problem. In his assessment he raises a few aspects that might serve as an explanation. But a comparison between the discourse on REDD+ and the debate on the inclusion of avoided deforestation under the CDM is missing in his work. Furthermore there are articles from Nielsen (forthcoming) as well as Hiraldo and Tanner (2011) which provide a brief overview on the key narratives in the discourse on REDD+. However, they are not interested in investigating how those enable a broad support for REDD+. To close this research gap and provide answers to the questions outlined above I draw on Ernesto Laclau and Chantal Mouffe's hegemony and discourse theory (Laclau and Mouffe, 2001; Laclau, 2005). I use their approach to analyse the discourse on deforestation and climate change as it has developed in the context of international climate change negotiations.[2] The analysis comprises an intertemporal comparison between the discourse during the negotiations on an inclusion of avoided deforestation as an eligible project mechanism under the CDM (1997-2001) and the discourse since the issue was negotiated un-

2. In the corpus of my analysis I have also included statements by actors not directly involved in UNFCCC negotiations. To be included in the corpus, reports and statements had to be made in relation to REDD+ or the UNFCCC negotiations.

der the RED(D+) label (2005-2012). For simplicity reasons I will subsequently refer to the former as *CDM discourse* and the latter *as REDD+ discourse* (see also Figure 1).

Methodologically, I draw on Foucault's archaeological and genealogical methods. I use the former to map the regularities and rules that govern the current discourse on REDD+ (Foucault, 2002). With the help of the latter I trace the historical discourse on deforestation and climate change to write 'the history of the present' (Foucault, 1995: 31) discourse on REDD+. The corpus analysed for this project consists of 135 policy papers, reports and press releases by governmental and non-governmental actors, UNFCCC negotiating texts and scientific publications such as the Intergovernmental Panel on Climate Change's (IPCC) assessment reports. In addition I conducted 21 interviews with different stakeholders involved in REDD+. To track key developments during current REDD+ and earlier CDM negotiations, I analysed the relevant issues of the International Institute for Sustainable Development's (IISD) *Earth Negotiation Bulletin* and the Climate Action Network's (CAN) *ECO Newsletter*. As primary sources are not available in their entirety anymore for the *CDM discourse*, they have been supplemented by insights from secondary literature. The corpus was analysed based on a two-tiered coding strategy: A first round of open coding,[3] in which codes are generated in-vivo from the analysed material, was complemented by a second round of coding based on a theoretically derived code structure.

The paper will proceed as follows: After introducing the theoretical framework I provide a brief overview on the historical development of REDD+ (Section 3). What follows is an analysis of the key narratives that structure the discourse (Section 4). After outlining how deforestation is articulated as a problem (Section 4.1) I describe in detail several narratives that render REDD+ an appropriate and broadly acceptable solution (Sections 4.2-4.5). Reflecting the intertemporal character of the underlying discourse analysis, I contrast the narratives I identify in the current discourse with the respective narratives prevalent in the CDM debate. Based on the analysis of the key narratives, I conclude this paper with an assessment of the status of REDD+ as a political project and the effects it generates (Section 5).

3. I adopted this method from grounded theory (Strauss and Corbin, 1998: 101-122).

2. The Theoretical Foundation: Hegemony and Discourse Theory

Laclau and Mouffe's hegemony and discourse theory is chosen as the theoretical framework for this analysis because its poststructuralist concept of discourse combined with Gramsci's notion of hegemony makes it a powerful tool to understand how some political projects manage to prevail and become hegemonic while others cannot garner enough support and fail. This section briefly introduces the core elements of the approach and outlines how it will be used in the analysis that follows.

For Laclau and Mouffe, discourse is a relational and differential system through which meaning is created. It 'is the primary terrain of the constitution of objectivity as such' (Laclau, 2005: 68). As any structuring practice produces meaning, their concept of discourse encompasses both linguistic and non-linguistic practices (see Laclau, 2005). Signifiers are the smallest elements of discourse. They are different from each other but do not have any essential meaning or positive value. Meaning is only constituted through the relations a signifier has to other signifiers within the discourse. As Howarth (2009: 311) puts it, a discourse is 'a system of signifiers without positive terms, in which the identity of each element depends on its differences with others.'

An individual meaning producing relation — relating two or more signifiers to each other — is what Laclau and Mouffe call an articulation (Laclau and Mouffe, 2001: 105). There are two types of relations that exist: relations of difference and relations of equivalence. The former are based on the fact that all signs are non-identical and hence different from each other. The latter come into being when discursive elements are being equated. However, they can only be equated with regard to specific aspects, because discursive elements can never be identical. An element x can only be equal to an element y with regard to a specific aspect a (Nonhoff, 2007: 179). Laclau refers to split elements (Laclau, 1996: 38), simultaneously containing a differential and an equivalential moment. Narratives can be seen as larger articulations that relate discursive elements to each other. Glasze (2008: 204-205) introduces this idea to hegemony and discourse theory, looking for ways to operationalise the approach. Drawing on narratology (Somers, 1994), he defines narrative patterns as regular combinations of elements that create discernible relationships. Such narrative patterns are part of broader narratives. These, however are not necessarily found in their completeness in each text (Glasze, 2008: 204). In the following empirical analysis I outline a number of key narratives that structure the *REDD+ discourse* and contrast these with the narratives prevalent in the *CDM discourse.*

Having outlined the discourse theoretical foundations of Laclau and Mouffe's theory, I will now highlight the distinction they make between the social and the political. For them, both are ontological categories. The social comprises the routines we have developed — collectively and as individuals — and what we, as a society, accept as truth. Hence, it is made up of the discourses and discursive formations that are stable. However, even though a discourse can be temporarily stable it is never absolutely fixed. New developments can be contradictory to established systems of thought and meaning. What previously appeared to be an unquestionable truth might suddenly not fit anymore and become something alterable. Laclau and Mouffe call such developments *dislocations*. When routines and truths are called into question, they leave the social and enter the sphere of the political - they become politicised. There is suddenly room for discussion and actors struggle with each other about what should replace them. Hence, the political can be defined as the institution and contestation of social relations (Laclau and Mouffe, 2001: 153). There is also the movement in the opposite direction: Previously contested issues become increasingly accepted and have the chance to develop into sedimented routines that are no longer questioned. In this case, an issue leaves the realm of the political to become part of the social — it becomes depoliticised. With regard to REDD+, two aspects are of particular importance: First, if there are significant differences between the *CDM discourse* and the *REDD+ discourse*, are there clearly distinguishable moments of dislocation that allowed these shifts to occur? Second, what tone does the current discussion on REDD+ take? Is the issue still contested — that is, politicised? Or do actors agree on its goals and underlying assumptions, and we can characterise the discussion as depoliticised?

With their notion of hegemony, which they develop based on Gramsci's work, Laclau and Mouffe provide a powerful theoretical toolkit with which to understand how particular projects or discourses prevail and how things become politicised or depoliticised. Based on their theory, Nonhoff (2007: 181-184) differentiates hegemonic structures at different discursive levels. Hegemonic articulations present the smallest units: These are articulations in which a demand to overcome a grievance is articulated with regard to the universal — the general benefit of society. The notion of demand was introduced by Laclau (2005a: 72-77) in his more recent work on populism. Demands are aimed at overcoming deficits and grievances which have either a) come into being due to new challenges the existing order cannot accommodate, or b) to do with the dominant order itself. ‘We need to avoid deforestation to prevent climate change‘ is an example of a hegemonic articulation as climate change is often presented as a universal threat.

At a more aggregate level we can find hegemonic projects (Nonhoff, 2007: 183). In this case several demands are being combined into a chain of equivalence. The demands' equival-

ential moments point to a specific aspect a which they share (x equals y equals z with regard to aspect a). The specific aspect a has to be a discursive element outside of this equivalential chain. It represents a constitutive outside which gives the chain of equivalence its meaning. It is the antagonistic other that the hegemonic project aims to overcome. One of the demands — Laclau calls it the *popular demand* — often dominates the equivalential chain. In relation to it a symbol, which is sometimes the demand itself, develops which has the ability to represent the entire chain, including the other demands. It is what Laclau (2005a: 99) calls an *empty signifier*. This signifier has to be emptied of its own signified in order to be able to represent the entire chain and the other signifiers/demands that are part of it. An empty signifier is never fully emptied, however. What happens is that it is emptied to a degree that makes it impossible to clearly determine its meaning (Stäheli, 1999: 149-150). A signifier cannot be sufficiently emptied and is hence not yet able, to represent the entire equivalential chain. In this case actors struggle with each other, trying to articulate the signifier in contradicting ways. As a result the meaning of this signifier is 'indeterminate between alternative equivalential frontiers' and hence 'suspended' (Laclau, 2005: 131). Laclau calls this a *floating signifier*. It remains floating as long as none of the actors manages to establish its way of articulating it as dominant.

3. A brief history of deforestation in international climate governance

Having outlined the theoretical framework, the paper now turns to the empirical case. Before I start to map the current discourse on deforestation and climate change in detail, I provide a brief overview of the history of REDD+ and the previous attempts to address tropical deforestation within international climate governance.

REDD+ is essentially based on the idea of using markets to address environmental externalities and the related idea of creating payments for ecosystem services. While the former has its roots in environmental economics in the 1960s (Coase 1960), the latter stems from debates in ecological economics during the 1980s and early 1990s (for an overview see Gómez-Baggethun et al., 2010). The first concrete proposals and projects to implement environmental markets as policy instruments were developed in the United States. Policy makers and bureaucrats had experimented with the environmental markets idea during the 1970s and 1980s (Cook, 1988), and by the end of the decade a bipartisan working group flagged it as a key instrument for future environmental policy making in the US (Stavins 1988). The subsequent

Acid Rain Program — a federal trading system for NO_x and SO_x emissions — served as the main reference in the debate on an international carbon emissions trading system which developed under the UNFCCC. The first proposal which linked emissions trading and the protection of tropical rain forests was put forward by the Environmental Defense Fund (EDF), a US-based environmental NGO, in 1991 and thus even predates the creation of the UNFCCC. Three years prior, the World Resources Institute (WRI) helped set up an afforestation project in Guatemala funded by American Energy Services (AES) to offset the emissions a new power plant in Connecticut, USA (Trent, 1992; Landell-Mills and Porras, 2002: 1). This voluntary initiative can be characterised as the world's first forest carbon offset project.

With the adoption of the UNFCCC (and conventions on the protection of biodiversity and to combat desertification), the Earth Summit in Rio de Janeiro in 1992 marks an important event in international environmental and climate governance. Negotiations on an international forest convention to be adopted at the same conference, however, failed. All that actors could agree on was a 'non-legally binding authoritative statement of principles' (UNCED, 1992a). In terms of legally binding instruments in international forest governance, the situation has not changed since. All outcomes of multilateral negotiations have been only informative or legally non-binding in character (see for example UNFF, 2007: 1-10).

Despite the IPCC's First Assessment Report, which demonstrated a clear link between tropical deforestation and climate change (see for example IPCC, 1990a: xxxii; IPCC, 1990b: xliii), the UNFCCC text only once directly refers to forests/deforestation in developing countries, calling the signatories to consider actions for funding and technology transfer to help developing countries with 'forested areas and areas liable to forest decay' (UNCED, 1992b: §4.8). The first Conference of Parties (COP) taking place in Berlin in 1995 introduced Activities Implemented Jointly (AIJ) through which industrialised countries could 'implement policies and measures jointly with other Parties [in] order to build experience and "learn by doing"'(UNFCCC, 2002b). Among the 156 AIJ projects, 18 were forestry related. Ten of these were avoided deforestation projects — the majority of which was located in Latin America and financed through US-based organisations (UNFCCC, 2002a). The most prominent project, but also most controversial (see for example Greenpeace International, 2009), was the Noel Kempff Mercado Climate Action Project in Bolivia conducted by The Nature Conservancy (TNC), a US conservation NGO, and Fundación Amigos de la Naturaleza (FAN), its Bolivian partner (TNC, 2009). It is considered to be the first REDD+-type project rewarding forest conservation based on the emissions that were avoided. Three additional AIJ avoided deforestation projects were set up in Costa Rica, which in 1996 put in place the world's first national payments for ecosystem services scheme to promote forest conservation (de Camino et al., 2000).

With the Kyoto Protocol adopted at COP 3 in 1997, industrialised countries agreed to concrete reduction goals. Furthermore, flexible mechanisms (international emissions trading, JI and the CDM) to achieve these goals were adopted. The Kyoto Protocol also requires industrialised countries to account for their forests as carbon sinks (UNFCCC, 1997: §3) — potentially enabling them to offset emissions increases in other sectors through reforestation. However, the Kyoto Protocol did not address the issue of forests/deforestation in developing countries, leaving unclear whether forest carbon projects would be allowed under the CDM. A controversial debate on this question evolved over the following years during which the IPCC was commissioned to compile a special report on the issue (IPCC, 2000). Actors from all stakeholder groups — developing countries, industrialised countries and NGOs — were split on the subject (Boyd et al., 2008).

A compromise on the inclusion of forest carbon projects into the CDM was not reached until COP 7 in Marrakech in 2001; while afforestation/reforestation was included, avoided deforestation was excluded as an eligible project type (UNFCCC, 2001: 11CP7 Annex C).[4]

The issue was reintroduced as Reducing Emissions from Deforestation (RED) to the UNFCCC negotiations in 2005 — the year the Kyoto Protocol came into effect — through a submission by Papua New Guinea and Costa Rica (2005) on behalf of the newly formed Coalition for Rainforest Nations. This time the issue quickly gained broad support. Negotiations commenced under the Subsidiary Body for Scientific and Technological Advice (SBSTA) in 2006. With the Bali Road Map, agreed upon at COP 13 in 2007, the scope of the discussed instrument was broadened to Reducing Emissions from Deforestation and Degradation (REDD). It also became a key issue in the negotiations for a future climate change agreement (UNFCCC, 2007: 1CP13 III). In 2008, a proposal called for a further broadening of the scope to include the 'conservation, sustainable management of forests and enhancement of forest carbon stocks' (REDD+) (UNFCCC, 2010: 1CP16 III C), which was officially accepted in 2010 at COP 16 in Cancun (see also Pistorius, 2012).

Without giving away too much of what I present in the following sections, I can say for now that it becomes apparent that REDD+ emerged and gained popularity parallel to the negotiations on a post-Kyoto agreement. The Kyoto Protocol's entry into force in 2005 formally triggered negotiations of a successor agreement.[5] These discussions and negotiations not only

4. Only a small number of afforestation/reforestation projects was realised during the Kyoto Protocol's first commitment period, not least due to the EU ban of forestry credits from the EU ETS. The credits generated through afforestation/reforestation projects constituted a market share of 0.9 per cent of CDM credits (UNEP Risoe, 2013)

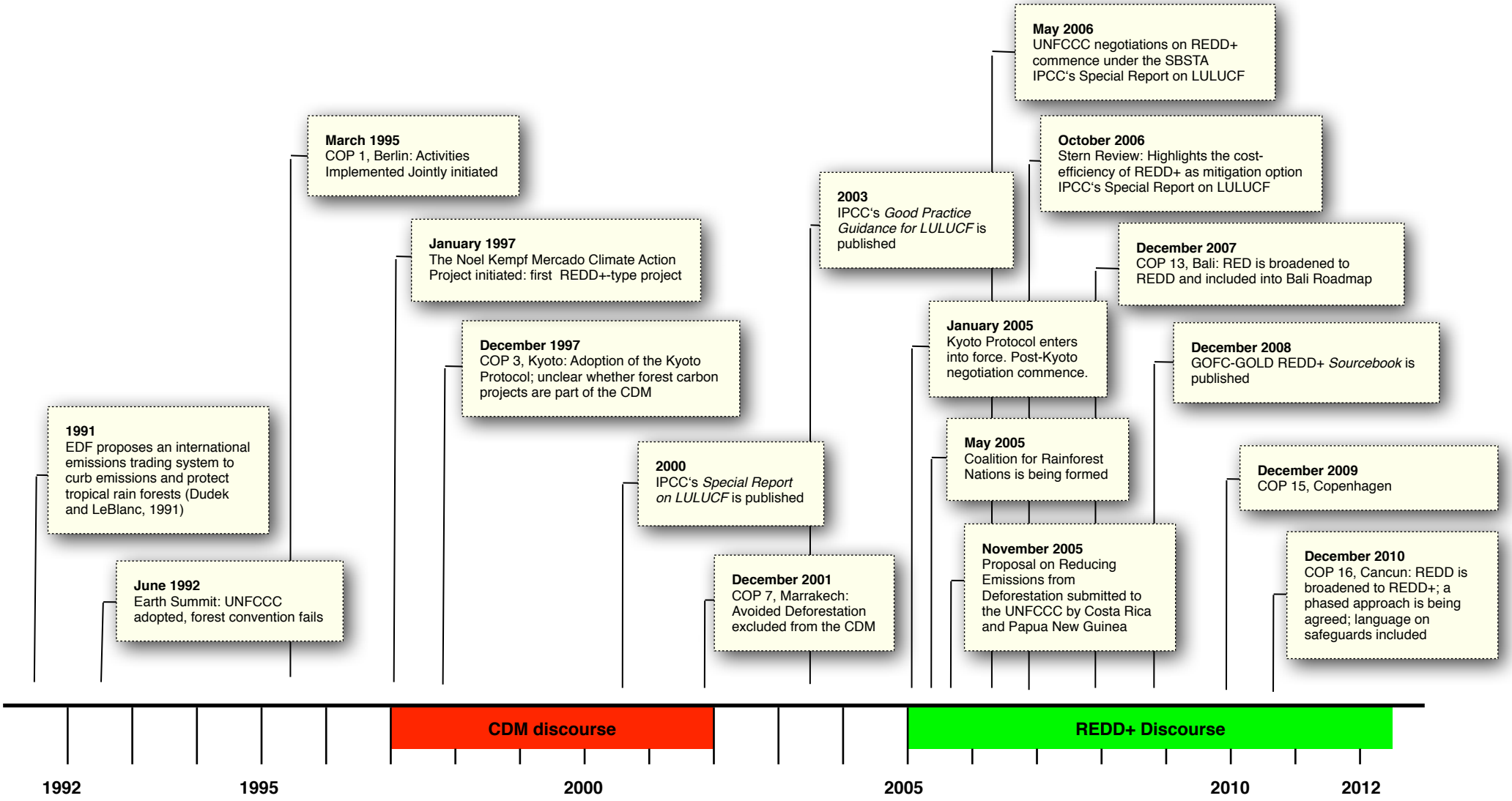
5. The Kyoto Protocol requires negotiations on a second commitment period or a successor agreement to start seven years before the end of the first commitment period — hence in 2005 the very same year it came into effect (UNFCCC, 1997: §3.9). The initial plan was to conclude these negotiations at COP 15 in

focused on new reduction targets but also explicitly included the review of existing measures (UNFCCC, 1997: §9.2). Hence, they presented the possibility to question and go beyond the existing agreement, thus broadening the scope of mitigation activities and potentially leaving entrenched positions behind. The coming into effect of the Kyoto Protocol and the start of the post-Kyoto negotiations thus seem to present a dislocative moment, allowing 'international efforts to combat climate change [to] enter a new phase' (EU Commission, 2005: 1). This is the context in which, for example, the EU Commission — a critic of forest carbon projects under the CDM — drafted its communication *Winning the Battle Against Global Climate Change*, which argues inter alia that

> 'A fresh look will have to be taken at how to halt deforestation of the world's forests. Addressing this problem as a specific issue in some regions is necessary as almost 20 % of global greenhouse gas emissions are currently emitted due to land use changes.' (EU Commission, 2005: 9).

Copenhagen in 2009. This failed. An agreement was also not reached when the Kyoto commitment period ended in 2012. At COP 17 in Durban, countries agreed to postpone a future agreement until 2015, which would then only come into effect in 2020, leaving a gap of seven years between the end of the Kyoto commitment period and a possible successor (UNFCCC, 2011: 1/CP17).

Figure 1: Timeline of Events



4. Analysing REDD+ Narratives

After this brief historical overview, the paper now turns to the results of the discourse analysis. In the following sections I outline key narratives that structure the *REDD+ discourse* and compare them to the respective narratives in the *CDM discourse*.

4.1 Deforestation: A problem of opportunity costs and missing incentives

This first section assesses how tropical deforestation is presented in the *REDD+ discourse*. I first highlight how it is articulated as a climate change issue. In the next step I analyse how deforestation itself is articulated as a problem, outlining some of the consequences of this problematisation. In this section I focus on the analysis of relevant narratives in the *REDD+ discourse*, as those found in the *CDM discourse* do not differ substantially.

Most texts on REDD+ have at least a paragraph in which deforestation is articulated as a climate change problem. There, forests are presented as 'carbon sink[s]' (e.g. Eliasch, 2008: 21) or 'important storehouses of carbon' (Papua New Guinea and Costa Rica, 2005: 4), the destruction of which causes significant greenhouse gas emissions. Authors usually state the share of deforestation present as a total amount of global annual CO_2 emissions — a number that varies between 12 per cent and 25 per cent.[6] These numbers are often made intelligible by comparing or equating them to other sources of emission: 'Deforestation accounts for … more than total EU greenhouse gas emissions' (EU Commission, 2008: 3); it amounts to 'roughly as much each year as all the CO_2 emitted by all the fossil energy consumed in the United States'; or 'the loss of natural forests around the world contributes more to global emissions each year than the transport sector' (Stern, 2006: ix). Presenting deforestation in this manner and reiterating the need to keep global warming within safe limits, conclusions

6. This relatively broad range in estimates derives from a difference in modelling approaches, varying data sources, and the remaining uncertainty of these models (Solomon et al. 2007, pp. 517-518). In addition, there are large differences in the emissions that are subsumed under the forest category and in the exact definition of what constitutes a forest. While some studies e.g. categorise emissions from peatland conversion under forest-related emissions (as peatland conversion is oftentimes directly related to the destruction of tropical forests) others account for them separately (see for example Van der Werf et al., 2009). Furthermore, as there is no uniform forest definition, the minimum values for patch size, height and crown cover vary. The size of the deforested area under consideration by an assessment produces depends on the forest definition and the minimum values used (GOFC-GOLD, 2011: 1-3 – 1-4).

similar to those of the EU Commission are drawn:

> 'Reducing emissions from deforestation will therefore be essential in order to achieve our objective of limiting global warming to 2 degrees Centigrade.'
>
> (EU Commission, 2008: 3)

Hence, we can summarise that in the current discourse on climate change, deforestation is articulated as an important climate change issue. This, however, is nothing new that evolved with the *REDD+ discourse*. As I indicated before, this framing was prominent much earlier on — already clearly manifested in the first IPCC report (see for example IPCC, 1990a: xxxii; IPCC, 1990b: xliii).

How is deforestation itself being problematised in the *REDD+ discourse*? What is being presented as its cause? Two related narratives can be discerned and used to make deforestation intelligible. In a more detailed narrative, various factors are articulated as 'drivers of deforestation'. Agricultural expansion through cattle ranching, soy or palm oil cultivation and commercial logging are in this context often referred to as 'direct drivers'. Population growth and absent or deficient legal and governance structures are (less frequently) presented as 'indirect drivers' (e.g. MEA, 2005: 607-611). While such a detailed *drivers of deforestation narrative* exists — mostly within extensive reports on the issue — the considerably more prevalent problematisation is based on a much simpler narrative of missing incentives:

> 'The drivers and dynamics of deforestation differ from region to region and even within regions, but at the most general level, forests currently have more economic value after they have been cut down than when they are standing.'
>
> (Schwartzman et al., 2007)

> 'In simple terms, the main driver of deforestation is that clearing land and cutting-down forests are financially more attractive, by far, than protecting, rehabilitating and creating forests.'
>
> (UNEP FI, 2011b: 18)

In this *missing incentives narrative*, the complexities around the problem of deforestation are collapsed into the sole aspect of missing or false economic incentives. The notion of opportunity costs is one of the key figures in this narrative. According to this concept, forest owners — e.g. farmers or, at a more aggregate level, tropical developing countries — forego profits (which are then labelled as costs) if they refrain from deforesting because they cannot

sell the timber or produce agricultural goods on these lands. As most of the ecosystem services that forests provide (e.g. the ability to store carbon) are currently not valued in the economic system, the opportunity costs from avoiding deforestation cannot be offset through revenues from standing forests.

The missing incentives narrative not only simplifies the complexities but also disguises the broader social embeddedness of deforestation: If it is articulated as a rather abstract problem of incentives, the concrete consequences of particular actions remain blurry. A significant portion of the livestock raised in the EU for the European market, for example, is fed with soy, with much of it originating from Brazil. The expansion of soy farming is considered to be one of the key drivers of deforestation in the Brazilian Amazon. As long as the missing incentives narrative dominates, this link is veiled and meat consumers in Europe do not have to question the impact of their consumption patterns onto the Amazon. At a more aggregate level, this narrative also prevents the root of the deforestation problem from being sought in the broader economic structure — our current capitalist system. Rather, the *other* that has to be overcome seems to be merely a small glitch in the economic system that can be fixed through simple technocratic measures: creating monetary value for forest ecosystem services. This is the dominant solution that is presented in the *REDD+ discourse*. The proposals differ merely on how this should be achieved. With regard to the UNFCCC negotiations, parties have agreed that REDD+ should be 'results-based' (UNFCCC, 2010: 1CP16 IIIc): Payments to developing countries should be made on the basis of the amount of emissions they have reduced by reducing deforestation. Agreement has not yet been reached on how the funding for such payments should be realised on a long-term basis. Some actors prefer an integration of REDD+ into the global carbon market. In this case, developing countries would receive emissions reduction credits for the amount of emissions they have reduced. These could then be sold to industrialised countries which could use them as offsets towards their reduction obligations under a future agreement. Other actors oppose this option, favouring an international fund instead. Such a fund should not only be used to finance REDD+'s initial capacity building and pilot phases but also the regular results-based payments which will follow. Concerning the options that have been discussed with regard to REDD+, we can conclude that the missing incentives narrative has limited the options being considered under REDD+; the focus clearly lies in creating market and payment systems.

If we consider the manner in which deforestation is articulated as a problem through the missing incentives narrative and the effects this has had, and compare this with the case of climate change as such, some interesting parallels become apparent: Some authors have argued that climate change is presented as a dawning apocalypse threatening humanity as a whole (Methmann and Rothe, 2012; Swyngedouw, 2010). In addition, CO_2 is identified as the

cause of this problem that needs to be managed to avoid catastrophe. Similar to the focus on incentives and opportunity costs in the case of REDD+, the focus on CO_2 'fetishises' (Swyngedouw, 2010: 219-220) or — to put it in plain English — disguises the social activities and processes that lead to greenhouse gas emissions. These authors further argue that the apocalyptic narrative — which paints humanity as a single identity in a fight against climate change — in conjunction with the fetishisation of CO_2 have led to a depoliticised and technocratic answer: Instead of calling into question and debating the structure of the social and economic system that has caused these emissions, the main response to climate change — similar to what I have outlined in the case of deforestation — has been to expand the market by creating carbon offset and emissions trading schemes.

While I would not go so far as to describe the *REDD+ discourse* as apocalyptic, it can appropriately be characterised as having threatening undertones. Furthermore, humanity is also constituted as a single identity in the case of deforestation: Deforestation is articulated as a driver of climate change and biodiversity loss, and the resulting negative consequences for humanity as a whole are well established. Equated with such grievances as climate change and biodiversity loss, deforestation itself becomes a universal threat against which mankind has to stand together.

4.2 REDD+: A Developing Country Issue

Having outlined how deforestation is problematised in the current discourse, I now turn to the narratives that articulate REDD+ as an appropriate and widely acceptable measure to solve it. The first narrative pattern I highlight is the way in which REDD+ is being framed as a developing country issue. REDD+ has been articulated in this way not merely because developing countries put it onto the agenda of the UNFCCC but also through the manner in which they framed and legitimised their proposal. These articulations are amplified through industrialised countries or international organisations which stress developing countries' ownership of REDD+. Together, these aspects constitute what I call the *developing country contribution/developing country ownership narrative.*

A paradigmatic example for articulating REDD+ as a developing country contribution is a talk given by Michael Somare, Prime Minister of Papua New Guinea, on May 12th, 2005 — months before the formal submission to the UNFCCC — at a 'Global Roundtable on Climate Change' at Columbia University in New York City. In this speech Somare introduced the

idea of REDD+. Highlighting the magnitude of mitigation efforts deemed necessary in keeping global warming below the 2°C threshold, he argued that '…emissions reductions will be required of ALL nations — industrialized and developing alike.' (Somare, 2005 emphasis in the original). Pointing towards the REDD+ mechanism he was about to propose, he concluded that 'this need not be a contentious issue [between industrialised and developing countries], and properly framed, a willing partnership can be established' (Somare, 2005). Somare continued to criticise the status of avoiding tropical deforestation under the Kyoto Protocol. Unlike forests/deforestation in industrialised countries which are covered through Article §3 of the Kyoto Protocol, deforestation in developing countries does not play a role. Somare characterises the exclusion of avoided deforestation from the CDM as a scandal, arguing that:

> 'Developing Nations are again exploited and effectively forced to conserve the remaining Rainforests for FREE! This defies justice! More importantly, history shows it will not work!'
>
> (Somare, 2005 emphasis in the original)

Framing the exclusion of avoided deforestation as an injustice, and expressing — as the prime minister of a developing country — the need and willingness of developing countries to take on reduction efforts presents a stark contrast to the *CDM discourse*. During the 1990s and early 2000s there was a widespread understanding that, based on the principle of common but differentiated responsibility established in §2 of the UNFCCC, industrialised countries should carry the burden of emissions reductions. Referring to this norm, developing countries refused to take on reduction goals and argued that industrialised countries had to lead global reduction efforts. This understanding was not only prevalent among developing countries but also shared by many industrialised countries, e.g. the EU. Furthermore, it was codified through the Kyoto Protocol, which only assigned reduction goals to industrialised countries. A notable exception is the US, which held a counter position. The US never ratified the Kyoto Protocol, arguing that it would present an unfair disadvantage to its economy if developing countries would not have binding reduction goals.

When a possible inclusion of avoided deforestation under the CDM was negotiated in 2000 and 2001 developing countries were split as to whether this should be pursued. A number of Latin American countries including Costa Rica united in the GRILA negotiating group (Estrada Porrua and García-Guerrero, 2008: 210-211) in order to support the integration of avoided deforestation. Others — among them Brazil, China, India and a number of small is-

land states — opposed their integration (IISD, 2000a: 3; IISD, 2000b: 11, 16; see also Boyd et al., 2008: 100). Among those who refused an integration we can distinguish two narratives on which they based their rejection. The first is what I call the *morally acceptable emissions reductions* narrative: Linked to the demand that industrialised countries should be the ones carrying the burden of reduction commitments, there was a perception that a) these reductions should be reductions in fossil fuel emissions, and b) industrialised countries should achieve them domestically. This view was not only shared by developing countries but also by many environmental NGOs and even industrialised countries like many EU member states (Fogel, 2005: 194-195; Boyd et al., 2008: 100; Lövbrand, 2009: 407; Boyd, 2010: 869). This narrative led to fierce disputes as to whether the Kyoto Protocol should enable industrialised countries to account for their forest sinks and include flexible mechanisms to achieve emissions reduction goals. While the former enables industrialised countries to avoid reductions in fossil fuel emissions by increasing their sinks, the latter allows them to substitute domestic emissions reductions with reductions in developing countries. In light of the morally acceptable emissions reductions narrative, forest carbon projects under the CDM appear to be particularly negative: They violate both the idea that reductions should be reductions in fossil fuel emissions and that industrialised countries should achieve the reductions domestically (I elaborate on this in the following section).

> 'Most of us are now accustomed to the fact that the main purpose of the Kyoto Protocol is to devise ever more bizarre and complex ways for developed countries to avoid reducing emissions at home. Even so, to include sinks in the CDM is probably the worst possible way for developed countries to evade their obligations.'
>
> (CAN, 2000c)

While the morally acceptable emissions reductions narrative was not strong enough to ultimately keep accounting for industrialised countries' sinks, offset mechanisms and emissions trading out of the Kyoto Protocol, it nevertheless led to an intense struggle when the details of their implementation had to be negotiated after the adoption of the Kyoto Protocol.

The second narrative articulated by a number of developing countries — most prominently Brazil — to justify the rejection of the integration of avoided deforestation into the CDM is one of threatened territorial sovereignty (Fearnside, 2001).[7] This narrative did not

7. Where I mention individual countries in this paper, I refer to their negotiating position in international regime settings such as the UNFCCC. Different stakeholders within the country might have contradicting positions. Fearnside (2001: 172) describes how the rejection of avoided deforestation as eligible project type under the CDM through Brazil's federal government was not shared by all of its individual states or the majority of Brazilian NGOs.

evolve within the *CDM discourse*. It can already be found in the Earth Summit in 1992, when states tried — and failed — to negotiate an international forest convention (Humphreys, 1996: 95). Concerning avoided deforestation as an eligible project type under the CDM, a Brazilian negotiator explained to me in an interview that it was perceived as a threat to the territorial sovereignty of Brazil because by

> '[generating offset credits through avoided deforestation projects] you would have to maintain your carbon in the forests ad infinitum … And obviously that would mean that you wouldn't have the flexibility on the use of your own territory…'
>
> (Interview with a Brazilian REDD+ negotiator, on November 25th, 2011)

This threat to sovereignty narrative has vanished and cannot be found in the *REDD+ discourse*. None of the tropical developing countries have drawn on it to reject REDD+. However, it still seems to be reflected implicitly in the statements through which industrialised countries and international organisations emphasise developing countries' ownership of REDD+:

> 'REDD+ is a *nationally driven voluntary effort* that is embedded in national policies and strategies. Many countries have already embarked on national efforts to implement REDD+. *Developing countries are leading the way* to develop national REDD+ policies and implement initiatives to demonstrate that REDD+ is real and doable.'
>
> (UN-REDD, 2010c, emphasis added)

To sum up: The inclusion of avoided deforestation in the CDM was rejected by many developing countries with reference to industrialised countries' responsibility to carry the burden of mitigation and through articulation of the morally acceptable emissions reductions and the threat to sovereignty narratives. Neither of the two narratives can be found in the *REDD+ discourse*. What we can identify is a developing country contribution/developing country ownership narrative which renders large scale emissions reductions in developing countries acceptable as long as developing countries are compensated for them.

4.3 Cost-effectiveness and its Consequences

The next characteristic narrative used to articulate REDD+ as a suitable and widely acceptable measure is the *cost-effectiveness narrative*. Costs do not only play a role in the presentation of the problem of deforestation but are also an important issue when distinguishing REDD+ from other mitigation measures.

'Curbing deforestation is a highly cost-effective way of reducing greenhouse gas emissions and has the potential to offer significant reductions fairly quickly'

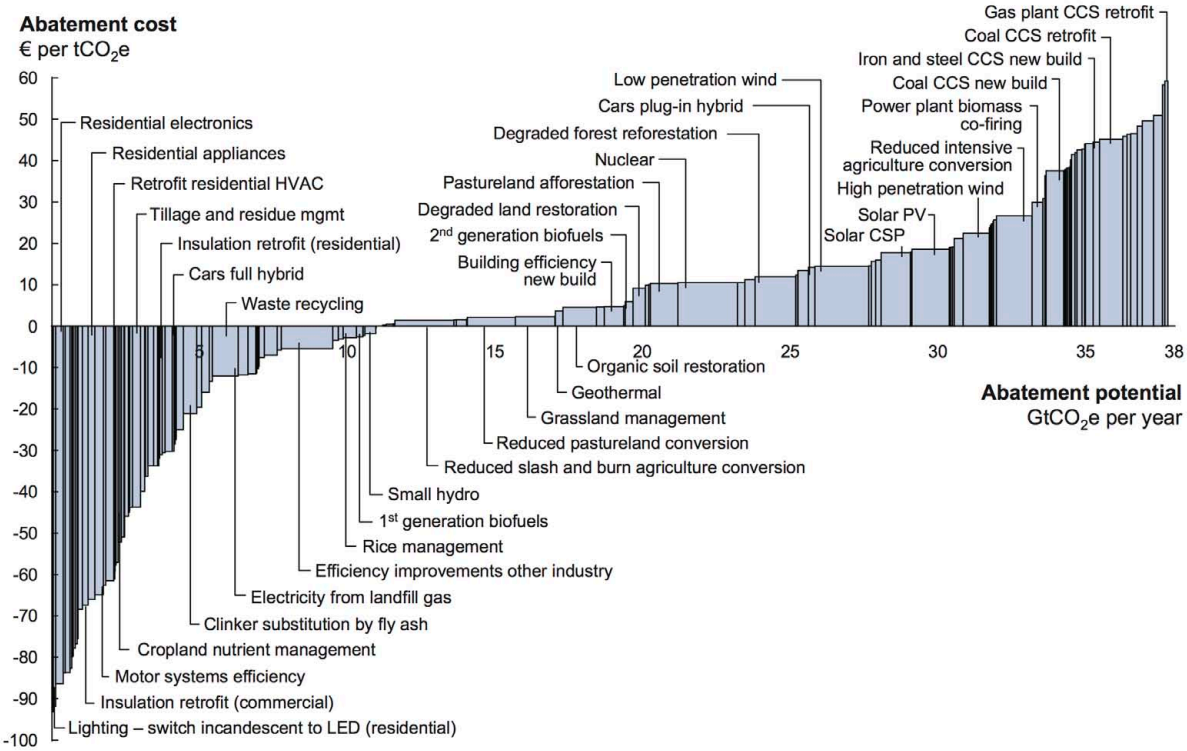
(Stern, 2006)

The cost-effectiveness narrative is absent from the publications and statements that introduced REDD+ in 2005: It can neither be found in the submission by Papua New Guinea and Costa Rica (2005) nor is it part of the edited volume *Tropical Deforestation and Climate Change* published in 2005 by the US-based EDF and the Brazilian Instituto Pesquisa Ambiental da Amazonia making the case for a REDD+ mechanism (Moutinho and Schwartzman, 2005). The cost-effectiveness narrative became prominent a year later through the publication of the Stern Review (Stern, 2006). While not being the first cost-benefit analysis on climate change, the Stern Review was the first major report that argued that investing in early action against climate change would be, by far, cheaper than facing the costs of not acting. Its importance for the *REDD+ discourse* lies in articulating the cost-effectiveness of avoiding deforestation as a mitigation measure. Based on a detailed chapter on the costs of this mitigation option, this narrative was prominently featured in the summary for policy makers (Stern, 2006: IX). McKinsey's *Greenhouse Gas Abatement Cost Curve* (see Figure 2) reproduced and amplified the notion of REDD+ as a cost-effective mitigation measure. Similar to the assessment of the Stern Report, McKinsey's abatement cost curve was also based on the analysis of the opportunity costs of different mitigation measures. Its visualisation — simultaneously depicting the reduction potential and the (opportunity) costs of different mitigation measures — brought it broad attention in the policy community (see also Wolf, 2011). Through both the Stern Review and McKinsey's abatement cost curves, REDD+ was prominently positioned as a cost-effective mitigation option in the climate change discourse. This narrative can subsequently be found in many publications.

The cost-effectiveness narrative clearly strengthens the case for REDD+ — at least in a society in which cost, benefit and profit are key criteria. But is this narrative really something

new? The answer is no, not at all. The understanding that 'slowing or halting deforestation' is a reduction option which is available 'most likely at comparatively low costs per ton of carbon emissions avoided' (IPCC, 1990b: 100) was already articulated in the first IPCC report. Furthermore, the perception that forest carbon, particularly avoided deforestation projects, would offer a very cost-effective mitigation option was also prevalent during the *CDM discourse* (Fogel, 2005: 204). However, the conclusions that many actors drew differ significantly from the *REDD+ discourse*.

Figure 2: McKinsey's Greenhouse Gas Abatement Cost Curve (Version 2.1)



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below €60 per tCO_2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play.

(McKinsey & Company 2010, 8)

In the previous section I described a morally acceptable emissions reductions narrative in the context of which forest carbon projects appeared highly problematic because they reduce the pressure on industirlised countries to reduce fossil fuel emissions domestically. Among forest carbon projects, avoided deforestation projects were perceived to be particularly detrimental because a) they were expected to be by far the most cost-effective forest carbon projects, and b) experts attributed to them the potential to generate a large amount of credits. As a result, there was a fear that avoided deforestation projects would 'flood the [carbon] market' (Boyd et al., 2008: 108) with cheap credits. This would provide 'a loophole' (CAN, 2000d)

for industrialised countries to avoid domestic fossil fuel reductions and render the reduction commitments agreed under the Kyoto Protocol meaningless (see also Fogel, 2005: 204; Schlamadinger et al., 2007: 278; Boyd et al., 2008: 96).

The *loophole narrative* is not very prominent in the *REDD+ discourse* anymore. What we can find there is an inversion of the loophole narrative. The low costs of forest-based emissions reductions are predominantly articulated as a chance for rather than a risk to the emissions reductions needed at a global level:

> By including 'the forest sector in global carbon markets … the costs of reducing global carbon emissions will be reduced substantially, and lower costs will mean that a more ambitious overall emissions target will be possible'
>
> (Eliasch, 2008: xii)

We have to consider this change between the *CDM* and *REDD+ discourses* with regard to a shift in the broader discourse on climate change that has made it acceptable for a significant part of reduction efforts to be shifted from industrialised to developing countries. Between the Kyoto and Marrakech negotiations, the morally acceptable emissions reductions narrative was prevalent, leading — after the Kyoto Protocol was passed — to demands to limit the use of the CDM. The CDM was supposed to serve — if at all — as a small auxiliary tool to domestic reductions by industrialised countries. Yet today, 'north-south finance [e.g. the CDM or REDD+] for climate protection has moved from the margins to the centre of the political agenda, and reducing emissions in developing countries has become an objective in itself rather than complementary to mitigation in developed countries.' (Wolf, 2013: 115). Wolf argues that this shift is related to the increased resonance rationalisations like McKinsey's abatement cost curves have received in the discourse on climate change. The focus on domestic fossil fuel reductions in industrialised countries — prominent in the *CDM discourse* — has been rendered obsolete through the new dominance of the cost-effectiveness narrative.

The image of flooded carbon markets itself has not completely vanished from the discourse on REDD+. Actors — e.g. Greenpeace (see for example Livengood and Dixon, 2009) and the EU Commission (Tollefson, 2008: 9) — who favour a fund-based version of REDD+ and disapprove of a carbon market integration still articulate this concern. However, today these are being dismissed by proponents of a carbon market integration of REDD+ who argue that as long as increasing the supply of carbon credits through the creation of REDD+ is balanced by higher reduction goals for industrialised countries, there is no risk of destabilising the carbon market (see for example UNEP FI, 2011b: 11).

4.4 New Confidence in Measuring and Accounting for Forest Carbon

Having outlined how REDD+ has been articulated as a cost-effective mitigation measure owned by developing countries, I now turn to the science that provides the foundation for this mechanism. This section demonstrates how a narrative on *inadequate accounting and measurement approaches*, dominant in the *CDM discourse,* has been replaced by a *technological improvement narrative* in the *REDD+ discourse*. Deviating from the structure of the previous sections I begin here with the description of the *CDM discourse,* only moving to the *REDD+ discourse* in the second half of the section.

Monitoring, reporting and verifying (MRV) forest carbon emissions has been — and still is — perceived to be significantly more complex than accounting for energy related emissions. In the *CDM discourse* opponents articulated significant concerns about the uncertainty and risks related to measuring and accounting for forest carbon. With regard to carbon accounting, concerns during the CDM debate referred to ensuring *additionality* and *permanence* and accounting for *leakage* of avoided deforestation projects (Schlamadinger et al., 2007: 278; Lövbrand, 2009: 409-410): First, to be able to be credited under the CDM — or any other carbon offset mechanism — emissions reductions have to be additional. This means that it has to be demonstrated that reductions have occurred due to the activities of the mitigation project. This is determined by comparing the development after project implementation to a baseline or business-as-usual scenario — that is, a counterfactual scenario of what would have happened without the mitigation measures. While additionality has to be proven for all types of CDM projects (Lohmann, 2005; Methmann, 2011: 13-16), it is considered to be particularly problematic for projects that credit avoided deforestation (Stephan, 2012: 629-631). Secondly, the carbon sequestered in trees and subsequently credited under a carbon market mechanism is never securely stored there indefinitely: A forest can be cut down, fall prey to wild fires or turn from a sink to a source of greenhouse gas emissions due to increasing global temperatures. Within the *CDM discourse* an uncertainty on how to deal with this permanence issue dominated: *How should it be addressed when accounting for carbon?* and *Who is liable if a credited forest is being destroyed?* were some of the questions that were articulated. And third, leakage refers to the displacement of deforestation through project activities into forests outside of the project boundaries. From a carbon accounting perspective this is problematic: If leakage occurs, real emissions reductions are not being achieved. If unaccounted for, a forest carbon project produces reductions credits that are not backed by real emissions reductions. Used as an offset, such credits result in an increase in global emissions. In addition to these reservations about adequate accounting of forest carbon there were significant concerns as to whether the carbon stored in forests could be reliably measured. Measuring methods — and the

results obtained through them — varied drastically (see for example Gibbs et al., 2007).

To understand more about these issues and the concerns about additionality, permanence and leakage the UNFCCC commissioned the IPCC in 1998 to draft a special report on land use, land use change and forestry. The special report (IPCC, 2000) was published in 2000 after a contested drafting process (for a detailed analysis see Fogel, 2005). Even though 'natural science uncertainties … appeared underrepresented in the IPCC's report, primarily because long-standing debates to which answers remain unresolved were factored out of the report' (Fogel, 2005: 203), the report did not have the clarifying or assuring effect proponents of forest carbon projects had hoped for. Quite the contrary:

> 'When it comes to CDM sinks projects, the IPCC report raised more questions than answers… Further scientific advise and technical work is needed…'
>
> (CAN, 2001)

Particularly with regard to the amount of carbon stored in tropical forests, large uncertainties continued to exist. The value of the average amount of carbon stored in a hectare of tropical forest was raised significantly during the drafting process and large uncertainties of 50 per cent remained (IPCC, 2000 quoted in Fogel, 2005: 205).

When REDD+ was put onto the agenda, additionality, permanence and leakage were still articulated as crucial aspects. However, in most instances they are not combined into a narrative of inadequate accounting and measurement. What can be found are explanations of why these aspects are not problematic anymore: In contrast to the CDm which is a project based mechanism most proposal suggest to implement REDD+ at the national level. It is commonly held that with this move to the national level the leakage problem simply disappears (see for example Papua New Guinea and Costa Rica, 2005: 5; Santilli et al., 2005: 271).[8] With reference to concepts like buffer funds or banking provisions, many of which have been developed within the voluntary carbon market in the years since Marrakech, permanence is also articulated as manageable (Papua New Guinea and Costa Rica, 2005: 8). The status of additionality within the REDD+ discourse is more diffuse: It only seems to remain if an integration of REDD+ into the carbon market or its use as an offset mechanism is being considered.

What can also still be found in the *REDD+ discourse* are articulations of the uncertainty of current estimates of deforestation rates and the costs of avoiding deforestation — hence the

8. This argument is based on the assumption that there is no intra-country leakage if a country's entire forest is being monitored and accounted for. However, there is still the risk of leakage between countries if not all of the countries participate in a global scheme. The latter aspect is, however, hardly ever made explicit.

mitigation potential of forests (Stern, 2006: 548; McKinsey & Company, 2009: 117; IPCC, 2007: 551). But while 'remaining gaps need to be addressed with priority' (EU Commission, 2008: 13), there is a widespread understanding that

> 'Agreement on REDD is within reach. The spread of new technologies such as satellite monitoring is overcoming some long-standing technical barriers. Collaboration by scientists, economists and policy makers at the UNFCCC, IPCC and other forums, is helping to clarify outstanding methodological issues.'
>
> (Parker et al., 2009: 12; as quoted in Lovell, 2013)

This *narrative on the improvement of technologies and methodologies* articulating the necessary measurement and monitoring tools as either available or within close reach is prevalent in the *REDD+ discourse*. It is interesting to consider what improvements this narrative alludes to. There seem to be two key aspects: the development of new remote sensing technologies and the development of new measurement and accounting standards. Concerning the former, there are many references to the application of LIDAR (Light Detection And Ranging). These are laser-based systems, mostly mounted on airplanes (satellite-based versions are also under development but are technically more complex), that allow the creation of three dimensional forest maps. Such maps reduce the effort necessary to calculate a forest's carbon stock. However, these systems are still being tested and large scale applications are not yet available. Most of the current studies and calculations are derived from satellite imagery that was already available when avoided deforestation was discussed under the CDM. While new satellites have been added, the main improvements made were in the methods for evaluating this imagery (Interview with a forest carbon expert from a globally operating carbon market consultancy, June 27, 2011).

With regard to measurement and accounting standards, a number of changes have occurred since Marrakech. The IPCC (Penman et al. 2003) published a *Good Practice Guidance* in 2003 which — while unable to do away with uncertainty as such — outlines clear, multitiered procedures on how to conduct forest carbon assessment and measurement. The guide also shows how uncertainties should be accounted for and made transparent when conducting measurements.[9]. Together with the Global Observation of Forest and Land Cover Dynamics' *Sourcebook* (GOFC-GOLD, 2011)[10] it serves as the ultimate reference in many reports

9. The IPCC also updated its *Guidelines for National Greenhouse Gas Inventories* in 2006, in which updated numbers and procedures are being presented. However, the *Good Practice Guidance* (Penman et al. 2003) is the one currently adopted by the UNFCCC to be used for REDD+ (UNFCCC, 2007: 2CP13 §6)
10. GOFC GOLD is part of the Global Terrestrial Observing System an intergovernmental organisation

and publications that argue that forest carbon can be reliably measured and show how it should be done (Eliasch, 2008: 159; Forest Carbon Partnership Facility, 2011: 5.12; see also Boyd, 2010: 890).

Hence, I am able to conclude that — when considering the written documents I analysed — the narrative on inadequate accounting and measurement approaches dominant in the *CDM discourse* has been replaced by a technological improvement narrative in the *REDD+ discourse*. The latter articulates adequate measurement and accounting of forest carbon as doable or within immediate reach. The interviews I conducted, however, paint a more differentiated picture. While many of my interview partners — particularly the policy experts — reproduce the technological improvement narrative I have found in the analysed documents, a number were much more cautious in their assessment. Some of them relativised the extent of the technological improvements. Others questioned whether it would ever be possible to achieve measurement and monitoring approaches that, at a reasonable price, come anywhere close to reduce the uncertainty to levels that would be necessary to generate 'compliance grade' (Zarin et al., 2009: 30) credits necessary to, for example, allow for an unproblematic integration of REDD+ into the carbon market:

> 'People are saying that with LIDAR, and stuff like that, you could get forest carbon down to ten per cent — which I wouldn't say is a ballpark for the level of uncertainty to trade a commodity on a market. Standard commodities such as corn and oil trade with uncertainty levels of 0.02 per cent. So already carbon, with a ten per cent uncertainty range, is a pretty dodgy commodity. The kind of projects that would get uncertainty down to ten per cent is not the kind of thing you could repeat … at a national scale. They're very expensive and intensive projects. In my opinion, the measurement and uncertainty … makes for a very unstable asset.'
>
> (Interview with a REDD+ expert of an EU based environmental NGO)

The findings from my interviews are affirmed by Lovell (forthcoming), who reports a similarly 'mixed picture' in her study on the role of scientists in developing MRV approaches for REDD+ for which she conducted a survey amongst the authors contributing to the GOFC-GOLD *Sourcebook*:

> 'there is doubt amongst some in the science community that forests can ever be subject to a workable system of MRV and to be made governable within international climate policy'.
>
> (Lovell, 2013)

---

mandated by the UN. The Sourcebook is 'intended to complement the IPCC AFOLU [Agriculture, Forestry and Land Use] Guidelines by providing additional explanation, clarification and enhanced methodologies for obtaining and analysing key data meanwhile ensuring consistency of that information with IPCC works.' (GOFC-GOLD, 2011) (see also Lovell, 2013)

Lovell further quotes one of her survey respondents, who argues that:

> 'The GOFC-GOLD Sourcebook has definitely influenced the negotiators and bureaucrats in REDD - it has told them that "yes, we can" measure forest change globally, but I'm not sure I agree on that. In that sense the book has been a bit misleading.'
>
> (Author of the GOFC-GOLD *Sourcebook* as quoted in Lovell, forthcoming)

Thus, a more differentiated conclusion is necessary; while the technological improvement narrative is clearly dominant in the policy world, it is less prevalent in the science community, where reservations still exist.

4.5 REDD+: Providing a broad variety of co-benefits

The paper now turns to the fourth narrative characteristic for the current discourse on deforestation and climate change. REDD+ is articulated not merely as a cost-effective mitigation option but also one that provides a broad variety of co-benefits:

> 'Immediate action on REDD+ can catalyze accelerated national development in addition to curbing carbon emissions. Healthy forests sustain biodiversity and ecosystem services, ensuring clean water, productive soils, and protection against floods and droughts — helping countries adapt to climate change, food security and generally improving the wellbeing of people.'
>
> (UN-REDD, 2010b)

This quote epitomises this *co-benefit narrative*. It is taken from the caption of a poster (see Figure 3) which — as part of a whole series — has been used by UN-REDD to draw attention to the subject. As it demonstrates, REDD+ not only helps us tackle climate change, it also provides growth and development, supports the protection of biodiversity, and helps us against water shortages, floods, erosion, and food shortages — many of the problems that challenge the health and happiness of humans. This, as I demonstrate in the following section, creates a chain of equivalence around REDD+ that articulates REDD+ as the solution to a variety of grievances.

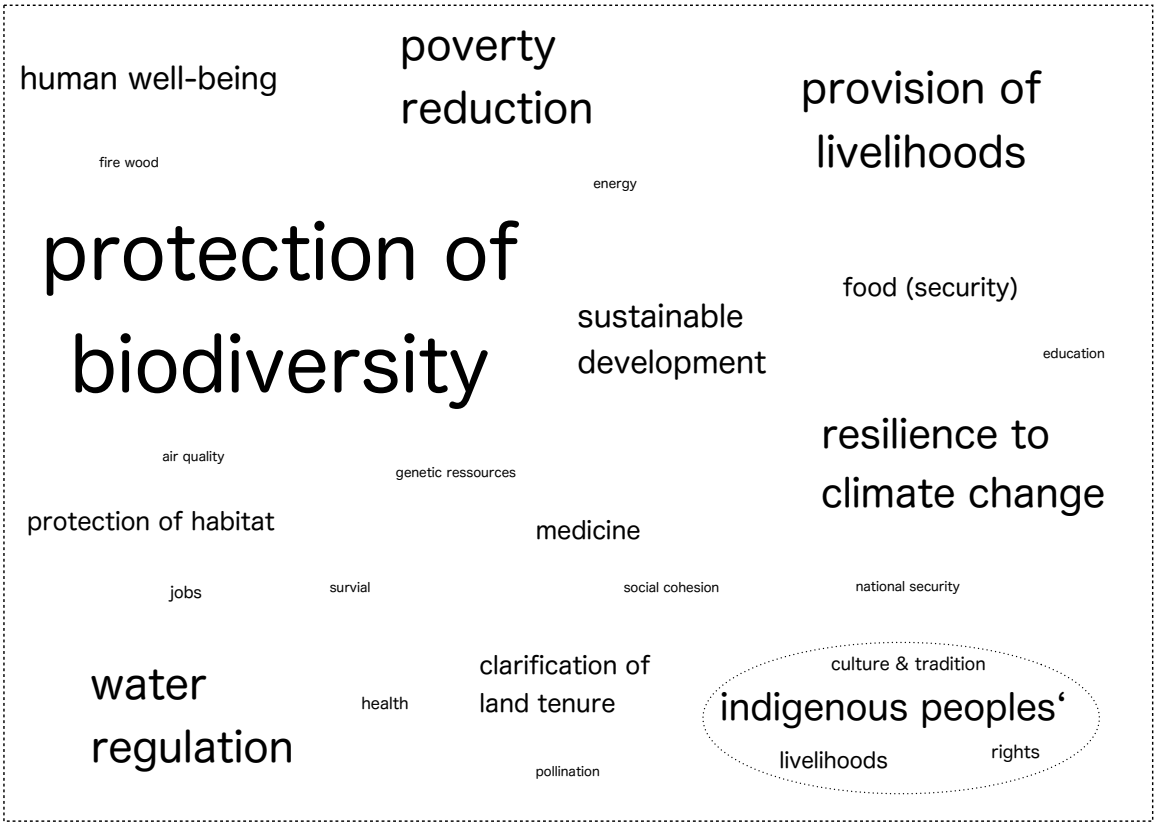
Figure 3: UN-REDD Poster Campaign on REDD+

The co-benefit narrative is based on an understanding of forests as a complex ecosystem serving a myriad of different roles and functions — some of which are mentioned in the previous quote. This is often expressed as the 'multiple benefits' of forests.

> 'Forests are the natural treasure chests of the world, providing a host of ecosystem services that – this needs to be said very clearly and up-front - all economic progress and human well-being, even human life itself, rely on. What forests give us is fundamental in the strictest sense of the word: they stabilise the global climate system, regulate water cycles, provide habitat for biodiversity and people and host genetic resources of unimaginable potential.'
>
> (UNEP FI, 2011a: 3)

The co-benefits narrative is widely reproduced in the current discourse and most reports and statements on REDD+ include it. While some articulate it explicitly, as in 'REDD+ also provides the following co-benefits…', others reproduce it implicitly by describing the multiple benefits of forests before articulating the demand to reduce deforestation. It has become so sedimented that many texts can simply invoke it through mentioning the terms multiple or co-benefits. Figure 4 shows the breadth of benefits REDD+ has been directly or indirectly claimed to provide. The protection of biodiversity and the protection and provision of livelihoods for indigenous peoples and other forest communities are the most widely articulated benefits. To back the former, in some cases the percentage of overall species living in tropical forests are presented (Stern, 2006: 280). To substantiate the latter, estimates of the number of people living in forests or immediately depending on forests are provided (Stern, 2006: 280; Eliasch, 2008: 15; EU Commission, 2008: 3). These linguistic articulations are also visually backed. Where reports use photographs the biodiversity claim is often backed by pictures of great apes or colourful birds, while images of children are used to underwrite the livelihoods argument (see for example Kapos et al., 2008; UN-REDD, 2010a).

Figure 4: (Co-)Benefits provided through REDD+[11]



Let us take a look back in time and compare the *REDD+ discourse* with the *CDM discourse* with regard to the co-benefits narrative. We can quickly conclude that the notion of co-benefits is nothing new:

> ‘Brazil's Amazon forest has value not only because it offers protection from climate change as a storehouse and sink of carbon. It is also a rich repository of biodiversity and a means of sustainable livelihoods for forest dwellers‘
>
> (Dudek and LeBlanc, 1991)

> ‘… forest projects, if implemented appropriately, "may have social, economic and environmental benefits beyond reductions in atmospheric CO_2 (carbon dioxide)" These "ancillary benefits" also known as co-benefits, include the provision of employment opportunities and the protection of vital plant and animal habitats.‘
>
> (TNC, 2001)

11. The figure is based on the corpus of documents and interview transcripts analysed for this paper. The different font sizes are used as a proxy for the prevalence of the respective issue within the discourse. This has been determined based on the frequency and the context of the articulations (e.g. summary for policy makers of a major international report or a press release of an environmental NGO).

In the *CDM discourse*, however, the co-benefits narrative was prominently contradicted by two other narratives that rendered avoided deforestation projects highly problematic. One was an *ecological disaster narrative*: This narrative articulated an inclusion of avoided deforestation projects into the CDM as a threat to the mechanism's environmental integrity which would potentially lead to an ecological disaster. Opponents of forest carbon projects under the CDM feared that project developers would be able to claim credits for reforesting recently deforested land through plantation and monocultures. This was seen as a 'perverse incentive' that could increase the conversion of natural forests and thus also result in a massive destruction of biodiversity (CAN, 2000b). This fear was aggravated by concerns that genetically modified trees might be used in reforestation projects (Hare, 2000; CAN, 2000a). The claims that forest communities would profit from avoided deforestation projects was countered by a *carbon colonialism narrative:* Imposing a Western market logic, forest carbon projects would disrespect the traditions and cultures of forest and indigenous communities, which often lacked legal titles to the land they inhabited (Fogel, 2004). A number of NGO reports based on assessments of existing forest carbon projects fuelled these concerns (Cadman, 2000; Norwatch, 2000a; 200b, 2000c; see also Fogel, 2005: 203; Lövbrand, 2009: 409). These contradicting narratives created an uncertainty among many actors that resulted in demands that the IPCC should investigate not only accounting and measurement questions but the broader effects of forest carbon projects, including their social consequences (Fogel, 2005: 194-198).

In the current discourse on REDD+, these counter narratives no longer have the same unsettling effects as they used to have. They do not exist in their radical, antagonising form within the mainstream discourse anymore. They are only reproduced by a few marginalised actors (see section 4.3) who are hardly heard. There have been some concerns with regard to the protection of biodiversity or indigenous peoples' rights in the mainstream debate. However, these were less polarised and have been quickly acknowledged - by the proponents of REDD+ as well. As a result, *safeguards* have been proposed and codified within the preliminary UNFCCC agreements on REDD+ (UNFCCC, 2010: Appendix 1) with the goal of ensuring that REDD+ has no negative effects on biodiversity and to prevent the violation of indigenous peoples' and forest communities' rights. This has won over many of the initially sceptical actors and defused the intensity of the concerns.

5. REDD+: A (Fragile) Hegemonic Project

In the previous sections I sketched out and analysed in detail the key narratives that structure the discourse of REDD+. Comparing these with the prevalent narratives in the *CDM discourse* (see Table I) allows me to identify the discursive shifts that have occurred since 2001. The substitution of the *historic responsibility*, *morally acceptable emissions reductions* and *loophole* narratives prevalent in the *CDM discourse* with the *developing country contribution/developing country ownership* and *cost effectiveness* narratives are deeply linked to changes in the broader climate change discourse. The start of the post-Kyoto discussions seem to have served as a dislocative moment that have placed the cost-effectiveness of emission reductions in the foreground, rendering reductions of non-fossil emissions in developing countries acceptable.

Table I: Key narratives in the REDD+ and CDM discourses

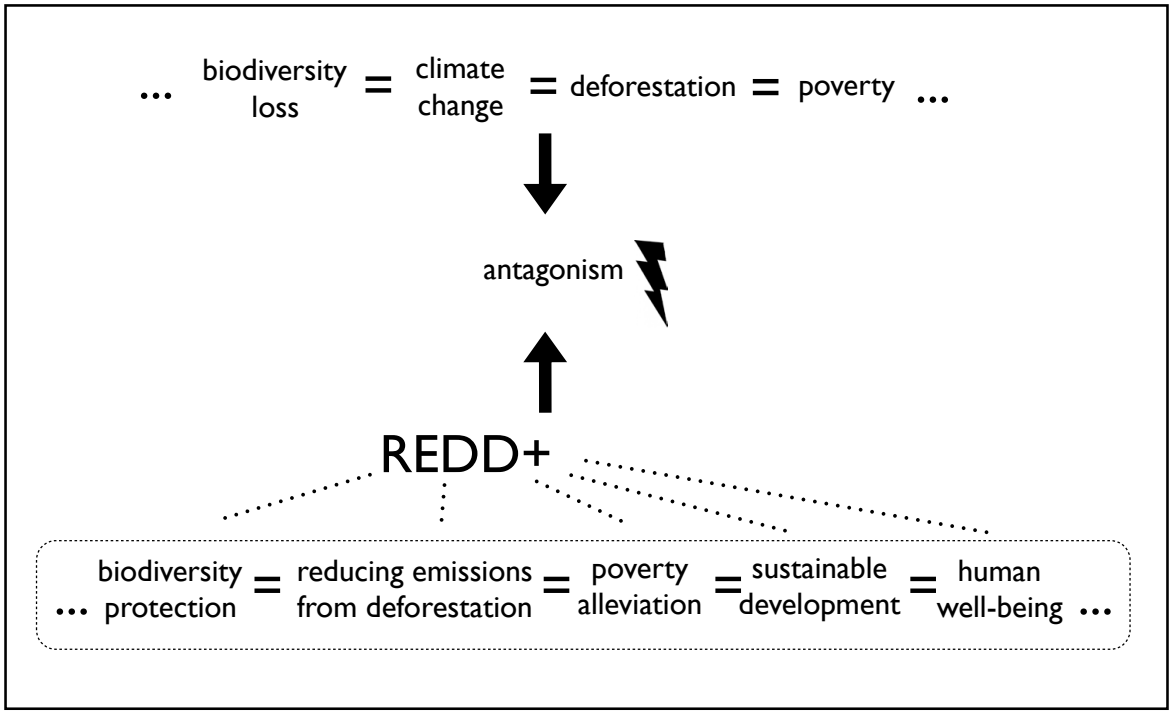
REDD+ discourse	**CDM discourse**
developing country contribution/developing country ownership	historic responsibility; threat to developing countries' sovereignty; morally acceptable emissions reductions
cost-effectiveness	morally acceptable emissions reductions; loophole
technological improvement	inadequate accounting and measurement approaches
co-benefits	ecological disaster co-benefits vs carbon colonialism

Having mapped the *REDD+ discourse* in detail, it is time to draw some conclusions on the state of REDD+ as a political project. As I will demonstrate, REDD+ has the characteristic discursive structures of a hegemonic project. This allows a broad variety of actors to relate to the project and causes particular effects in the sphere of international climate governance. I continue this section by outlining two distinctive discursive structures: the chain of equivalence that has been created around REDD+ and its state as a floating signifier. I then turn to the depoliticising effects REDD+ has on international climate governance.

5.1 REDD+: The Popular Demand at the Centre of a Chain of Equivalence

Let me start with the discursive structure of the REDD+ project. With the co-benefits narrative I described in the previous section, we can identify a chain of equivalence at the heart of REDD+ that not only articulates REDD+ as a cost-effective mitigation option but also as the solution to a broad variety of additional grievances. Through the notion of multiple benefits of forests and co-benefits of REDD+, two antagonistic chains of equivalence are being created (see Figure 5). On the upper half of the figure are the grievances: deforestation — which, according to the dominant problematisation outlined in Section 4.1, exists due to a small glitch in our current economic system that can easily be fixed — is being equated with climate change, biodiversity loss, poverty, food shortages, etc. This serves as the constitutive outside for REDD+ and the chain of equivalence articulated around it, shown in the lower half of Figure 5. *Reducing emissions from deforestation and degradation* is the popular demand that dominates this equivalential chain. Its acronym REDD+ is a signifier that is being increasingly emptied. This not only allows it to refer to the mitigation of climate change but also gives it the ability to represent the other demands in the chain. Articulating REDD+ as the solution to a variety of grievances raises the societal importance of this project. Due to this equivalential chain, REDD+ seems to contain something for everyone: biodiversity protection, development, poverty alleviation — even general human well-being. This allows a broad variety of actors — also those not terribly concerned with cost-effective emissions reductions — to relate to and support REDD+. This win-win notion surrounding REDD+ is an important factor to be taken into account when considering REDD+'s broad support (see also Nielsen, forthcoming).

Figure 5: REDD+'s chain of equivalence



5.2 REDD+: A Floating Signifier

While REDD+ shows clear signs of becoming an *empty signifier*, I argue that it has not yet reached this state. As the question of how to fund REDD+ on a long term basis is as yet undecided, REDD+ represents a *floating signifier* whose meaning is suspended between the demands of the proponents of a fund-based and a carbon market-based option of REDD+.

> 'What was very interesting in the Bangkok talks [August 30th - September 5th 2012] that just happened. There was one session on financing REDD+. It's very interesting to look at the wide range of suggestions that various different countries were making for how REDD+ should be financed. I think you can say in principle there's a lot of support for REDD+. But as soon as you come down to the details about how exactly it's going to be implemented, there's actually quite a lot of disagreement about that.'
>
> (Interview with Chris Lang, founder of redd-monitor.org, September 13th, 2012)

Currently, all that actors can agree upon is that REDD+ is a 'results based' (UNFCCC, 2010: 1CP16 IIIc) mechanism; payments after initial capacity building and pilot phases should be made in relation to the amount of emissions from deforestation that have been reduced in a developing country. What is as yet unclear is whether the funding for these results-based payments will eventually be realised through a carbon market integration, a fund replenished by industrialised countries, or a combination of the two. The opposing camps promoting or opposing a carbon market integration organise around different narratives and articulate their respective approach as superior. Proponents of a carbon market integration have articulated a *funding gap* that needs to be closed by a carbon market integration*:*

> 'There is an overwhelming funding gap between what is needed to effectively address deforestation and the public funds currently available. Carbon markets are thought to be one of the ways to mobilise private sector finance for REDD+'
>
> (UNEP FI, 2011b: 17)

Not only will a publicly serviced fund fail to produce the resources needed to address deforestation, such a fund is also unreliable because it 'would be at risk of drying up, especially during slow economic growth.' (Environmental Defense Fund, 2008). Opponents of a carbon market integration, on the other hand, reproduce the notion of flooded carbon markets reviving elements of the loophole narrative that existed during the *CDM discourse* (see for example Livengood and Dixon, 2009; Tollefson, 2008: 9).

Thus far, the undecidedness of the funding questions has not had any negative effects on the broad support REDD+ receives. Quite the contrary: As the meaning of REDD+ with regard to the funding issue is currently suspended, both proponents and opponents of a carbon market integration can support REDD+ as their project. In this regard REDD+ differs significantly from the *CDM discourse*. The latter comprised only a carbon market option that alienated all the actors in opposition. Many of those opposing avoided deforestation under the CDM — e.g. Brazil, the EU and Greenpeace[12] — now support a fund-based version of REDD+. Hence, REDD+'s character as a floating signifier is also an important factor in understanding the broad support REDD+ enjoys vis-à-vis the contested CDM negotiations. How-

12. The Brazilian federal government (a number of Brazilian states hold a different position) only supports a fund-based version of REDD+ and opposes any form of offsetting (Interview with a Brazilian REDD+ negotiator November 25th, 2011). The EU Commission does not fundamentally oppose a carbon market integration, but favours a fund approach and does not approve of a carbon market integration in the near future (Bozmoski and Hepburn, 2009). Greenpeace approves of a fund-based version of REDD+ but opposes a carbon market integration (Hare and Macey, 2007; Greenpeace et al., 2011).

ever, while the current state of the funding question does not leave either the proponents nor the opponents of a carbon market integration disgruntled, it also does not satisfy either of them. Furthermore, this struggle has to be resolved before REDD+ can be implemented. If this can be done in a manner that satisfies both the supporters of a fund and supporters of a carbon market version, REDD+ will become an empty signifier in its classic form. If this is not the case, the large scale support REDD+ currently enjoys will crumble. If one group succeeds in asserting their demand the other will turn its back on the project.

> 'This markets issue is really dynamite in the negotiation. It has hardly been touched for nearly two years so groups … haven't been forced to confront the consequences of their own positions yet. So, it is still a silly circling around the issue.'
>
> (Interview with a forest carbon expert from a German environmental think tank, February 22nd, 2012)

Even though, REDD+ can be described as a hegemonic project, it has to be clear that the undecided funding question make it a very fragile one. If it cannot be resolved in a way that reconciles the two positions, REDD+ will lose its hegemonic character. This seems to be clear to most of the actors involved, who have not shown any will to force a decision. A decision on the funding question has often been expected but always postponed to further negotiation rounds (see for example IISD, 2009: 12; IISD, 2010: 29; IISD, 2011: 18).

Before I move on to describe the effects of REDD+ as a hegemonic project, I would like to highlight the importance of the naming processes that enabled REDD+ to achieve a status as a floating signifier in the first place. In his theoretical approach Laclau stresses the importance of the act of naming something, arguing that 'the identity and unity of the object [or project] result from the very operation of naming' (Laclau, 2005: 104). When the issue of addressing deforestation was put onto the agenda of international climate governance again in 2005, it was done so with a wording that differed from the *CDM discourse*:

> The wording was changed from avoided deforestation to REDD+ because it had been so poisoned. In the entire negotiations avoided deforestation — the term was practically poisoned.
>
> (Interview with a climate policy expert of European based environmental NGO, February 21st, 2012)

By naming their proposal differently, Papua New Guinea, Costa Rica and their supporters created enough ambiguity and distance to the previous negotiations during which

proponents and opponents had been so deeply entrenched. This created sufficient space for actors like Brazil to change their position:

> 'Brazil saw this [new] discussion under … several articles of the convention [instead of the Kyoto Protocol] to tell you the truth and not prejudging the use of any offsetting mechanisms. And obviously it is … because you are not talking about avoided deforestation in our view but we are talking about reducing emission from deforestation'
>
> (Interview with a Brazilian REDD+ negotiator, November 25th, 2011)

Changing the wording from 'avoided deforestation' to 'reducing emissions from deforestation' provided the project with an ambiguous enough meaning to allow opponents to a carbon market integration to support the project, even though Papua New Guinea and Costa Rica explicitly articulated a carbon market option in their submission to the UNFCCC (Papua New Guinea and Costa Rica, 2005: 7).

5.3 The Depoliticising Effects of REDD+

As I outlined in the previous subsections, the chain of equivalence that has been articulated around REDD+ has provided it with a win-win notion. Together with the undecidedness of the funding question and REDD+'s status as a floating signifier, this has enabled a broad, almost unanimous support for REDD+. Many of the actors that had opposed an integration of avoided deforestation into the CDM today support REDD+. Actors such as the EU or Brazil as well as NGOs such as Greenpeace and the WWF have changed their position. There are very few actors who fundamentally oppose REDD+. Their voices are hardly heard in the current debate. Bolivia is the only country that has directly criticised REDD+ (see for example Morales, 2010). Furthermore, there are a number of indigenous rights organisations (see for example Indigenous Environmental Network, 2010) and few environmental NGOs (see for example Friends of the Earth International, 2008) visible in the international discourse which oppose REDD+. Many of these are organised in the No-REDD Platform (Cabello, and Gilbertson 2010; No-REDD Platform, 2012).

The belief that REDD+ will benefit everybody also had a clear impact on the way the debate has evolved. REDD+ has become a deeply depoliticised project; apart from the funding

question — over which deep disagreement still exists — the debate and negotiations on REDD+ have mainly been technical. There is no disagreement on the goals and underlying assumptions of REDD+. What is being discussed are merely technical issues, e.g. maximising the robustness of an accounting and MRV system. The fundamentals of REDD+ have been established and remain unquestioned. The missing incentives narrative as the dominant problem description has contributed to this by limiting what is being considered as appropriate measures. Questions concerning justice and equity hardly exist in this debate. Groups like NO-REDD have raised such issues and hence tried to politicise REDD+. Rejecting the commodification of nature through environmental markets and payments for ecosystem services, they challenge some of the fundamental assumptions that underwrite REDD+. However, when considering the discourse as a whole, they did not succeed in repoliticising the issue.

Due to its discursive structure and the near unanimous support it receives, REDD+ has also an important effect on the broader sphere of international climate governance. REDD+ helps to reconcile the only main antagonism remaining in the international climate governance sphere: the antagonism between North and South — industrialised and developing countries — and the question of who should carry how much of the burden of climate change mitigation. The win-win notion that dominates the discourse on REDD+ does away with this problem (see also Pistorius, 2012: 640). Both developing and industrialised countries are willing to contribute to reducing deforestation and have the feeling that they profit from it. In this regard REDD+ is another facet of what has been described as 'global carbon governmentality' (Methmann, 2011): Characterised through an obsession with carbon emissions that is supposed to be managed through market tools, this mode of governing — which dominates current climate politics — has resulted in a depoliticised form of global climate governance. What exists is a technocratic approach to climate governance — setting up markets and MRV systems — that have had no effects on the development of global carbon emissions, which continue to increase.

6. Conclusion

This paper set out to understand how REDD+ could garner such broad support even though avoiding tropical deforestation had historically been a rather controversial issue in international climate governance. I have demonstrated that the answer can be found in REDD+'s discursive structure, which enables a broad variety of actors to relate to it. REDD+ is a hegemonic project with an equivalential chain at its core that presents the project not

only as a cost-effective mitigation option but also as the solution to a variety of other grievances, such as biodiversity loss, poverty, etc. Furthermore, the undecidedness of the funding question, which gives REDD+ its status as a floating signifier, currently enables both proponents and opponents of a carbon market integration of REDD+ to support the project. Through the intertemporal comparison between the *REDD+* and the *CDM discourses* I was able to identify a number of discursive shifts that have taken place since avoided deforestation was excluded from the CDM in 2001. Those shifts allowed REDD+ to achieve its status as a hegemonic project.

The analysis presented in this paper highlighted the value of hegemony and discourse theory in understanding how certain projects and the meanings they transport become hegemonic while others fail. In addition, the paper has demonstrated that Laclau and Mouffe's approach can have a role outside of social movement studies. It can also be a constructive instrument for International Relations or policy analysis.

What is the takeaway message of this analysis with regard to the future development of REDD? In light of the results, it is fair to say that the enthusiasm that has developed around REDD+ has to be met with caution. Not only is it unclear whether REDD+ will ever be able to deliver what is expected from it, this analysis has also shown that the broad support REDD+ currently receives is built on sand. It is not certain that the funding question will be resolved in a way that ensures the support necessary for REDD+'s implementation.

7. References

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4

Governing the Forest Frontier

A Governmentality Analysis of REDD+

> 'The Tapuia, a fictional indigenous group based on a real tribe, lives on a legally protected reserve [in the Amazon]… the Tapuia have rights to REDD[+] credits for up to 100,000 tons of CO_2 per year, depending both on how successful they are at keeping their reserve intact and on Brazil's overall performance in curbing deforestation. After their project is certified by the Amazon Fund, the Space Research Agency monitors changes in land cover on Tapuia lands on behalf of the tribe… men from the Tapuia tribe patrolling the borders of their reserve find the tracks of a logger's truck… Using their legal authority to control their reserve, the Tapuia radio the GPS coordinates of the logger's trail to government agents who arrest the loggers, confiscate their equipment, and close the mill that had been processing the illegally harvested wood. The pick-up truck, fuel, GPS, and radio used by the Tapuia tribesmen are all paid for by the Tapuia REDD[+] project, which is certified under the Amazon Fund REDD[+] program, and paid for by investors…'
>
> (EDF, 2009)

1. Introduction

This is the Environmental Defense Fund's (EDF) vision of how *Reducing Emissions from Deforestation and Degradation* (REDD+) could be utilised to curb tropical deforestation and govern the tropical forest frontier. At the core of REDD+ is compensation of tropical developing countries or, depending on the level under consideration, individual forest owners for the conservation of forests. The prevalent idea is to use 'results-based' (UNFCCC, 2010: 1CP16 IIIc) payments channelled through REDD+ funds or generated through an integration into the carbon market to incentivise a reduction in deforestation. An international mechanism is currently under negotiation within the United Nations Framework Convention on Climate Change (UNFCCC). Beyond the international realm REDD+ is also used to refer to voluntary

carbon market projects and a suit of domestic activities not directly related to the UNFCCC process.

Considering the scope of the issue as well as the attention and resources that have been allocated to it, REDD+ represents the most ambitious attempt to date to govern forest frontier regions and address the issue of deforestation. Even though REDD+ was only proposed in 2005 through a submission to the UNFCCC by Papua New Guinea (PNG) and Costa Rica, it has rapidly received broad support and negotiations have advanced swiftly.[1] Not only is a large number of tropical developing countries — many of them members of the Coalition for Rainforest Nations — in favour of such a mechanism, many industrialised countries also support the development of REDD+ through bilateral and multilateral initiatives. More than US $ 4.2 billion (Climate Funds Update, 2012) have been pledged through multilateral initiatives alone to be used for the development of necessary methods and technologies, the generation of sufficient technical and institutional capacity in developing countries and for financing demonstration projects and pilot initiatives. The World Bank has started the Forest Carbon Partnership Facility (FCPF) and the Forest Investment Program. In addition several UN agencies pooled expertise and resources to create UN-REDD to coordinate these activities and channel the funding.

This paper draws on a governmentality approach to find out how REDD+ makes tropical forest frontiers — and, with them, the issue of tropical deforestation — governable. The term *forest frontier* is usually used to denote the borders between settled and forested areas. It is the space where forests come under pressure through incursions by farmers, settlers or corporations that are clearing forests in order to sell timber or make space for agriculture or mining activities (Wunder, 2004: 4-5). Forest frontiers are located at the periphery of tropical states, in an area where law enforcement and other institutions of the state are weak. In addition to this 'domestic' understanding of forest frontier, I also use the term to refer to what I call the international tropical forest frontier — the group of tropical developing countries. They constitute the periphery, and hence, the frontier region of the international climate regime. Prior to PNG's and Costa Rica's submission, tropical deforestation had not received substantial attention within the UNFCCC. It had been an issue during the creation of the CDM, but as too many controversies were involved, parties decided to exclude avoided deforestation as an eligible project type from the CDM (Boyd et al. 2008; Stephan, 2012b). Furthermore, compared to industrialised countries tropical developing countries thus far are only marginally

1. The original proposal was a limited Reducing Emissions from Deforestation (RED) but it was subsequently broadened to include degradation (REDD) and the "the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries" (REDD+) (UNFCCC, 2007, p. 2CP13)

involved in the reporting procedures and do not have reduction commitments, which are the core structures of the UNFCCC.

The literature on REDD+ has hitherto largely focused on policy design questions. The existing studies 'focus on how to make REDD work to reduce deforestation and channel funds to developing countries rather than the problems that such mechanisms… would pose…' (Hufty and Haakenstad, 2011). A thorough social scientific reflection of REDD+, drawing on explicit theoretical frameworks, only exists in a rudimentary form. Among the available literature, a number of authors have focused on the market aspects (Decasper Chacón, 2009; Lederer, 2011; Stephan, 2012a, 2013), framing REDD+ as 'a potential "test case" for emerging carbon markets' (Wolff, 2011) or 'an experiment in payments for ecosystem services' (Corbera, 2012). This paper goes beyond this literature by showing that REDD+ entails more than merely governing through markets.

The governmentality approach has for some time been used to shed light on a variety of aspects of climate governance.[2] It has also been used for the analysis of forest governance (e.g. Demeritt, 2001; Agrawal, 2005; Li, 2007). A small number of contributions already draw on governmentality to analyse individual aspects of REDD+: Boyd (2010), drawing on Foucault but not referring to governmentality directly, discusses how tropical deforestation came to be seen as a global climate change problem; Decasper Chacon (2009) has taken a similar perspective describing how deforestation has been articulated in a 'carbon market language'; Lovell (forthcoming) scrutinises the monitoring, reporting and verification (MRV) practices surrounding REDD+. Elsewhere, I analyse the commodification of avoided deforestation from a governmentality perspective (Stephan, 2013). Combining Collier's (2009) *topology of power* with Dean's (1999) *analytics of government* — both of which build on Foucault's work on governmentality — the aim of this paper is to give a more comprehensive assessment by scrutinising how tropical forest frontiers are being made governable through REDD+ at different levels.

Methodologically, the research of this paper uses a discourse analysis following Foucault's (2002) archaeological method to map the patterns that structure the discourse on REDD+ and the logics that govern it. Based on this, I was able to acquire a detailed understanding of what governing through REDD+ entails. The corpus for the discourse analysis comprises policy papers, negotiating texts, speeches and reports from governmental and non-governmental stakeholders as well as 21 expert interviews.

The paper proceeds as follows: After introducing the theoretical framework (Section 2), I analyse REDD+ by following Dean's analytics of government. I begin by scrutinising the ra-

2. For a review on the existing climate governmentality literature see Rothe (2011).

tionality that underwrites REDD+ (Section 3). Subsequently, I analyse the governmental technologies that constitute it — first at the international (Section 4.1) then at the domestic level (Section 4.2). I argue that REDD+ assembles a number of different governmental technologies that improve the ability to govern these frontier regions at a distance. Section 5 turns to the subjectivities presupposed in the discourse on REDD+. In Section 6 I describe how REDD+ creates a narrow field of visibility focused on carbon and opportunity costs. The paper closes by highlighting the added value of a governmentality approach in the understanding of REDD+ specifically and environmental policy instruments more broadly.

2. Using Governmentality Studies in the Analysis of Environmental Policy

Foucault developed his concept of governmentality over three lecture series taking place between 1975 and 1979 (Collier, 2009: 79-80). A feature of the lectures are the various — and, at times, contradicting — leads on how to define governmentality. Governmentality has been widely understood as a historical phenomenon. According to this reading of Foucault's lectures, governmentality describes a phase in Western Europe, beginning in the 17th century, in which a sovereign's rule over its territory with the help of direct and coercive power was increasingly displaced by indirect and dispersed forms of regulatory power that had the population and its well-being as its target, were based on individual freedom and drew on political economy as its central form of knowledge (Foucault, 1991: 102-103).

Collier (2009) criticises this reading, arguing that while Foucault indeed understood formations of rule as historical successions in his earlier lectures, there was a distinct shift in his later works. As Collier argues, Foucault moves way from this perspective in favour of a '"topological" approach' (Collier, 2009: 80) to power — analysing how different forms of power are re-deployed and re-combined in different contexts. Following Collier, one does not conceptualise sovereignty, disciplinary power — that is, people's anxiety towards the all-seeing state depicted in the Panopticon, which brings them to discipline their own behaviour (Foucault, 1977) — and governmentality as a historical succession of formations of rule. Instead of applying these ideal types in a top-down manner, the analyst examines a particular situation from a bottom-up perspective. The goal is to understand how different governmental technologies (that might otherwise be ascribed to these ideal types of power) are being deployed in combination. Following Collier's approach, one can avoid the harmonising tendency for which governmentality studies have been criticised: approaching cases with ideal types in

mind often lets researchers discard aspects that do not fit and hence find what they are looking for (Stephan et al, forthcoming).

Collier's perspective connects well with what Dean (1999: 16-20) delineates as an analytical understanding of governmentality. The latter is interested in highlighting how different 'forms of power, are utilised in order to govern at a distance' (Methmann, 2013: 41). Coined by Miller and Rose (2008), to govern at a distance denotes the '"indirect" mechanisms for aligning economic, social and personal conduct with socio-political objectives' (Miller and Rose, 2008: 26). Going beyond Miller and Rose, this paper applies the concept not only to the indirect government of people but also to the indirect regulation of states in the international system. Based on this understanding of governmentality, Dean defines government in very general terms, as

> 'any more or less calculated and rational activity, undertaken by a multiplicity of authorities and agencies, employing a variety of techniques and forms of knowledge, that seeks to shape conduct by working through our desires, aspirations, interests and beliefs, for definite but shifting ends and with a diverse set of relatively unpredictable consequences, effects and outcomes.'
>
> (Dean, 1999: 11)

With his *analytics of government* (Dean, 1999: 30-33), a helpful heuristic to analyse different *regimes of practices* — for example, the way a society manages its forests or deals with deforestation — Dean also provides a helpful operationalisation of the governmentality concept. He outlines four dimensions that enable us to understand how a regime of practice is governed and what effects this mode of governing creates:

1) Every regime of practice is based on particular *forms of knowledge* and *rationalities*. Demerit (2001) gives a detailed account of how forests statistics and the graphic presentation of statistical results through forest maps (a form of knowledge) were first introduced in North America in the 19th century and thus created an understanding of the American Forest as an entity, one that had not existed before. They depicted a forest that was diminishing, prompting conservationists and authorities to devise plans to stabilise forest cover and allow for continuous extraction of timber (the dominant rational of forest management at the time).

2) A rationality is operationalised through concrete governmental *technologies*. Community forest management is an example that has been widely applied in developing countries since the 1990s (Li, 2007).

3) Every regime of practice also generates and depends on particular *forms of subjectivity*: Individuals adopt norms and act according to them without being coerced to do so. In his analysis of changes in the forest governance regime in Kumaon, India, Agrawal (2005) shows how the devolution of forest management authority from the forest department to local forest councils has resulted in what he calls *environmentality:* the adoption of environmental

norms and values by villagers, many of whom had opposed forest conservation before.

4) Every regime of practice generates a particular field of visibility: Depending on how a problem is made governable, certain aspects move to the centre of attention while others are ignored and become invisible. Boyd shows how tropical deforestation has come to be seen as a global problem, highlighting the role of remote sensing that enabled seeing tropical forests as a 'unitary, calculable object of global concern' (Boyd, 2010: 860). Conceptualised in the context of carbon cycle analysis, tropical deforestation came to be understood as a significant source of greenhouse gas emissions — a prerequisite for the development of REDD+.

3. Monetising Nature: The Dominant Rationale of REDD+

To acquire an understanding for the rationality that underwrites REDD+, it is helpful to begin by looking at the way deforestation is problematised:

> 'The nature of the problem is economic: the absence of a 'positive' price signal to protect and sustainably use forests lies at the heart of the current level of deforestation and makes the clearing of forests financially more attractive than preserving them.'
>
> (UNEP FI, 2011: 6)

The dominant problem description that was found across the analysed corpus is that economic incentives to protect forests are missing. This is believed to be due to the fact that opportunity costs[3] of not deforesting are not offset by benefits from standing forests. Statements refer either to the country level, pointing out that these opportunity costs limit developing countries in their ambitions for economic development, or to the level of individual farmers, who deforest in order to make space for agriculture to make a living. Missing prices on services provided by forest ecosystems other than timber and non-timber forest products — such as biodiversity or the ability to store carbon and thus sequester it from the atmosphere — are presented as the root to this problem. So long as these are not valued monetarily, they cannot be represented in economic decision-making processes.

Based on this problem description, two solutions are generally presented: '[V]aluing carbon and other services that forests provide' is seen as one of the 'key levers [that] can help make the shift from deforestation to more sustainable policies and practices' (Eliasch, 2008:

3. Originating from economics, '[o]pportunity cost is the anticipated value of 'that which might be' if choice[s] were made differently.' (Buchanan, 2008). In the case of deforestation it is assumed that landowners forgo profits by not deforesting, as they are not able to sell the timber or use the land for agriculture, among other examples.

62). Furthermore, actors should be compensated for the opportunity costs accruing to them of refraining from deforestation, to provide them with the necessary economic incentives.

The concept of ecosystem services, pervasive in the discourse on REDD+, started out in the 1980s as a 'communication tool' (Gómez-Baggethun et al. 2010: 1215) of conservationists with which to gain access to and be heard by policy makers and mainstream, neoclassical economists (Peterson et al 2010: 114). It garnered massive attention once it was used to put concrete price tags on services provided by the environment. After Costanza et al. (1997) provided the first estimate of the total value of earth's ecosystem services, the idea became the core of international environmental assessments such as the UN's *Millennium Ecosystem Assessment* (MEA, 2005) or *The Economics of Ecosystems and Biodiversity* project (TEEB, 2010) initiated by the European Union. These studies marked the 'rapid shift in the concept of ecosystem services from an academic backwater to the mainstream of conservation and environmental policy.' (Redford and Adams, 2009: 785). The idea of ecosystem services has not remained limited to valuation exercises. Scientists and policy makers quickly developed policy instruments based on the rationale of monetising ecosystem functions.

4. REDD+: A Combination of Different Governmental Technologies

Pinpointing the governmental technologies that are part of REDD+ is rather difficult for two reasons. First, the UNFCCC negotiations on REDD+ have not been concluded. While many aspects have been agreed upon, several issues — among them the question of funding — are yet unresolved. Second, there is broad agreement that the domestic design of REDD+ has to be determined by each tropical developing country itself. This leaves room for variability at the national level. The goal of this section is provide an overview of the different governmental technologies that are part of REDD+, highlighting that REDD+ consists of more than just governing through markets. In order to do so, I first sketch out what REDD+ entails at the international level before turning to the domestic level.

4.1 Governing the Fringes of the UNFCCC

In the negotiations under the UNFCCC, countries have agreed that REDD+ is to be implemented in phases. The initial phase comprises the 'development of national strategies or action plans, policies and measures, and capacity-building' (UNFCCC, 2010: 1CP16 IIIc). Followed by demonstration activities, this should eventually lead to 'results-based actions that should be fully measured, reported and verified' (UNFCCC, 2010: 1CP16 IIIc). Results-based actions are understood as activities that lead to emissions reductions to be measured in tons of CO_2 equivalents (tCO_2eq). Until today the question on how to fund REDD+ has not yet been decided. There is broad agreement that the financing for the initial phases should be provided by Annex-I countries through bilateral or multilateral funds. Furthermore, many actors envision an integration of REDD+ into the carbon market, once developing countries reach the capacity to generate 'compliance-grade' credits for emissions reductions (see for example Eliasch, 2008: xviii-xix; Zarin et al., 2009: 4-11). However, there are still controversies concerning the latter.[4] In this section I elaborate on a carbon market integration of REDD+. Based on this, I highlight how REDD+ changes the government of the forest frontier at the international level. Most of the insights that I present are also applicable to the case of results-based payments coming from a REDD+ fund, as aspects such as baselines or measuring, reporting and verification (MRV) are the same.

A number of scholars have already provided insightful findings by assessing carbon markets from a governmentality perspective (e.g. Lövbrand and Stripple, 2011b; Methmann, 2011; Paterson and Stripple, 2012; Stephan, 2013). I limit myself to a brief description of the key characteristics of a national level carbon market integration of REDD+.[5] Should REDD+ be integrated into the carbon market, a tropical developing country can generate emissions reduction credits to the extent it has reduced deforestation — and, hence, deforestation-related emissions — within its borders. The country can sell these credits to industrialised countries or companies, which can use them to comply with their own emission reduction obligations. To determine the volume of emissions reductions, a baseline[6] against which the development of the country's deforestation rate is compared must be defined. Detailed in-

4. Even though many actors support the idea of a carbon market integration of REDD+, some do fundamentally oppose it. Solving this conflict will be critical in the implementation of REDD+. There is considerable risk that the broad support REDD+ currently enjoys will unravel over this controversy (Stephan, 2012b).

5. A subnational or project-level carbon market integration would function similarly — although at a lower scale — but is unlikely to be implemented in the UNFCCC context.

6. Baselines are based on counterfactual reasoning. In the case of REDD+, they are based either on extrapolation of a country's historical deforestation rate or on predictions of factors such as future population growth and economic development.

formation on activity data (forest area changes) and emission factors (the carbon stock per hectare) has to be obtained.

As forests' carbon content or emissions from deforestation cannot be measured directly, scientists calculate them by combining activity data with emissions factors. The IPCC has provided a *Good Practice Guidance* (Penman et al., 2003) on measuring and monitoring forest carbon which has been adopted as the basis for REDD+ (UNFCCC, 2007: 2CP13). It comprises a three-tiered approach with accelerating accuracy and expenditure. Currently, initiatives like the Global Observation for Forest Cover and Land Dynamics (GOFC-GOLD) are making an enormous effort to operationalise the IPCC rules (see Lovell, forthcoming).

To obtain activity data, scientists mainly rely on satellite-based remote sensing. It is combined with default emissions factors provided by the IPCC (Tier 1), with national emissions factors obtained through national field inventories (Tier 2) or with data from detailed measurements of sample plots (Tier 3). The last is a laborious endeavour based on measuring the diameter and height of each tree as well as deadwood and litter and taking soil samples in each plot. Tier 2 is considered to be the minimum requirement for REDD+ (see for example Herold, 2009). Once emissions reductions have been calculated in this manner and reported to the UNFCCC, they need to be verified. It is as yet unclear how exactly verification will be conducted and which body will be responsible for it.

The notion that techniques with which to measure forest carbon accurately enough to implement REDD+ are available dominates within the analysed corpus. What has to be developed is sufficient capacity to apply these technologies in developing countries. However, some of my interview partners have questioned whether measuring and monitoring can be provided at the necessary scale at reasonable costs. Lovell (forthcoming) has documented a similarly 'mixed picture' based on a survey she conducted among GOFC-GOLD authors.

Having sketched out how a carbon market integration of REDD+ functions, I now turn to a discussion of the effects of this governmental technology on the government of the international tropical forest frontier. Developing countries have thus far been subjected to the governance structures of the UNFCCC in a manner different to industrialised countries. As a result of the principle of 'common but differentiated responsibilities' (UNCED, 1992: §3.1) developing countries have not had any binding reduction commitments nor have they been required to measure and report their emissions in as much detail as industrialised countries. Hence, with regard to mitigation, REDD+ introduces a new quality of integrating developing countries into the UNFCCC. Even though participation is voluntary and the mechanism does not include binding reduction commitments, REDD+ is a precedent with regard to develop-

ing countries contributing emissions reductions on a large scale.[7]

Aspects like these reporting requirements must not be overlooked when analysing international regimes: The UNFCCC — as any other international environmental regime — has a limited ability to exercise coercive power over its signatories. As the example of Canada's withdrawal from the Kyoto Protocol has shown, even with penalties in place, countries can simply walk away from agreements to avoid sanctions. To govern within the international climate regime is therefore limited to indirect measures (e.g. through reporting reuqirements) — to government at a distance.

In the context of REDD+, developing countries are supposed to continually report the data they obtain through the detailed measuring and monitoring activities — a considerable intensification of the reporting requirements to which they have been subjected so far (Lovell, forthcoming). Measuring and monitoring is not only deemed necessary should REDD+ be integrated into the carbon market and emissions reductions be verified; it is already perceived to be a key element in the capacity-building and implementation phase.

> 'Reporting to the UNFCCC should become the key tool for transparency and promotion of best practice for countries participating in a forestry mechanism.'
>
> (Eliasch, 2008: 206)[8]

Comprehensive reporting enables comparison of countries' performances on curbing deforestation. This comparability not only makes it possible to highlight success stories and promote *best practices*, it also increases pressure on underperformers, who need to justify their lagging behind. Dean (1999: 168-170) calls the deployment of performance indicators such as rankings and benchmarking *technologies of performance*. Some REDD+ proposals go even further and suggest that '[t]he annual level of funding could be increased or decreased every year by decision of the global facility after consideration of a national REDD annual report' (Zarin et al., 2009: 9). Once developing countries become dependent on REDD+ funding, the possibility of reducing or cutting such funding would act as an additional strong disciplinary measure.

If REDD+ is integrated into the carbon market, we can expect to see additional effects, similar to those seen in other cases of governing through markets. A carbon market version of REDD+ will foster the dissemination of entrepreneurial (self-)conceptions into state deci-

7. There is, of course, the CDM already, but the emissions reductions it has generated so far will be dwarfed by what is expected from REDD+.

8. The preoccupation with monitoring, reporting and verification is not unique to REDD+. It has become a central element of the climate regime as a whole (Lövbrand & Stripple, 2010).

sion making: Governments will have to strike deals directly with buyers of emissions reductions or be expected to provide prosperous conditions for their emerging carbon economies.

Even though REDD+ is voluntary, these governmental technologies and mechanisms will have an effect on the way participating countries conduct themselves with regard to deforestation. By combining market approaches with strong reporting and monitoring of forest carbon, REDD+ draws on a mix of liberal and disciplinary technologies. Participation in REDD+ by developing countries will subject them to the *government of the UNFCCC*[9] to a much stronger degree.

What I have sketched out here is by no means a linear or even inevitable process. Whether a developing country decides to participate in REDD+ or to what degree it will internalise any of the logics and dynamics I have indicated here can vary. In the current design phase of REDD+, it has already become clear that at least some of the developing countries are aware of the pressures and constraints that come with REDD+ and try to avoid and resist them. For example, there has been a fierce debate on the extent to which baselines and reporting need to be standardised, with developing countries like Brazil trying to keep the level of reporting and standardisation as low as possible.[10]

4.2 REDD+: A new attempt to govern the periphery of tropical developing countries

The paper now turns to the national level to determine which governmental technologies are deployed through REDD+ on this level and to analyse how these alter the government of domestic forest frontiers. In these peripheral regions states have difficulties in exercising authority: 'Many frontier forests are remote and lack adequate communication facilities. This makes monitoring the forest difficult…' (Stern, 2006: 542). In this context, the particular importance of a successful implementation of REDD+ at the *regional* and *local* level was stressed repeatedly in the analysed corpus:

> 'National-level policy and legislative reform can take place relatively easily in capitals, but implementation and enforcement will require linkage deep into the forests.'
>
> (Eliasch, 2008: 201)

9. I intentionally stick to the Foucauldian 'government' as defined through Dean (1999, p. 11). Without this theoretical framing one might also refer to it as governance of the UNFCCC.

10. This came up in an interview with a Brazilian UNFCCC negotiator (November 25th 2011), an interview with a forest carbon expert from a German climate think tank (February 22nd 2012), and during discussions at a UNFCCC expert meeting on *Forest reference emission levels and forest reference levels for implementation of REDD-plus activities*, November 14th-15th 2011 in Bonn, Germany).

A broad range of forest management options has been discussed in the context of a domestic implementation of REDD+: stricter enforcement of existing law, improved land planning, extension of protected areas, sustainable forest management, community forest management and the introduction of payments for ecosystem services (PES). Particularly PES has a dominant role in the current discourse as it ties well into the rational of missing incentives and compensation for opportunity costs outlined in Section 3,. In this section I discuss the PES option in detail analysing what governing through it entails. As I show, however, PES schemes cannot address all types of deforestation and hence have to be complemented by other governmental technologies.

There are diffuse notions on what PES schemes exactly are. Nevertheless, one can highlight a number of commonalities, particularly with regard to national PES schemes that target deforestation. Costa Rica's *Pago por Servicios Ambientales* (PSA) — established in 1995, the world's first national forest related PES system— and Mexico's *Pro Árbol* are seen as examples of how a PES system could be deployed in the context of REDD+. Neither programme focuses exclusively on carbon; they entail different funding streams (Costa Rica) or sub-programmes (Mexico) targeted at different environmental services, including carbon sequestration (the respective Mexican sub-programme is called PSA-CABSA), water, biodiversity and scenic beauty (solely in Costa Rica) (Corbera, 2010; Pagiola, 2008). I will draw on the carbon-focused forest conservation elements of these programmes.

In Costa Rica the PES system is run by a National Forest Finance Fund (FONAFIFO) to which individual farmers apply with a forest management plan. If selected, they sign a five-year contract to conserve their forest and receive fixed annual payments on a per hectare basis, independent of the exact carbon content of the forest they preserve. In Mexico, communities apply to the National Forest Ministry with a forest management plan to participate in PSA-CABSA. Initially, the Mexican programme made payments on a per tonne basis requiring detailed measurements and calculations to determine the exact amount of emissions reductions.[11] In both cases the level of payment has been set ad hoc and is not linked to the global price of carbon or detailed estimates of farmers' opportunity costs.

PES systems turn farmers into contractual partners, sharing the state's interest in protecting the forest. They differ significantly from legal requirements — such as conservation quotas for privately owned forest — which simply limit the leeway for landowners to manage forests under their ownership. Dean has described this contractualism, which has become prevalent in many policy domains, as a *technology of agency* creating an 'ethos of ne-

11. With the first reform of the PSA-CABSA in 2006, this was dropped in favour of per hectare payments (Corbera 2010, p. 60).

gotiated intersubjectivity' (Dean, 1999: 167-168). If PES systems go beyond flat payments, providing more results-based incentives that are related to the exact amount of emissions reductions achieved through conservation efforts, farmers turn into *carbon entrepreneurs*: being involved in the trade of carbon services, they are expected to keep track of the development in the broader carbon market and manage their forests for maximum carbon sequestration to optimise their gains. Furthermore, if PES schemes provide nuanced payments, the degree of measurement, calculation and monitoring required is similarly extensive to that described in relation to a carbon market integration of REDD+.

One aspect that severely limits the applicability of PES schemes should be noted, and that is that they cannot be used to address all forms of deforestation:

> '…what we are talking about [is the difference between] illegal or legal [deforestation]… if REDD+ becomes a market instrument I don't think you can or should pay people to be according to the law. But if you are talking about the legal deforestation — to prove to people that they have more money with the forest than without — then REDD+ should have a role…'
>
> (Interview with a Brazilian forest carbon specialist at the Carbon Expo 2011)

In addition to the ethical reservations, this quote indicates important technical limitations of PES and other market-based instruments. Payments through them can only be made in cases of legal deforestation. First, clearly assigned rights of ownership are necessary to determine the recipient for payments. Payments for ecosystem services for example can only be made to farmers if they own the forest they are supposed to conserve — individually or communally. Second, even in cases where clear titles exist, payments cannot be made to avoid deforestation that is already illegal under existing law. This would undermine the additionality of the emissions reductions.

Keeping these limitations in mind, I would like to reconsider the Tapuia example quoted at the beginning of this article. Selling carbon credits to an international investor[12] turns the Tapuia not only into contractual partners but also into carbon entrepreneurs. To maximise their returns they try to minimise their own environmental impact on their reserve. As the example shows, they also try to prevent other actors from damaging it. This is the very moment in the example when the productive power linked to the market-based aspects of REDD+ is complemented by coercive and disciplinary power. State enforcement agencies

12. In this regard, EDF's example is outdated: A project-level carbon market integration of REDD+ has already been ruled out in the international negotiations. But the REDD+ project could also be financed by a national PES scheme. Such a scheme — given that the payments are closely linked to the level of emissions reductions — would similarly turned the Tapuia into carbon entrepreneurs.

step in to prosecute and punish illegal logging as this cannot be directly addressed with market instruments.

What should be noted is the hybrid character of satellite-based remote sensing. It serves two quite different roles: On one hand, it is the monitoring and verification tool that potentially enables the large scale application of PES systems and a carbon market integration of REDD+ which allow for a flexible and liberal handling of deforestation. On the other hand, remote sensing systems constitute a 'carbon panopticon' (Lövbrand and Stripple, 2011a), providing the state with the ability to observe its entire forest at any time. This enables it to guide its coercive forces more effectively and thus to discipline problematic subjects.

Brazil's remote sensing system reveals this dual character: In order to calculate its annual deforestation rate and monitor and verify activities for the Amazon Fund, Brazil's National Institute for Space Research (INPE) relies on PRODES. It is a satellite-based system that provides data with fairly detailed resolution of 30m x 30m but only monthly updates. In addition it has set up DETER — which in Portuguese means both 'to stop something' and 'to arrest somebody' — a 'near real time deforestation detection' system (Eliasch, 2008: 157). While its resolution of 250m x 250m is coarse, DETER allows daily updates (INPE, 2012). These are communicated from INPE to IBAMA, the enforcement agency of Brazil's Ministry of the Environment, which can then decide if and how it wants to deploy its enforcement personnel to pursue acts of illegal deforestation.

Furthermore, the Tapuia example gives us an idea of how different governmental mechanisms interact in REDD+. Turning forest owners into contractual partners and carbon entrepreneurs turns the carbon panopticon Lövbrand and Stripple talk about into a super-panopticon: An illegal logger has to be afraid not only of the state and its remote sensing observation capacity, any other person in proximity with an interest in getting returns from emissions reductions has an incentive to report him and thus becomes part of the panopticon, too.

As the Tapuia example shows, by combining liberal with disciplinary and coercive governmental technologies REDD+ enhances the ability to govern forest frontiers at a distance at the domestic level as well. But again, as REDD+ has not been implemented yet, these assumptions are based on the proposals and visions of how REDD+ might look like — and have to be treated with due caution. There are a variety of reasons why REDD+ might not work out as envisioned by the Environmental Defense Fund and others; I have already mentioned a number of hurdles that have yet to be overcome, e.g. the clarification of land tenure and the implementation of sufficiently accurate satellite-based remote sensing infrastructure on a global scale.

5. The Rational, Utility-Maximising Carbon Entrepreneur versus the Noble Savage: Contradicting Forms of Subjectivity

Now that I have outlined the rational underwriting REDD+ and the mix of governmental technologies that are being developed, I turn to the dimension of subjectivity. I highlight two different, contradicting subject positions that are being invoked implicitly and explicitly in the discourse on REDD+: the *rational, utility-maximising carbon entrepreneur* and the *noble savage*. Here I refer to the way these subjectivities are presupposed in policy documents or policy instruments that are being designed. Whether or not people on the ground take on these subject positions as anticipated by policy makers is a different question, an answer to which would require extensive fieldwork once REDD+ is implemented. However, this paper is able to highlight some inconsistencies and problems that already exist at the conceptual level.

As I have shown, deforestation has been rendered intelligible as a problem of economic incentives that can be addressed through monetising forests' qualities as carbon stocks. This approach to deforestation — from opportunity cost calculations to the transformation of farmers into carbon entrepreneurs via PES schemes — implicitly includes the assumption that everybody engaging in deforestation activities is a rational, utility-maximising actor — a *homo oeconomicus*. Presented with sufficient economic incentives, this homo oeconomicus will simply refrain from deforestation.

Forest-dwelling indigenous peoples are often articulated in the discourse in a contrasting manner. They are described as the 'best stewards of the forest' (Virgilio et al. 2010: 43) who have lived in balance with forests for hundreds, even thousands of years. Environmental NGOs, development organisations and other stakeholders present them in this light (see for example CBD Secretariat and GIZ, 2011, pp. 20-23; Erni and Tugendhat, 2012). These articulations resonate well with the image of the *noble savage* or *ecological Indian* living in harmony with nature that has been present for a long time in Western culture (see for example Harkin and Lewis, 2007).

> 'For Indigenous Peoples, protecting the forest and avoiding soil degradation is a millenary practice, with REDD or without REDD, Indigenous Peoples are protecting the forests and biological diversity of the Amazon.'
>
> (FCPF, 2012: 18)

Statements like this, which go as far as dismissing incentives to protect forests as being unnecessary for indigenous peoples, make opportunity costs calculations or PES schemes

look redundant or even incompatible with the traditions and practices of indigenous peoples. However, the contradictions between the assumptions of the *noble savage* protecting forests for harmony's sake and the *carbon entrepreneur* doing it to maximise their utility are hardly reflected in the discourse and are rarely made explicit. The question of whether these payments and incentive schemes actually replace a cultural and traditional imperative for conservation among indigenous peoples and hence might be counterproductive in the long run is occasionally raised (e.g.Vatn, 2010). But as the Tapuia example shows, this is not a uniform perception. There are actors that assume that indigenous peoples need monetary incentives, too.

6. REDD+'s Field of Visibility

REDD+ creates a particular field of visibility through its rationality and forms of knowledge as well as its governmental technologies. In the following section two important aspects are highlighted: I start by showing how REDD+ reduces the meaning of forests to their quality as carbon stocks. Furthermore, I discuss how the opportunity cost logic and the deployment of opportunity cost curves put the spotlight on subsistence agriculture and present it as an important driver of deforestation that needs to be addressed.

6.1 The carbonification of forests

As the acronym indicates, REDD+ is concerned with Reducing *Emissions* from Deforestation and Degradation. Considering that there is a rationale for carbon accounting that dominates the broader climate discourse (Lövbrand and Stripple, 2011b: 188) the focus on emissions from deforestation does not come as a surprise in the context of the climate regime. However, as I outlined in Section 4.1, it presupposes a whole suit of carbon measurement and monitoring techniques (see Lovell, forthcoming). These are *only* necessary if the goal is to make results-based payments related to the amount of emissions reductions.

Through this process of measuring and calculating, a forest with a myriad of different uses and meanings — timber, habitat, spiritual space, to name but a few — is transformed into a series of digits that represent its quality as carbon stock. I have called this reduction of meaning the *carbonification of forests* (Stephan, 2012a: 632-633). It allows the creation of instruments like the *Forest Carbon Index*. Based on data concerning the carbon density of land and opportunity costs of competing land uses, the index allows for the analysis of 'the potential of every piece of land on earth to combat climate change by storing carbon in forests…' Fur-

ther translating this information into maps, it 'illuminates the likely geography of forest carbon asset supplies to determine which areas have the potential to generate forest carbon credits' (Deveny et al., 2009: 3 as cited in Lövbrand and Stripple, 2011a: 6). And of course, carbonification is a prerequisite for the commodification of forest carbon, which can then be bought and sold by traders with a few clicks on their computers (Stephan, 2012a).

Drawing on these instruments to maximise carbon stocks is not unproblematic. From a carbon accounting perspective, a hectare of monoculture tree plantation, for example, might be a more potent carbon stock than a hectare of primary rainforest. However, from a biodiversity perspective, favouring plantations over primary rainforest is detrimental.

There has been some discussion about possible negative impacts of REDD+ on biodiversity and on the livelihoods of indigenous peoples and forest communities. To prevent negative impacts, *safeguards* have been proposed (Pistorius et al., 2010: 3). They are part of the FCPF's and UN-REDD's funding requirements and have been agreed upon under the UNFCCC as part of the Cancun Agreements. The 'conversion of natural forests' (UNFCCC, 2010: Appendix 1) into monoculture plantations — the scenario mentioned above — is prohibited through one of the UNFCCC safeguards. However, under the UNFCCC, developing countries are only required to provide information on these safeguards. A detailed monitoring, reporting and verification system as it is being developed for the carbon aspects of REDD+ has not been agreed upon.

Furthermore, a number of proposals have been made to operationalise safeguards for biodiversity by integrating them into a country's land use planning: when determining sites for REDD+ activities, countries should also consider possible biodiversity benefits or detriments and balance their decisions accordingly (see for example Gardner et al., 2012). Yet it is unlikely — particular in the case of a carbon market integration of REDD+ where fully fungible credits are desired — that the safeguards will be able to fully mitigate unintended consequences from the carbonification of forests (see Stephan, 2012a).

6.2 Opportunity cost curves turn subsistence agriculture into inefficient slash-and-burn farming

At the onset of the REDD+ debate, the opportunity cost concept — prominently advocated in the Stern Report and McKinsey's (2009: 7) *Greenhouse Gas Abatement Cost Curve*[13]— drew attention to 'Curbing deforestation [as] a *highly cost-effective* way of reducing greenhouse gas emissions' (Stern, 2006: 537, emphasis added) in the broader climate change discourse. Identifying the most cost-effective measures for investments in emissions reductions has also been adopted as a central logic within REDD+ itself. The World Bank's FCPF, for example, advocates the opportunity cost concept as an instrument to determine the cost of REDD+ and uses opportunity cost curves to highlight the most cost-effective measures. It encourages tropical developing countries to apply them when drafting their Readiness Preparation Proposals (R-PPs), which are necessary to access FCPF funds.

> 'Opportunity cost analysis of REDD+ generates a money-based representation (e.g., $/ha, $/tC or $/$CO_2$e) of the tradeoff between storing carbon and generating profits on lands. The graphical representation of this tradeoff, called an opportunity cost curve, is a key objective of the analysis.'
>
> (Forest Carbon Partnership Facility, 2011: Section 2, p. 5)

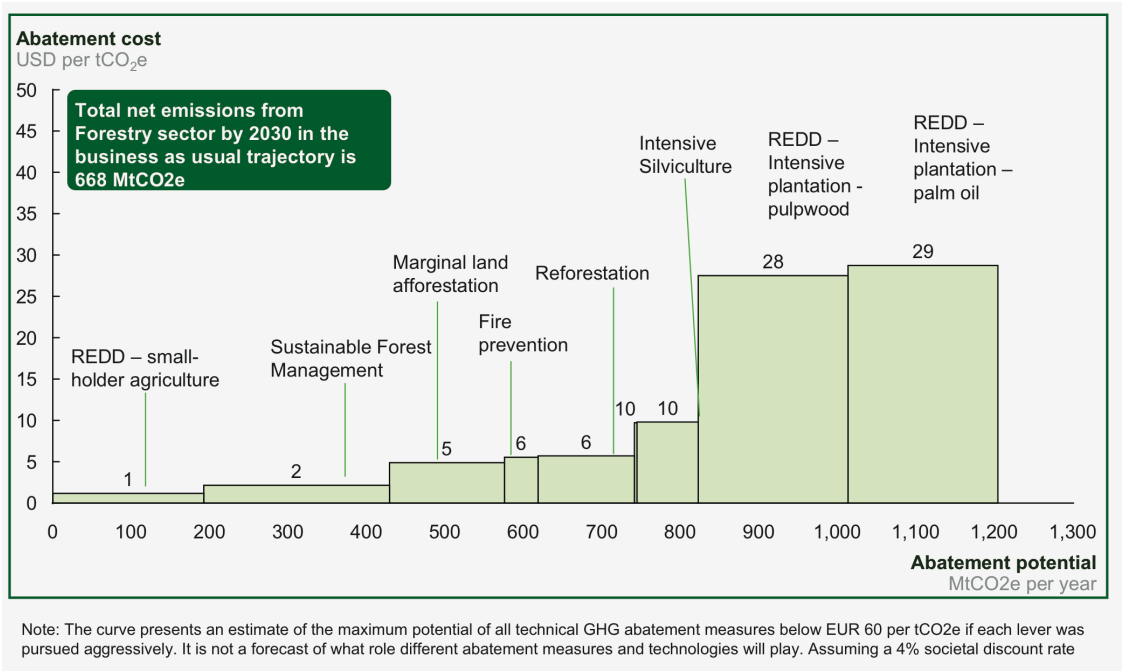
Applying this logic moves particular activities that cause deforestation to the centre of attention while rendering others second-rate. The lower the monetary proceeds that accrue through deforestation and subsequent activities on the deforested land — e.g. through the sale of logged timber or the sale of agricultural goods that can be produced on the cleared land — the lower the opportunity costs and hence the more cost-efficient it is to target these activities. Smallholders and subsistence farmers have only limited market access or do not produce products that are sold on the market at all. This results in low opportunity costs or makes it difficult in principle to capture them in opportunity cost calculations.[14] On the other

13. McKinsey's Abatement Cost Curve is based on opportunity costs and is identical to what has been labelled as opportunity cost curve.

14. Some studies base the opportunity cost estimates for subsistence farmers on cost estimates of income support programs that would 'be sufficient to provide a strong incentive to stabilise agricultural systems … and to develop forest-based economies… ' (Nepstad et al., 2007, pp. 15-16). However, the estimates about the level of payments is rather crude: Nepstadt at al. (2007, pp. 15-16) simply assume that, in the case of Brazil, one-half of Brazil's minimum salary would be sufficient. Furthermore, these estimate generations are not transparent. McKinsey & Co (Personal communication, February 2013) relegate to 'experience of similar programmes in developing countries and/or input from local stakeholders having experience on that matter'for their calculations. This, however, is not made explicit in their Global Greenhouse Gas Abatement Cost Curve (McKinsey & Company, 2009).

hand, targeting deforestation activities that result in high monetary proceeds such as 'high-value agriculture' (soy, palm oil or cattle ranching on productive lands) or mining are presented as very costly measures (Eliasch, 2008: 73; Forest Carbon Partnership Facility, 2011: Section 1, p.14-15; see for example Stern, 2006: 217).

Figure 1: Greenhouse Gas Abatement Costs in the Indonesian Forest Sector



Note: The curve presents an estimate of the maximum potential of all technical GHG abatement measures below EUR 60 per tCO2e if each lever was pursued aggressively. It is not a forecast of what role different abatement measures and technologies will play. Assuming a 4% societal discount rate

(DNPI Indonesia 2010, 21)

As a result, smallholders and subsistence farmers are highlighted — as shown here in the case of Indonesia (see Figure 1) — as one of the most cost-efficient REDD+ targets. By making them visible in this manner, the opportunity cost approach frames smallholders and subsistence farmers as problematic subjects that REDD+ need to target. It is no surprise, then, that the first measure to reduce deforestation considered by McKinsey in its central report on climate change is to 'reduce slash-and-burn and other forms of subsistence agriculture.' (McKinsey & Company, 2009: 118).

There has been a discussion on whether opportunity cost calculations are the most adequate methods to identify cost-efficient REDD+ measures. The approach includes only opportunity costs and does not consider implementation and transaction costs, which are likely to be significant when targeting smallholders (see for example Gregersenet al. , 2010). However, the singling out of smallholders and subsistence farmers as important targets for REDD+ measures has, so far, been criticised only by a few NGOs:

> 'it seems that many governments see the objective of REDD+ as transforming local farming and other livelihood practices… Whilst aims to increase productivity in local farming systems may in itself be a good thing, if done properly, the approach proposed in the R-PPs seems designed to eliminate, not strengthen, traditional farming systems.'
>
> (Dooley et al., 2011: 22)

In this context, environmental NGOs and indigenous groups have also criticised the over-simplification of subsistence farming in opportunity cost calculations and the conflation of a variety of different forms of existing small scale agriculture into 'slash-and-burn farming,' which is then portrayed negatively. This observation is supported by the analysed corpus. In swidden or shifting agriculture, farmers indeed clear forest land by cutting and burning down trees. However, this practice is rotational: Farmers return to the same plots of land. The fallow period and the secondary forest that has grown back in the meantime are utilised to fertilise the soil. In many tropical countries this method has a longstanding tradition. Actors that criticise the demonising of swidden agriculture argue that relative to clearing forest for palm oil plantations or cattle ranching the greenhouse gas impact is small — and, due to the permanent regrowth of forest, sometimes even positive (Dyer and Counsell, 2010: 5; Erni et al., 2011: 55).

We can conclude that REDD+'s exclusive focus on carbon and the prevalent opportunity cost logic drastically narrow the field of visibility within this regime of practice. The effects I have sketched out here result in dynamics that thwart claims repeatedly made of 'co-benefits'[15] of REDD+:

> 'Action [to prevent deforestation] can also bring significant national co-benefits in terms of local soil, water and climate protection, as well as opportunities for sustainable forest management and the protection of biodiversity and the livelihoods and rights of local communities.'
>
> (Stern, 2006: 538)

15. The very wording of 'co-benefit' is a result of the preoccupation with forest carbon emissions. Benefits that forest conservation might have for biodiversity or the livelihoods of forest communities are not at the centre of REDD+. They are obscured through the process of carbonification. However, they are stressed in order to legitimise REDD+.

Table I: Governing forest frontiers through REDD+

Rationality	• tropical deforestation as a driver of climate change • deforestation is a problem of missing economic incentives, this can be remedied through: monetization of eco-system services; compensation of opportunity costs These rationalities are related to various forms of knowledges: • carbon cycle science • opportunity cost calculations • opportunity cost cost curves
Technology	• Governing through markets based on: a) a carbon market integration of REDD+ b) payments for eco-systems services —> technologies of agency —> technologies of performance • Remote sensing creates a 'carbon panopticon' —> guides coercive forces —> disciplinary power
Field of visibility	• Preoccupation with the MRV of forest carbon causes a carbonification of forests • Opportunity cost logic turns subsistence agriculture into inefficient slash and burn farming
(presupposed) **Subjectivities**	• Rational, utility maximizing carbon entrepreneur • The noble savage living in harmony with nature

7. Conclusion

Drawing on Collier's (2009) topological approach to power and Dean's (1999) analytics of government, this paper has demonstrated that REDD+ entails more than mere governing through markets. I have shown how REDD+ combines a variety of technologies and forms of power to address the problem of tropical deforestation and govern the tropical forest frontier. At the international level, REDD+ — due to its monitoring and reporting requirements — draws developing countries into the government structure of the UNFCCC to a much higher degree, strengthening the regime's ability to govern at a distance. A similar development can be expected at the domestic level: If REDD+ works as envisioned, it provides a new set of instruments to tropical developing countries to govern their forest frontier regions at a distance. Combining the self-conduct of forest dwellers, triggered through incentive schemes, with the panopticon qualities of remote sensing systems, states hope to govern larger forest areas more effectively. Whether this will fully play out as expected has yet to be determined. There are still uncertainties with regard to the international negotiations and the reliability of the monitoring and accounting infrastructure. Most importantly, people do not always react as policy makers or scientists expect them to. They might resist REDD+ or appropriate it for their own goals.

This paper has also highlighted the added value that governmentality studies bring to

environmental policy analysis. One of its strengths is to flag and problematise underlying assumptions that other approaches take for granted. The paper has highlighted the monetisation of ecosystem services as the central rationale of REDD+. This allows contradictions to be pointed out, as I have done by contrasting the rational, utility-maximising *carbon entrepreneur* and the *noble savage.* Scrutinising REDD+ in this manner directs us to consequences entailed by its implementation which would otherwise go unnoticed: the paper has shown how REDD+ structures the perception of forests and people living in and around it in a narrow manner. The measuring, monitoring and incentive systems that are being created through REDD+ are predominantly focused on carbon; hence, meanings other than 'forest as carbon stock' are rendered invisible. Furthermore, the opportunity cost logic accentuates the role of subsistence farming as a driver of deforestation.

Similarities to what I describe for the REDD+ case can be found in other areas of climate and environmental policy making: In her analysis of measures addressing sea level rise in costal Senegal, Engels for example showed how approaching the issue exclusively through cost-benefit analysis has produced a 'highly selective picture of both problems and adaptation strategies' (Engels, 2008: 190) effectively excluding local communities from participating in the decision-making processes. Inclusion of critical social science approaches, like governmentality studies, broadens these narrow and selective perspectives. They provide room for reflection on both the prerequisites for and the consequences of such policies. Critical social science perspectives highlight the political character of these seemingly technical debates: mechanisms like REDD+ create losers and winners in a way one might not initially expect. Making this visible is the premise for a societal discussion about the acceptability of their implementation.

A more reflexive approach seems to be of particular importance with regard to the current, rapid dissemination of environmental markets and payments for ecosystem services schemes. The perception that environmental problems are simple market failures that can be remedied by putting into place market-based instruments, with a few complementary measures to set the 'right' incentives, is dominating today's environmental policy world. As this paper has pointed out, we should be cautious: The problems are hardly straightforward, and creating such mechanisms is considerably more complex than it would first appear.

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5

Bringing Discourse to the Market

The Commodification of Avoided Deforestation

1. Introduction[1]

Reducing emissions from deforestation and degradation (REDD+), originating in tropical developing countries has, over the past five years, become a central element in international climate protection discourse. The topic receives broad support from almost all United Nations Framework Convention on Climate Change (UNFCCC) parties, as well as a wide variety of non-state actors. It has become one of the most anticipated elements in the post-Kyoto climate policy realm, despite earlier decisions taken during the Kyoto and Marrakech negotiations to exclude avoided deforestation in developing countries from the Clean Development Mechanism (CDM). While the exact character of a REDD+ mechanism under the UNFCCC has not yet been finalised, there is wide agreement that it should consist of performance-based payments that compensate for the opportunity costs of avoiding deforestation. Such payments could either be realised through a fund or through the integration of REDD+ into the carbon market. Reductions generated through this process could be used by industrialised countries, or companies, to fulfil their reduction commitments. While a system under the UNFCCC has yet to be created, voluntary carbon market actors are already moving ahead with REDD+ independently. The Kasigau Corridor project, set up in Kenya by Wildlifeworks

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and registered under the Verified Carbon Standard (VCS), was the first to issue REDD+ credits in February 2011 (Volcovici, 2011). These credits are being used for non-compliance reasons, like corporate social responsibility (CSR) aspects and marketing.

But how exactly does one make avoided deforestation tradable? What are the necessary steps involved in making not-cutting-down-trees a commodity that can be sold to a fund or be traded on the carbon market?[2] And what are the consequences of avoided deforestation commodification? These questions have yet to be rigorously investigated, as the literature on REDD+ is, so far, primarily concerned with policy design aspects. There are a few notable exceptions. Thompson et al. (2011), and Hiraldo and Tanner (2011) discuss the consequences of the issue framing for the negotiation process as well as the governance of REDD+. Schroeder (2010) analyses the degree to which indigenous peoples have gained agency in the debate. Finally, Okereke and Dooley (2010) analyse the justice principles which underpin key proposals for a REDD+ mechanism.

Here I develop a poststructuralist perspective, based on Laclau and Mouffe's (2001) hegemony and discourse theory, on the process of commodification and market creation, to address the questions raised above. While poststructuralist approaches have been used to scrutinise climate change politics in general (e.g. Oels, 2005; Okereke et al., 2009; Methmann, 2010; Rothe, 2011), and carbon markets in particular (Bäckstrand and Lövbrand, 2006; Lovell et al. 2009, Lovell and Liverman, 2010; Paterson and Stripple, 2010; Lansing 2011), there is a dearth of literature analysing the very process of commodification, and market creation, from this perspective. Looking at the broader carbon market literature we can find some research that is concerned with the commodification and market creation processes: MacKenzie (2009) and Lohmann (2005) have used Actor–Network Theory (ANT), while Bumpus (2011) uses a Marxist-inspired commodification of nature approach to look at commodification processes in the carbon market. A discourse-theoretical approach, as proposed and developed in this paper, has some added value to this existing work. In particular, it allows us to highlight and conceptualise the contestedness and contingency in these commodification and market creation processes.

Methodologically, my research has followed Glynos and Howarth's (2007) logics of critical explanation. The beginning of the research process was marked by an active problematisa-

2. While there is a variety of possible ways in which REDD+ could be funded (carbon market integration, funds that are buying credits, funds that directly finance policy measures, e.g. national forest policy reforms or the demarcation of national parks), here I focus on a carbon market integration of REDD+. This seems justified as the majority of proposals recommend carbon market integration, at least as part of a final mechanism. In addition, most of the aspects discussed here also apply to an exclusively fund-based REDD+ mechanism, both in the case where a fund buys credits and where it makes performance-based payments to cover opportunity costs.

tion of the commodification of avoiding deforestation. What followed was a phase of retroductive reasoning – moving back and forth between the empirical material and theory development – to articulate a plausible explanation to the research problem. In addition to using primary sources (Intergovernmental Panel on Climate Change (IPCC) reports, UNFCCC negotiation texts and submissions, voluntary market documentation and manuals) and secondary literature, interviews with stakeholders in the forest carbon market (project developers, consultants, verifiers and forest specialists from voluntary standard organisations) inform the theory development in this paper.

I proceed as follows: the following two sections develop the discourse theoretical approach, building on existing literature on commodification and market creation in sociology and human geography; the subsequent sections discuss to what extent avoided deforestation has been qualified, commensurated, and legitimised, and whether it can be successfully disentangled.

2. Discourse-Theoretical Points of Departure

Poststructuralist discourse theory takes a number of assumptions from structuralism. In his structural linguistics, Saussure (1966) argues that a signifier does not have any natural meaning that derives from the object it is describing. The meaning of the signifier is constituted through differentiations from other signifiers. Meaning is produced relationally. Poststructuralist discourse theory acknowledges this, yet goes beyond structuralism by arguing that the way objects are discursively related to one another is not fixed. Rather, these discursive representations are fragile and have to be continuously reproduced. Hence, there is always the possibility for change in discourses. For Laclau and Mouffe, whose discourse theory this discussion builds on, any structuring activity that produces meaning – referred to by them as articulations (Laclau and Mouffe, 2001: 105) – is an element of discourse. This definition of discourse covers both linguistic as well as non-linguistic practices (Laclau, 2005: 68). This does not question the existence of a real world or the materiality of nature (FitzSimmons ,1989; Bakker and Bridge, 2006), but argues that these aspects can only gain meaning for us through discursive representation.

There are two central types of relations that can exist between elements in a discourse: the relation of difference, and the relation of equivalence. These are described by the logic of difference, and the logic of equivalence. The former refers to the fact that all signs – all elements in discourse – are different, meaning they are non-identical to each other. Together with the

logic of equivalence it enables us to generate meaning. In case of the logic of equivalence, elements are being equated – they are being put into a chain of equivalence. Making the elements in this chain equal separates them from the elements that are not part of the chain, which at the same time function as the constitutive outside. Take family relations as an example. 'Father' shares relations of difference with 'mother' and 'daughter' as the three are distinct from each other. However, at the same time they share relations of equivalence, putting them into a chain of equivalence and hence separating them from people – e.g. neighbour – that are not part of the family. As this example also shows 'father', 'mother' or 'daughter' themselves only obtain their meaning through the discursive relations they are in (Methmann 2010).

Poststructuralist discourse theory accounts for possible changes in meaning. If articulations are being continuously reproduced, the meaning constituted through them becomes more and more sedimented, and eventually naturalised. Something is not questioned anymore; it is regarded as truth. With regard to a discourse as a whole, we can talk about discursive closure. Yet this closure cannot be permanent. There can be events that destabilise it, given that the framing of these events does not fit into the structure of the (temporarily) closed discourse, and challenges its integrity. These dislocations open up the possibility to radically change a discourse and the meaning it constitutes. With regard to the previous example, we only have to think about patchwork families or families with same-sex parents to realise that the meaning of 'family' has changed over time.

The permanent structuring and restructuring of discourses constitutes our social reality – the social as Laclau and Mouffe call it. They define it as the everyday practices we follow, and the customs and routines we have developed – as individuals and as society. What makes customs customs, and turns routines into routines, is the fact that they are so deeply sedimented into life that they become naturalised. They are no longer questioned; they appear as if they have always been there. The contestations that take place to establish new routines in contested fields, or calling established routines into question, is what Laclau and Mouffe define as the political. It is the sphere in which people struggle about the constitution of particular meanings. The political is characterised by antagonistic relations between actors trying to shape the social.

To give an example: the increasing awareness about environmental problems during the 1970s, and the arising debate about the limits to growth, did not fit, and hence presented a dislocative moment in relation to the sedimented (the social) thinking and practices in the discourse concerning the economy. In the ensuing struggle (making it part of the political) about the meaning and consequences of this, the idea of sustainable development was put forward and eventually prevailed. Today, the concept has spread into different fields, and

has become part of common knowledge and daily routines (making it part of the social). This stabilised the discourse, reconciling most of the initial tension between the economy and the environment.

3. Developing a Discourse Theoretical Perspective on Commodification

Perceiving markets as social structures – initiated by political decisions and based on different social practices – is a position with strong precedent in the social sciences (see Smelser and Swedberg, 2005: 3–25). Developing a discourse theoretical approach, this paper draws on recent work on the sociology of markets (see Fligstein and Dauter, 2007; Engels, 2009), and the literature on the commodification and materiality of nature (see Prudham, 2009).

From Laclau and Mouffe's perspective, an established market (e.g. the market for gold) is part of the social. It is a set of deeply sedimented practices that has become naturalised over a long period of time. Markets that are being newly created (e.g. markets for ecosystem services) begin as part of the political: they do not yet have developed routines and various aspects – perhaps even the question whether it is desirable thing to have such a market – are still being contested. For a market to function, and an object to become commodified, these contestations must be pacified. A discourse theoretical approach enables us to highlight these struggles, and identify contesting perspectives that are being marginalised during market creation. This helps unpack what Marxist scholars call the commodity fetish: the obscuring of the social relations of production when a good is exchanged on the market (Prudham, 2009: 132, Kosoy and Corbera, 2010: 1230).

Following the literature on the sociology of markets, several conditions have to be met in order for an object to become a commodity: the object has to be qualified; it has to be made commensurable; and it has to be disentangled. Furthermore trading this object has to be perceived legitimate (Engels, 2009: 71–73).

Having attributes and characteristics that are shared among market participants is a necessary prerequisite for an object to become tradable. An object obtains such characteristics by what market sociologists call processes of qualification. Knowledge about an object's qualities must be socially established and shared, as people tend to be unwilling to buy something, if they are not sure what they are getting (Carruthers and Stinchcombe, 1999: 357). Read from a discourse-theoretical perspective, the process of qualification is similar to any other process of generating meaning. For an object to obtain meaning it has to be discursively represented.

We cannot trade something that we cannot think of or talk about. The relational positioning of a discursive object, the multitude of articulations about it, develops its identity. Bringing it into a chain of equivalence with other discursive elements means that we are drawing on the qualities and characteristics already articulated for these other objects, thereby transferring some of their qualities onto the new element. This process is mutually constitutive: new objects are given characteristics because they are, or are not, equated with existing elements. On the other hand, the qualities of existing elements can be reshaped through these articulations as well.

Furthermore tradable objects have to be commensurated: 'commensuration is the expression or measurements of characteristics normally represented by different units according to a common metric' (Espeland and Stevens, 1998: 315). At this point in the process of commodification, the qualitative characteristics of an object, established through the process of qualification, must be converted to a quantitative measure – via a comparable ranking, ratio or price. When an object is commensurated, information about some of its qualities is discarded, while information about other of its qualities is organised into new forms (Espeland and Stevens, 1998: 317).

From a discourse-theoretic perspective, the process of commensuration can be described as a reduction of the number of existing articulations that constitute the meaning of an object. Reproducing only particular articulations while neglecting others, repositions the object in a way that makes it directly comparable with other objects that have similar characteristics. Only certain characteristics remain in focus, as others are obscured. Often, only one characteristic remains – serving as the unit of measurement between different objects being commensurated. It is the black box that swallows or excludes all other characteristics.

For a good to be not just exchanged between two people, but traded on an ongoing basis among many actors, these discursive operations have to become consensual to a degree and need continuously to be reproduced. There has to be coherence in the way people relationally position an object. If there are contradictions or tensions between these positionings, the meaning of an object remains unstable preventing continued exchange. What is necessary is a closure of discourse. The relational positioning of the object and the practices through which it is being commensurated have to become discursively sedimented and naturalised. Only if a certain degree of discursive fixation is achieved can an object be continuously traded. One could speak of discursive disentanglement: coined by Callon (1998: 19), the term refers to the disentangling of an object from its immediate context. It has to become something delimitable, an object of its own that does not require the constant existence of its creator (Engels, 2009: 71–72). While the first articulations about an object might be made by its creator, the reproduction of these articulations by other discourse participants, and finally a sedimentation

of the meaning resulting from them, renders the original speaker obsolete. Itemisation (Kosoy and Corbera, 2010: 1231), or individuation and abstraction (Castree, 2003: 280–281), is conceptually similar to disentanglement, and is found in the commodification of nature literature.

The fourth prerequisite for the commodification of an object is the legitimisation of its trading. Sellers, buyers and other parties must perceive the object as legitimately tradable. If there are substantial normative reservations about an object, it is not likely to be commodified. This can be the case if objects are morally or emotionally charged (Zelizer, 1983, Engels, 2009: 72). From a discourse theoretical perspective, an object's perceived legitimacy as tradable depends on the object's sedimented relational positioning, and the way the object relates to other discourses.

Using a discourse theoretical perspective to analyse commodification and market constitution has advantages over existing approaches, like ANT and the materiality of nature literature. There is no doubt that technologies can cause unexpected events and have an actant character or that certain aspects of nature might be more uncooperative than others in attempts to commodify them (Bakker, 2005, Bumpus, 2011). But what ultimately matters is how actors make sense of such events and how they then act upon it. This is where a discourse-analytical perspective provides additional insights. Not only does it help explain how the idea of creating a market for something like avoided deforestation is constructed as rational thing, but it lets us come to grasp with the messy commodification process itself, and the micro-dislocations that occur on the way. With its sensitivity for contingency and contestedness, a discourse-analytical perspective highlights the political dimensions of the process – an aspect overlooked by existing approaches.

4. Qualifying Avoided Deforestation

Let us now turn to the application of the framework, beginning with the multiple layers of qualification involved. The following subsections discuss: the emergence of the rationale for REDD+; the continuous broadening of what REDD+ stands for; and the question of what constitutes a quality forest carbon credit.

4.1 The rationale for REDD+

The first steps of qualification are the construction of avoided deforestation as an object of being, and the articulation of avoided deforestation as an important climate protection measure. The discursive links made between forests and the climate system date back to the origins of the scientific debate on climate change (Arrhenius, 1907: 51–52). During the 1960s and 1970s, when scientific discourse on climate change fully emerged, forests were articulated as carbon sinks – storage sites for carbon in the climate system (e.g. Harris et al., 1975, Hampicke, 1979). But the discursive construction of forests was not limited to sinks. Scientists began to discuss deforestation, particularly deforestation in the tropics, as a source of anthropogenic greenhouse gas emissions. This qualification of forests as sinks, and deforestation as source of greenhouse gases (in particular, the role of tropical forests), can also be found in the IPCC's first assessment report. It is prominently featured in the summary for policymakers of both the Working Group One and Three reports (IPCC, 1990a: xxxii, 1990b: xliii).

While the discursive articulation of tropical deforestation as a key driver of anthropogenic climate change had been widely reproduced in scientific discourse, it was largely sidelined in the international climate policy realm. During the 1992 Earth Summit, the international community could not agree on a forest convention to address the issue. Neither did the Framework Convention on Climate Change, adopted at the time, substantially address the problem.[3]

It was within the Kyoto Protocol that avoiding deforestation began to play a gradually more important role. Together with afforestation and reforestation, avoided deforestation was specifically mentioned in the Protocol text. Yet, the text primarily refers to industrialised countries, which have to account for additional emissions, or removal of emissions, through afforestation or deforestation, in order to achieve their emissions reductions goals (UNFCCC, 1997: §3.3). With regard to tropical deforestation, the CDM became an important issue. A heated struggle evolved around the question of whether afforestation, reforestation or avoided deforestation projects should be eligible project categories under the CDM, and if so, what technical and methodological criteria those projects must fulfil. This conflict was not resolved until the adoption of the Marrakech Accords in 2001, which approved afforestation and reforestation while excluding avoided deforestation (UNFCCC, 2001: 11CP7).

The opponents of the inclusion of forest carbon projects – mainly the EU, a large number

3. The convention asks its signatories to monitor and report on 'sinks and reservoirs of … greenhouse gases' (UNFCCC 1997, §4.1(a)). This implicitly includes forests. There is only one direct reference to deforestation in developing countries, consisting of a call for funding and technology transfer to help developing countries, with 'forested areas and areas liable to forest decay' (UNFCCC 1992, §4.8).

of developing countries and most major international environmental non-governmental organisations (NGOs) (excluding US-based conservation organisations) – had two major points of concern, particularly with regard to avoided deforestation: one was a moral issue concerned with the question of responsibility and burden sharing (discussed in detail in the section on legitimation), while the second was concerned with technical aspects as the accuracy of measurements and the permanence of emissions reductions (discussed in the sections on qualification and commensuration) (Schlamadinger et al., 2007: 278; Lövbrand, 2009: 409). As these critical articulations were widely reproduced, the discourse did not stabilise in a way that would have allowed the commodification of avoided deforestation within the CDM.

The wish to turn avoided deforestation into a tradable object did not vanish with the exclusion of avoided deforestation from the CDM. It was reintroduced into international climate negotiations, through a submission to COP 11, by the Coalition for Rainforest Nations lead by Papua New Guinea and Costa Rica. The submission articulated deforestation as one of the most pressing issues in the quest to tackle global warming, by labelling it: 'the single largest source category of emissions in the developing world' (Papua New Guinea and Costa Rica, 2005: 3–4). 'Without a more complete market valuation', the submission argued, 'standing forests cannot overcome the economic opportunity costs associated with their conservation' (Papua New Guinea and Costa Rica, 2005: 7).

This proposal sparked a major discussion. Initially pushed by an actor coalition consisting of few tropical developing countries, a number of North-American conservation NGOs (e.g. Conservation International, The Nature Conservancy, The Rainforest Alliance), and various carbon market consultancies, the issue was soon picked up and supported by a broad variety of other state and non-state actors. Today, actors like the World Bank (with its Forest Carbon Partnership Facility) and Norway (which has put up several billion Euros to get REDD+ off the ground), funding initiatives such as UN-REDD (a cooperation between various UN agencies working on avoided deforestation), are important players. With its inclusion in the Bali Action Plan (UNFCCC, 2007: 1CP13) in 2007, REDD+ has become a key element of international climate policymaking.

4.2 From RED to REDD++

Let us now turn to the more specific aspects of the qualification process. Focusing on the recent discourse on avoiding deforestation, one of the issues that has been very much in flux is the scope of REDD+ – the aspects a REDD+ mechanism is supposed to account for. By equating more and more aspects into a chain of equivalence, REDD+'s meaning has been

constantly broadened. Starting by reference to deforestation in terms of declining forest area (Reducing Emissions from Deforestation – the title of the original submission to COP 11), measures against decreases in forest quality (Reducing Emissions from Deforestation and [forest] Degradation), and the 'enhancement of carbon stocks' through afforestation, reforestation and sustainable forest management measures (REDD+), have subsequently been added (Angelsen and Wertz-Kanounnikoff, 2008; Wertz-Kanounnikoff and Kongphan-apirak, 2009). Different actors have attempted to position different approaches as the most suitable way to address the issue. India, for example, having no net-deforestation, and expanding its forest cover through afforestation measures like plantations – a particularly controversial strategy – tried to equate its approach with avoiding deforestation measures. It proposed, and lobbied for, the REDD+ approach in the UNFCC negotiations (Okereke and Dooley, 2010: 89). Even though REDD+ was eventually adopted during COP 15 as the scope for a future UNFCCC mechanism, this has not ended the contestation. Labelled as a 'landscape approach', or REDD++, the latest proposals call for the inclusion of other land use changes, including agriculture. It remains to be seen whether UNFCCC parties will decide to broaden the scope again. Under the VCS, deforestation, degradation and sustainable forest management can be credited as REDD+ – though it is up to the developer to decide which elements should be accounted for in each particular project.

4.3 Making quality avoided deforestation credits

Let us now turn to the question of what credit buyers perceive to be a good quality avoided deforestation credit, and how those qualities are being achieved. In this context, three aspects are generally articulated as important: the baseline construction; the way in which a REDD+ project addresses leakage; and permanence. None of these aspects are tangible. Therefore, it is important to understand how approaches to address these aspects are discursively positioned. It currently remains unclear what standards or approaches will be used for a mandatory REDD+ mechanism at the UNFCCC level.

Let us consider case the baseline in more detail. Also called the business as usual scenario, the baseline makes hypothetical assumptions, and counterfactual arguments, about what would have happened to the forest in a country (in the case of national approaches), or within a project area, in absence of REDD+ measures. Reduction credits are issued depending on how actual development compares to this baseline scenario – but the baseline itself cannot be measured or monitored. Either the baseline is calculated on the extrapolation of historical de-

forestation rates, or on predictions about the future development of a forested area, including estimates about population development and infrastructure changes (e.g. the construction of a new road). There are contestations regarding which of these approaches to use in which context. For their readiness efforts, UN-REDD calculates the baseline using the extrapolation of historical deforestation rates, while the World Bank calculates the baseline using predictions about future development of forested areas (Westholm et al., 2009: 77). It is unclear whether these two approaches can be reconciled within a final mechanism under the UNFCCC or which, alone, will prevail.

Though there is contestation about the most appropriate way of calculating the baseline scenario, all but very few actors (those generally opposed to carbon offsetting, e.g. NGOs like Friends of the Earth or Carbon Trade Watch), believe that these counterfactual methods are a sound way to calculate emissions reductions. This marks a significant departure from the discussions at the Kyoto and Marrakech negotiations, during which most actors were concerned that this could not be done in a sound way. Through experience with the CDM, and the development of a carbon industry (Voß, 2007), where counterfactual baselines and modelling are a part of the daily routine, these practices have become sedimented and naturalised, and are no longer questioned.

Many aspects, and problems, regarding baselines in REDD+, are similar to those in the CDM (see Lohmann, 2005). However, if one compares baselines in afforestation and reforestation CDM projects with proposals for baselines in the REDD+ context, it is clear that the latter depend to a much greater extent on hypothetical assumptions. The issuance of credits in afforestation and reforestation projects depends on the number, and the growth, of planted trees – a measurable quantity. Baseline scenarios in REDD+, however, are predominantly calculated using hypothetical assumptions. Hence, in the less regulated, voluntary carbon market, where a variety of approaches coexist, the ability of the project developer to discursively position the chosen baseline as convincing and acceptable becomes even more important:

> some smart consultant sits down and says I have somehow proven that a lot of pressure will be [on a particular forest area], because of this road that will soon be built there. And then purely based on theory he will receive [a lot of credits] because it is all about hypotheses.
>
> (Interview, forest specialist, voluntary market standard organisation, June 2011)

Whether or not the baseline is constructed in a way that is convincing – congruent with the dominant positioning in the discourse – is one of the key factors determining if actors will accept the credits generated through such a project and perceive them as being of good quality.

5. Commensurating Avoided Deforestation

From the different layers of qualification, let us now turn to the commensuration process. In the case of REDD+, commensuration is geared towards an already established metric: the tonne of carbon dioxide equivalents or tCO_2e (for a detailed discussion see Paterson and Stripple this issue).

To be able to commensurate avoided deforestation, and calculate the emissions reductions in tCO_2e, we have to know a forest's carbon stock. In combination with the baseline scenario, the estimated forest carbon stock determines the number of emissions reductions generated by a project. To know how much carbon is stored in a forest, we have to be able to measure it – making the measurement of forest carbon a key prerequisite for commodifying avoided deforestation.

Thus far, there are no technological devices that allow the direct measurement of forest carbon. Instead, a forest's carbon content is estimated based on the forest's biomass. The three approaches currently in use for determining a forest's biomass – increasingly deployed in combination – are: forest inventories; biome averages; and remote sensing. Depending on how each is applied, these measurement approaches vary greatly in the effort required to obtain, and the accuracy of, their respective results (Gibbs et al., 2007).

So far, estimates of emissions from tropical deforestation have mainly been made based on biome average datasets (Westholm et al., 2009: 29). Gibbs et al. (2007) have compared different available data sets, using each to compute the carbon stock in tropical developing countries, with significant differences in the respective results. The highest and lowest estimates differ by 51% in the case of Brazil, 79% in case of the Congo and 149% in the case of Indonesia. Converted into tonnes of carbon dioxide equivalent (tCO_2e), the difference in Brazil amounts to 102.7 billion tonnes. Such variance does not dislocate the structure of the natural science community, as differing results, and disputes about accuracy and appropriateness of different approaches, belong to its routines. It does, however, present a challenge from a carbon market perspective; here, there is a significant difference between claiming 50, 100 or 150 tCO_2e for protecting a patch of forest. The process of commensuration cannot allow such a range of results. One measurement approach must prevail, or as Robertson (2006: 368) puts it: 'scientific debates … must be silenced so that ecological information can be intelligible in the logic of capital'.[4]

4. In his work on wetland banks, Robertson (2000, 2006) describes similar problems faced by ecologists conducting field inventories in wetlands. While uncertainty in the form of non-identifiable plant species is accepted in a scientific context it poses problems if the inventory is conducted to make the wetland commensurable for commodification.

Since this already presented a problem during the Kyoto negotiations, the IPCC was mandated by the UNFCCC to review existing approaches (IPCC, 2000). In this context, the IPCC compiled good practice guidance (Penman et al., 2003; Aalde et al., 2006) with respect to measuring and monitoring forest carbon. This is the key reference in the discourse for actors both within the UNFCCC negotiations, and involved in voluntary standards – helping, to some extent, to pacify the contestations about appropriate measurement approaches. The IPCC proposes a three-tiered approach, outlining for each particular context which method would be adequate for measuring forest carbon (Aalde et al., 2006: 11).

What also seems to have emerged within the discourse, and addressed in several of the conducted interviews, is a principle to use the lowest and most conservative carbon estimates for a given forest. This ensures the highest credibility for generated credits, helping to appease critics. At the same time, however, this results in only being able to claim the fewest credits for avoided deforestation efforts in a particular forest – an amount likely lower than the equivalent emissions actually being reduced. This puts all the extra cost and burden of ensuring their credibility, where the credits are being generated – an aspect not all stakeholders might be fond of. This forces REDD+ project developers into an economic optimisation game, trying to balance the cost of reducing uncertainty by refining measurement approaches with its benefits – the possibility of claiming a higher amount of emissions reductions (Köhl et al., 2011: 17).

5.1 The carbonification of forests[5]

Prior to discussing to what extent the qualification and commensuration processes have been successful, let us consider the consequences of these practices. A forest can be countless things, and have infinite purposes and meanings. Forests are understood as home, the origin of one's livelihood, a source of wood that should be commercially exploited, a site of biodiversity or a recreational space. These meanings depend on how forests are represented in discourse. The multifaceted meaning of forest is produced through many different articulations, making up a forest's field of discursivity. Depending on which articulations are being reproduced in a given situation, the relational positioning of forests, and hence their meaning, change.

In making avoided deforestation commensurable – by converting avoided deforestation

5. I borrow this term from Mert (2009) who has used carbonification to describe the re-articulation of environmental discourses according to a climate change logic.

into emissions reductions – the multiplicity of meaning is drastically reduced. Only certain articulations about forests are reproduced: those articulations that discursively position forests as carbon stocks. The measuring procedures mentioned above are one type of discursive practice that repositions forests in such a manner. The result is that only the carbon characteristics of a forest remain. Everything else (e.g. forest as biodiversity hot spot) loses meaning; the forest becomes carbonified. And a carbonified forest stands solely as carbon stock measured in hundreds of tonnes of emissions reductions. Carbonification is thus the fetishising effect of the carbon market (Kosoy and Corbera, 2010: 1230).

The reduction of meaning, by focusing on a forest's carbon characteristics, makes a patch of forest commensurable on the carbon market. Given that different carbon trading mechanisms are interlinked, a hectare of forest in the

Brazilian Amazon not being cut down is suddenly commensurable with the emissions of a coal fired power plant in Britain, a blast-furnace in Germany, a cement plant in India or a wind farm in China.[6]

Carbonification will likely produce effects that contradict claims about the multiple benefits of REDD+ (e.g. the protection of biodiversity or indigenous peoples' livelihoods). An interlinked compliance market, where forests are solely articulated as carbon stocks, generates investment decisions that no longer reflect the multiple meanings of forests. From a compliance market perspective, for instance, it does not matter if a wind turbine is built to compensate for emissions reductions lost via clearing a patch of forest. From a biodiversity perspective, however, there is a considerable trade-off involved.

6. Avoided Deforestation: Successfully Disentangled?

As the previous sections on qualification and commensuration have shown, the discourse on avoided deforestation has progressed towards commodification ever since the Marrakech negotiations. Many of the issues that appeared to be problematic then have been re-articulated. Even though there has yet to be a decision on the funding of REDD+ at the UNFCCC level, we are seeing an incremental closure of the discourse, increasing the possibility that avoided deforestation will become tradable within a compliance market. With regard to some issues, however, the discursive closure necessary to fully disentangle avoided deforest-

6. In the current patchwork of partially interconnected systems, commensurability is limited by few linking agreements and restrictive fungibility rules. The EU ETS, for example, thus far has been linked to the CDM but has not been accepting credits from forestry or nuclear power projects.

ation has yet to be achieved. For example, it is unclear whether the most conservative approach to measuring forest carbon is a practice that will become sedimented.

It is of major importance how the remaining contentious points will be resolved. Permanence, for example, was a crucial issue during the Kyoto and Marrakech debates (and still is). To address concerns regarding the risk of non-permanence, a separate credit category was created for afforestation and reforestation CDM projects – temporary certified emissions reductions (tCER). Trying to ensure that a credit generated through a forestry project would be permanently backed up by real reductions, negotiators decided on tCERs, which have to be renewed every five years. But, including this temporality component, in addition to the carbon value a credit represents, poses a significant problem for commensuration. Market participants do not know how to deal with this temporality, making it hard to find credit buyers for afforestation and reforestation projects. This is a key reason why forestry projects play such a marginalised role in the CDM, and are expected to constitute just 0.8% of the total CER volume by 2012 (UNEP Risoe, 2011). Within the voluntary market, a different way of addressing the issue of permanence has emerged, avoiding the commensuration problems with tCERs. Drawing on practices from insurance discourses, the leading voluntary standards (VCS, 2007: 32–37; Plan Vivo, 2008: 41; CarbonFix, 2009) have each come up with a buffer system, in which a certain share of credits generated through each project is being placed. If a project defaults, this buffer will back up its credits. Within this approach, the generated credits only represent a carbon value, and do not include temporality aspects that have made commensuration so complicated for tCERs. The VCS is using this approach for its REDD+ projects, where it has been applied to the Wildlifeworks REDD+ project. It is yet unclear whether this approach will also be picked up within the UNFCCC.

The case of afforestation and reforestation also tells us what happens if full disentanglement cannot be achieved. As tCERs were not accepted by buyers (and are currently banned from entry into the EU Emissions Trading Scheme), there was no chance to sell credits that could be used for compliance reasons. Hence, the forestry credits that were generated were used for marketing and CSR reasons. Buyers purchase these credits because they are: 'easier to communicate than other types of offsets, as well as visually compelling through images of forested ecosystems, thereby potentially yielding brand-enhancement benefits' (Waage and Hamilton 2011: 6). For these projects, the ability to claim positive, so-called co-benefits (e.g. the protection of biodiversity and indigenous people's livelihoods) is at least as important as the actual emissions reductions. Lovell et al. (2009: 2370) argue that this makes these credits more tangible for consumers. The price that can be realised for credits depends, to a large extent, on how well a project can tell a convincing story through the use of interactive maps, colourful pictures or videos.

> One Dollar to seventeen Euros. These are price spreads that you don't see in a normal product … It is incredible how broad this price range is, for a product that only depends on the story behind it.
>
> (Interview, forest specialist at a voluntary market standard organisation, June 2011)

With the need to constantly tell the story behind the credits in order to realise their value, these credits have not become fully disentangled. This explains why these credits are not being traded on the secondary market, but instead tend to be directly 'consumed' by the initial buyer. As a result of this incomplete commensuration process, these forests are not fully carbonified. Instead of obscuring all the other meanings of forests, these projects only realise a price for their credits because a chain of equivalence is being maintained between the forests' ability to store carbon and some of its other meanings.

7. Becoming a Legitimate Mitigation Option

There have been various observable shifts in the discourse on avoiding deforestation between the Kyoto and Marrakech negotiations and today (Stephan, 2012), rendering commodifying avoiding deforestation as a legitimate approach. One such shift I would like to highlight is the moving focus within the discourse from the moral argument about the responsibility of industrialised countries to the generation of low-cost emission reductions, irrespective of their origin.

Avoided deforestation projects have always been perceived to generate large-scale emissions reductions at relatively low costs. At the time of the Marrakech negotiations, this posed a significant problem. Many critiques argued that such projects would allow industrialised countries to cover their reduction commitments without taking significant domestic measures. This would result in a delay of reductions in the other sectors, hampering innovation and prolonging carbon lock-in. Furthermore, this would effectively undermine the principle of common but differentiated responsibilities stated in the preamble to the framework convention (UNFCCC, 1992), as these emissions reductions would be generated in developing countries. The fact that avoiding deforestation projects in developing countries will provide low-cost reduction credits to industrialised states is no longer being problematised. Instead, the argument goes, these low-cost offsets allow industrialised countries to take on higher reduction commitments (e.g. Eliasch, 2008: xii). Today, very few actors remain opposed to REDD+. During the Kyoto and Marrakech negotiations, the EU, many developing countries and most big international environmental NGOs, blocked the inclusion of avoiding deforest-

ation into the CDM. But these days, only Bolivia (see for example Morales, 2010), a number of indigenous rights groups (Cabello and Gilbertson 2010, Indigenous Environmental Network, 2010) and a few international environmental NGOs (e.g. Friends of the Earth, 2008), are fundamentally opposed to REDD+.

8. Conclusion

I have here developed a discourse-theoretic approach to the process of commodification and market creation, and applied this approach to attempts to commodify avoided deforestation. The analysis shows that, compared to existing approaches such as ANT and the commodification of nature literature, this approach presents us with additional insights – particularly concerning the contingency and contestedness of commodification processes. I discussed to what extent successful qualification, commensuration and legitimation of avoided deforestation – necessary for a successful commodification – have taken place. Even though an agreement within the UNFCCC about the funding of REDD+ has not yet been reached, the analysis has shown that there has been an incremental closure of discourse on many controversial issues since the Marrakech negotiations, making the commodification of avoiding deforestation increasingly likely. However, I also highlighted various unresolved issues, which impinge upon the successful commodification of avoided deforestation, e.g. the treatment of permanence where the currently institutionalised approach of temporary credits significantly limits the disentanglement of forest carbon credits. Furthermore I demonstrated that should REDD+ be successfully integrated into the compliance end of the carbon market, forests will be carbonified; through the commodification process, forests will be re-articulated in a way that obscures their multiplicity of meanings, rendering only their carbon qualities visible.

I have also highlighted a number of aspects which are of particular relevance to the more policy-oriented debates in environmental politics. With regard to REDD+, I have pointed to the consequences of carbonification: as non-carbon qualities, e.g. biodiversity, are rendered invisible, the market pays no attention to them, and thereby potentially creates undesired side effects. Policymakers should take this into account when designing a REDD+ mechanism. As there is no real chance to fully adjust for this effect, it would be advisable to broaden the focus and consider non-market approaches to avoiding deforestation more intensively.

More generally, I have shown that carbon markets are very complex and go way beyond simple ‘let’s set a baseline and credit’ or ‘let’s set a cap and then trade’. They are based on a

multitude of assumptions and routines which, once established, mark the end – at least temporarily – of contested processes. It would be desirable to make these processes more transparent and to translate the technocratic lingo into language that all stakeholders and the public can understand, for it is these assumptions and routines which define the structure of the market and hence the distribution of power within it, and ultimately determine who wins and who loses.

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6

How to Trade 'Not Cutting Down Trees'

A Governmentality Perspective on the Commodification of Avoided Deforestation

1. Introduction[1]

Protecting tropical rainforests – and thereby *Reducing Emissions from Deforestation and Degradation* (REDD+) in developing countries – has become one of the 'hot topics' within global climate governance. A REDD+ mechanism was first proposed in a 2005 submission to the UNFCCC by the Coalition for Rainforest Nations. Today, the topic receives broad support from most UNFCCC parties, and from a wide variety of non-state actors. Even with broad agreement that REDD+ should consist of performance-based payments that compensate for the opportunity costs of avoided deforestation, the exact details of the mechanism have yet to be finalized within the UNFCCC. Such payments could be realized through a fund, or through the integration of REDD+ into the carbon market. In the latter case, REDD+ credits could be used by industrialized countries, and companies, to fulfil their respective international and domestic emissions reduction requirements. While a final agreement within the

1. The research for this chapter was supported through the Cluster of Excellence 'Climate System Analysis and Prediction' (CliSAP) (EXC177), University of Hamburg, funded by the German Science Foundation (DFG). I had the chance to write it, while I was a visiting scholar at Lund University, Sweden, funded through its strategic research area 'Biodiversity and Ecosystem Services in a Changing Climate' (BECC). I would like to thank Lund University's Environmental Politics Research Group – in particular Johannes Stripple and Karin Bäckstrand – as well as Chris Methman, Delf Rothe and two anonymous reviewers for helpful comments on earlier versions of this chapter.

UNFCCC is still missing, institutions like the World Bank's Forest Carbon Partnership Facility and UN-REDD are conducting pilot and capacity building projects. And the first voluntary carbon market REDD+ projects have started to issue credits (Volcovici, 2011). This chapter focuses on the integration of REDD+ into the carbon market, as a trading mechanism will very likely form at least part of the final REDD+ mechanism.

During the past 15 years, creating markets has become a widespread, broadly accepted approach in global climate governance. As the example of the CDM shows, these markets are expected to reward project developers for implementing technologies that reduce greenhouse gas emissions. The case of REDD+ strikes the casual observer as particularly odd: in this context, doing nothing – 'not cutting down trees' – is turned into a commodity. This chapter investigates this peculiarity, and tries to solve the following research questions: how is avoided deforestation being made tradable? What steps are being taken to make not-cutting-down-trees a commodity that can be sold to a fund, or traded on the carbon market?

Governmentality scholars have described the increased use of market tools in the climate policy realm as a shift from biopolitics to advanced liberal government (Oels, 2005). Such tools have been acknowledged as central elements of a 'global carbon governmentality', where they function as 'technologies of agency and performance' (Methmann, 2011: 12). Despite a rich governmentality literature on global climate governance in general,[2] and on carbon markets in particular (Bäckstrand and Lövbrand, 2006; Lovell and Liverman, 2010; Paterson and Stripple, 2010; Methmann, 2011; Paterson and Stripple, 2012), there is a lack of literature analysing the process of commodification and market creation from a governmentality angle.[3] This chapter tries to close this gap by developing a governmentality perspective on commodification itself, drawing on insights from the sociology of markets (Fligstein and Dauter, 2007; Engels, 2009) and the commodification of nature literature (Prudham, 2009). Furthermore, I identify a number of advantages to using a governmentality approach to scrutinize the commodification process.

With regard to methodology, my research has followed a retroductive approach (Glynos and Howarth, 2007). Beginning with an active problematization (What must be done in order for avoided deforestation to be successfully commodified?), I iterated between the empirical material and the development of an analytical approach, drawing on Mitchel Dean's (2003) analytics of government, a heuristic based on Foucault's governmentality lectures. In addition to using primary sources (IPCC reports, UNFCCC negotiation texts and submissions,

2. For an excellent overview of the climate governmentality literature see Rothe (2011).

3. In an earlier article on the commodification of avoided deforestation (Stephan, 2012b) I developed a discourse theoretical perspective on commodification drawing on Laclau and Mouffe's (2001) hegemony and discourse theory. This chapter builds on some of the same empirical material.

voluntary market documentation and manuals) and secondary literature, interviews with stakeholders in the forest carbon market (consultants, verifiers, forest specialists from voluntary standard organizations and developers) provided important background information for developing the theoretical perspective.

The chapter proceeds as follows: first, a governmentality perspective on commodification is developed. Second, this perspective is applied to the case of REDD+. By outlining how the rationale for the commodification of REDD+ emerged, I discuss how measurement and accounting practices create a particular field of visibility – allowing for the commensuration of avoided deforestation. I continue by highlighting how many of these practices depended on the appearance of a new type of subjectivity: the carbon forester. The chapter closes by discussing the degree by which avoided deforestation currently presents a disentangled commodity.

2. Making Governmentality Studies Fruitful for the Analysis of Commodification and Market Creation Processes

Foucault developed his governmentality concept in a series of lectures (Foucault, 2007, 2008), in an attempt to understand the character and genesis of modern forms of rule. He suggested that modern forms of rule no longer relied primarily on sovereign power – repressive, and tied to the sovereign centre. Instead, Foucault focused on the indirect and the productive aspects of power – which he called government. Foucault's understanding of government can best be described by the expression 'conduct of conduct' (Gordon, 1991: 2). This definition includes both the self-conduct of individuals, as well as the conducting others (Foucault, 1982: 789–790).[4]

Foucault neither developed a full-fledged theory of governmentality, nor did he provide a manual on how to apply his concept methodologically. Despite this, governmentality has seen wide reception within social sciences. For the purpose of this chapter, I will draw on Dean's (2003) analytics of government. It is a practical heuristic, developed by Dean using Foucault's lectures, for analysing different regimes of practices (e.g. the way we try to govern and regulate deforestation). Dean's approach has been applied within a number of governmentality studies – including the field of climate governance (Oels, 2005; Paterson and Stripple, 2010). In his analytics of government, Dean outlines four dimensions for determin-

4. For a more detailed introduction see Chapter 3 by SimonWolf.

ing how a particular phenomenon is governed, and for determining the effects a given mode of governing entails. These dimensions are: (1) rationalities and forms of knowledge, (2) technologies of government, (3) fields of visibility and (4) identities (Dean, 2003: 30–33). Every regime of practice is based on particular rationalities and forms of knowledge. These underwrite concrete governmental technologies, deployed to reach specific goals – or policy tools, as the mainstream literature calls them. Creating markets – such as emissions trading schemes – to regulate particular behaviour is a widely adopted strategy in advanced liberal government settings. Dean's third dimension refers to the fact that, depending on how an issue is made governable, certain aspects of the issue move to the centre of attention, while other aspects are ignored and become invisible. Hence, every form of governmentality generates its particular field of visibility. With the fourth dimension, Dean's heuristic points us to the nexus of structure and subject: every regime of practice generates particular forms of subjects (e.g. the 'entrepreneur of himself' (Foucault, 2008: 226) in advanced liberal government), but also depends on specific roles to be filled, in order for the regime to function.

As mentioned before, the governmentality concept has inspired assessments in a wide variety of policy fields. Based on Foucault's lecture series, many of these studies identified forms of advanced liberal government, and highlighted the importance of creating markets as governmental technologies. This focus has resulted in the criticism that governmentality studies have become analytically depleted (Keller, 2010: 44–48); like a self-fulfilling prophecy, say the critics, governmentality studies only find forms of advanced liberal government in ever more deeply social contexts (Rothe, 2011: 2). I do not fully share this critique. However, it is interesting to note that despite this emphasis on advanced liberal government, governmentality studies have yet to develop an understanding of what occurs when new markets are being created and previously uncommodified goods are being commodified.

This chapter will take the first steps to develop a governmentality perspective on the creation of markets. The aim is to understand how the implementation of this technology of government works, and how commodification takes place. I will disassemble Dean's heuristic, and use the rationality, field of visibility and subjectivity dimensions to understand how the market – the technology dimension, of this regime of practice – is being constituted.

To think about commodification from a governmentality perspective, one needs not start from scratch. The sociology of markets (Fligstein and Dauter, 2007; Engels, 2009), and the literature on the commodification of nature (Prudham, 2009), have generated interesting insights, which I draw upon in order to develop a governmentality perspective.

Following the literature on the sociology of markets, the following tasks must be performed successfully in order to turn an ordinary object into a commodity: qualification, legitimization, commensuration and disentanglement. An object has to be qualified, meaning

knowledge of its attributes and characteristics must be socially established and shared through processes of qualification (Carruthers and Stinchcombe, 1999: 357; Engels, 2009: 72). Furthermore, individuals must perceive it to be legitimate to trade a particular object (for example, see: Zelizer, 1983). As the third section of this chapter will show, scrutinizing the rationale underpinning a regime of practice in which markets are being deployed provides us with the necessary information on how an object is being constructed – or qualified – and how trading it is rendered a legitimate and rational thing to do.

Commensuration has been identified as another important step in the literature, defined as: 'the expression or measurements of characteristics normally represented by different units according to a common metric' (Espeland and Stevens, 1998: 315). The qualitative characteristics of an object, established through the process of qualification, have to be turned into a quantitative measure, comparable ranking, ratio or price. Information regarding some qualities of an object is discarded, while information regarding other qualities is organized into new forms. The result of this process, the obfuscation of the multiplicity of meanings of an object, constitutes part of what Marxist scholars call the commodity fetish (Kosoy and Corbera, 2010). A governmentality perspective highlights how measurement and accounting practices create a field of visibility that enables successful commensuration.

Taking into account the subject dimension, a governmentality perspective can identify various forms of identities that emerge in the context of the commodification processes, and that are necessary for the processes' success. As I will show later in the chapter, the successful commodification of avoided deforestation is dependent on the emergence of a new type of subject – the carbon forester.

To have a good that is not just exchanged between two persons, but actually traded on an ongoing basis among a large group, there must be consensus on the underlying rationale, and the accounting and measurement practices that construct the commodity. Only if a certain degree of discursive closure is achieved can an object be traded among many people. One could speak of a 'discursive disentanglement'. Coined by Callon (1998: 19), the term refers to the disentangling of an object from its immediate context. The object must become something delimitable – an object of its own, no longer requiring the continued existence of its creator (Engels, 2009: 71–72). Marxist authors call this the abstraction and individuation of an object (Castree, 2003: 279–280).

As the subsequent analysis will underline, the added value of a governmentality perspective on commodification is twofold. On one hand, it provides a critical approach, problematizing commodification and market creation on a micro level – fleshing out important details often overlooked from other theoretical angles (e.g. the interplay between scientific practices and the functioning of a market). On the other hand, the governmentality approach allows a

holistic view on commodification, including highly diverse elements (rationalities, technical practices and subjectivities) – and accounting for both the prerequisites and consequences of commodification.

3. Why to Trade Not Cutting Down Trees: The Rationale for Commodifying Avoided Deforestation

The idea that avoiding deforestation is something that could, and should, be made tradable on the carbon market emerged from an understanding that deforestation is a key driver of anthropogenic climate change – and by framing deforestation as an opportunity cost problem. The following section details when these perceptions appeared, how the rationale to address deforestation through the carbon market developed and how people started to perceive avoided deforestation as a legitimate way to deal with the problem.

The discursive links made between forests and the climate system date back to the origins of the scientific debate on climate change (Arrhenius, 1907: 51–52). Within the scientific discourse, forests have been articulated both as carbon sinks, and in the sense of deforestation as an important source of anthropogenic greenhouse gas emissions. This dual construction, including an emphasis on the role of tropical forests, plays prominently in the IPCC's first assessment report (e.g. IPCC, 1990a: xxxii, 1990b: xiii).[5]

During the late 1980s and early 1990s, deforestation was increasingly framed in economic terms, and constructed as an opportunity cost problem. As the IPCC notes:

> The forest crisis is rooted in the agricultural sector and in people's needs for employment and income. Deforestation will be stopped only when the natural forest is economically more valuable for the people who live in and around the forests than alternative uses for the same land.
>
> (IPCC, 1990b: xlii)

In line with this problem construction, the rationale to address deforestation through the creation of environmental markets emerged. In the international context, the Environmental Defense Fund was the first to publish a proposal on Preserving Brazil's Tropical Forests through Emissions Trading (Dudek and LeBlanc, 1991), advocating both the creation of an international emissions trading system and the commodification of avoided deforestation.

5. For a more detailed analysis on how deforestation was articulated as a climate change issue see Boyd (2010).

Though the rationale underpinning the commodification of avoided deforestation, and rendering such commodification a reasonable thing to do, had already been developed in the early 1990s, commodification did not initially prevail in the international climate policy discourse. Tropical deforestation was a marginal issue in the early life of the UNFCCC, as the world's focus was on industrial countries' emissions. Avoided deforestation only achieved importance between COP 3, in 1997, and COP 9, in 2003, during the course of a heated debate on the question of whether afforestation, reforestation and avoided deforestation projects should become eligible project categories under the CDM. Ultimately, avoiding deforestation was excluded (UNFCCC, 2001: 60); scepticism of the feasibility of accurate, reliable accounting and monitoring of forest carbon, and major objections to the legitimacy of such projects, led many actors – mainly the EU, a large number of developing countries and most major, international, environmental NGOs (excluding US-based conservation organizations) – to oppose its inclusion (Lövbrand, 2009: 409; Schlamadinger et al., 2007: 278).

The push to commodify avoided deforestation was reintroduced to international climate negotiations via a submission by Costa Rica and Papua New Guinea on behalf of the Coalition for Rainforest Nations in 2005. In the submission, deforestation was articulated as one of the most pressing issues in the quest to tackle global warming. Deforestation, was articulated as 'the single largest source category of emissions in the developing world' (Papua New Guinea and Costa Rica, 2005: 3–4).

Backed by calculations in the Stern Review, which articulated avoiding deforestation as a 'highly cost-effective way of reducing greenhouse gas emissions' (Stern, 2006: xxv), the submission on avoided deforestation sparked a major discussion. Initially pushed by an actor coalition consisting only of tropical developing countries, a number of North American conservation NGOs (e.g. Conservation International, The Nature Conservancy, The Rainforest Alliance) and various carbon market consultancies, the issue was soon picked up by a broad array of state and non-state actors. A number of discursive shifts have occurred since avoided deforestation was excluded from the CDM, and many of the issues that had been contentious earlier are no longer perceived to be overly problematic (for a detailed discussion, see Stephan, 2012a). For example, even though the legitimacy of offset projects – and therefore, avoided deforestation projects – in the Global South used to be heavily contested during the earlier CDM debate, the expectation of large quantities of REDD+ credits isn't a problem for most contemporary actors. Actually, it's the opposite: the fact that REDD+ has the potential to generate reduction credits on a large scale is presented as an advantage – allowing industrialized countries to take on higher reduction commitments (see for example

Eliasch, 2008: xii).[6]

Within two years, REDD+ had become a key element of international climate policy making. In 2007, it was included in the Bali Action Plan, becoming a central element of a post-Kyoto agreement. Today, actors like the World Bank – with its Forest Carbon Partnership Facility – and Norway – which has provided several billion Euros to get REDD+ off the ground, funding initiatives like UN-REDD (a corporation between various UN agencies working on avoided deforestation) – have become the leading players on REDD+.

4. Making Forest Carbon (Visible)

In addition to an underlying logic that renders trading avoided deforestation a rational thing to do, legitimizes this trade and constructs the qualities of the commodity – avoided deforestation must be commensurable. As avoided deforestation is being integrated into an existing market, a common metric – the ton of carbon dioxide equivalents, or tCO_2e (for a detailed discussion see Paterson and Stripple, 2012) – already exists. Through the process of commensuration, a particular field of visibility is created that is necessary for the successful commodification of avoided deforestation: the non-carbon characteristics of a forest are being obscured, and the meaning of a forest is being reduced to that of a carbon stock. This section outlines how commensuration is achieved in the case of avoided deforestation, and what consequences such commensuration entails.

Commensurating avoided deforestation, and converting avoided deforestation into tCO_2e, depends on the potential to measure a forest's carbon stock, and the ability to convincingly construct a baseline – a counterfactual story on what would have happened without REDD+ measures.

Thus far, there are no technical devices for direct measurement of forest carbon. Instead, carbon content is estimated based on a forest's biomass. Forest inventories, biome averages and remote sensing are three approaches currently being used (often in combination) to determine a forest's biomass. These approaches require greatly varying efforts in order to obtain results – and are inconsistent in the quality of their respective measurement results (for example, see Köhl et al., 2011). To date, biome average data sets have been the main ap-

6. Low costs for offset certificates lead to low overall abatement costs for industrialized countries, which subsequently might be more likely to agree to higher reduction commitments. As offset certificates are a zero-sum game at best (every reduced ton is offset by prolonging emissions in industrialized countries), this line of reasoning is being criticized.

proach for determining tropical forest carbon stocks (Westholm et al., 2009: 29). Gibbs et al. (2007) have compared different data sets to compute the carbon stock in tropical developing countries. The results are inconsistent: depending on the chosen data set, the highest and lowest estimates differ by 51 per cent in the case of Brazil, 79 per cent in case of the Congo and 149 per cent in the case of Indonesia.

The difference between claiming 50, 100 or 150 tCO_2e for a hectare of avoided deforestation is significant, and such variance poses a serious challenge for the commodification of avoided deforestation. In his work on wetland banking, Robertson (2006) showed that unsettled scientific debates, and other forms of uncertainty, must be 'silenced' for commodification to take place. With its good practice guidance (Penman et al., 2003; Aalde et al., 2006) on measuring and monitoring forest carbon, the IPCC has silenced some of this scientific debate within the climate policy and carbon market domains. However, even the emissions factors the IPCC provides include a large range – and a significant amount of uncertainty (Penman et al., 2003: Table 3A.1.2). To deal with this, the 'principle of conservativeness'[7] has evolved within the discourse: project developers and national governments are supposed to use the most conservative estimate when calculating a forest's carbon stock and potential emissions reductions through REDD+ activities (see also Grassi et al., 2008).

The measurement results are combined with the baseline – also called the 'business as usual scenario' – to determine the number of reduction credits generated through REDD+ activities. A baseline consists of counterfactual arguments and hypothetical assumptions about the likely outcome of a forest without any REDD+ measures. This is figured using the extrapolation of historical deforestation rates, and predictions for the future development path of a forest region, including estimates about population, economic development or infrastructure changes.

Many issues regarding REDD+ baselines are similar to those in the CDM (see Lohmann, 2005). However, REDD+ baselines depend on hypothetical assumptions, and counterfactual arguments, to a much larger extent than CDM baselines. While one can count planted trees in afforestation and reforestation projects, and monitor the progress of tree growth, there is no way to determine the exact number of trees that would have been cut down if a REDD+ measure had not taken place. This drawback of counterfactual reasoning has already been discussed in the CDM context (Methmann, 2011: 14–15): due to methodological design, counterfactual arguments cannot deviate far from the status quo. And the possibility for drastic changes cannot be accounted for using counterfactual calculations. Instead, present trends are extrapolated into the future. By doing so, critics argue that the CDM perpetuates the

7. This has come up in several interviews, and has been part of a REDD+ expertmeeting I have observed.

status quo – and acts as an obstacle to substantial change. Following Bigo (2007), Methmann refers to this as 'governing the future perfect', and argues that the 'CDM simply administers a present which has always-already become our future' (Methmann, 2011: 15).

Through measurement and baseline modelling practices, forests are being articulated solely as carbon stocks – and all their other meanings are being obscured. The field of visibility being created is limited to a forest's carbon qualities. Hence, we can talk about the carbonification[8] of forests. This is similar to what Marxist scholars describe as the fetishizing effect of a REDD+ mechanism (Kosoy and Corbera, 2010: 1230). Avoided deforestation becomes commensurable on the carbon market as a result of carbonification. For instance, avoided deforestation in the Congo Basin can be directly compared and related to a coal-fired power plant in Poland, a wind farm in India or a refrigerator plant in China.[9]

While the carbonification of forests enables the commensuration of avoided deforestation, it also results in effects that run counter to the claims of REDD+ proponents. Most of these proponents take every chance to highlight that REDD+ will provide multiple benefits beyond mere emissions reductions. For instance, the protection of biodiversity and indigenous peoples' livelihoods are two commonly mentioned examples (Stephan, 2012a). From a carbon market perspective – where the carbon characteristics of a forest are all that is visible – cutting down an area of high-biodiversity tropical forest poses no problem as long as the felling of trees is compensated by the construction of wind turbines or the retirement of a coal-fired power plant. From a biodiversity perspective, however, such action represents a massive problem. Even if REDD+ was not linked to the carbon market, carbonification presents problems. As the degree of biodiversity doesn't necessarily correlate with the amount of carbon stored in a forest, concerns have been raised that a REDD+ mechanism would shift deforestation from high-carbon, low-biodiversity forests to low-carbon, high-biodiversity forests. To address this problem, in an attempt to minimize perverse incentives, a significant amount of effort is being spent to develop the idea of 'safeguards'. More recent proposals have called for additional commodification of other ecosystem services provided by forests. According to this logic, the 'stacking' of payments for different services should generate broader revenue streams and prevent any distorting effects. It remains to be seen how well these measures will work. It is unlikely that such disruptions can be eliminated entirely, even if the worst can

8. I borrow this term from Mert (2009) who has used carbonification to describe the re-articulation of environmental discourses according to a climate change logic (see also Mert's contribution to this volume in Chapter 2).

9. This is based on the assumption that the different emission trading systems and offset mechanisms are fully interconnected, which is currently not the case (e.g. while the EU ETS is linked to the CDM, credits from some particular CDM project types are not being accepted).

be prevented. Accounting for the complete value of forests is too complex, and would entail a reversal of carbonification – which in turn would challenge the commensurability of avoided deforestation.

5. The Emergence of the Carbon Forester

The chapter now turns to the subject, or identity dimension, of Dean's heuristic. This dimension further adds to our understanding of how the initial controversy on the commodification of avoided deforestation is resolved.

A number of scholars (see for example Boyd, 2010) and many of the non-forester REDD+ experts that I interviewed have argued that the commodification of avoided deforestation is perceived to be feasible today – as opposed to the CDM debate ten to 15 years ago – because of technological advancements which have improved our ability to measure forest carbon. Not all the foresters I interviewed agreed; one said that while there have been incremental improvements in remote sensing, the basics of measuring forest biomass through forest inventories have not changed much in the past 200 years (interview with a forest carbon expert, from a carbon market verifier, June 2011).[10] Instead, what had been missing was 'how you model hypothetical baselines, how you deal with leakage and temporality' (interview with a forest carbon expert from a consultancy, June 2011). Avoided deforestation baselines consist of a higher number of counterfactual assumptions, which makes them more complex than baselines from industrial sector CDM projects. Initially, this made such baselines more controversial than they are now, and resulted in their exclusion from the CDM. Today, however, counterfactual baselines, and other accounting practices, are no longer controversial.

On a macro level, one can conclude that this normalization is a result of the increased use of market tools in global climate governance – hence the consequence of a marketization of global climate governance. A closer look at the micro level helps us understand how this normalization took place. The introduction of the first emissions trading schemes and offset mechanisms has given rise to the carbon market industry. Simultaneously, a new type of sub-

10. Field inventories, conducted with the help of a tape measure to determine a tree's breast height diameter and an inclinometer to determine its height, were the 'key elements of a new "scientific forestry"' (Boyd 2010: 859) developed by German foresters in the late eighteenth and early nineteenth centuries and have not changed much since. Furthermore, even though there is a lot of effort in installing and developing new remote sensing techniques (e.g. radar or laser sensors) (Boyd 2010: 885–892) most of the analysis currently deployed in REDD+ contexts is based on satellite imagery that was already available at the end of the 1990s (Westholm et al. 2009).

ject – the carbon market professional (Voß, 2007: 340; Methmann, 2011: 16–17) – emerged. Through their daily routines and practices these professionals routinized previously controversial aspects, like counterfactual baselines, and normalized them. But the normalizing effect goes far beyond the community of carbon market professionals. Today, policy-makers and other individuals take the CDM's routines and methodologies for granted. Furthermore, carbon market professionals themselves are actively looking for new contexts to deploy the routines and logics they developed.

The emergence of the carbon industry also brought together previously divergent areas of scientific knowledge. Foresters, biochemists and remote sensing specialists started to combine their respective expertise. In doing so, they tried to find common ground with the demands of project developers, and developed the skill set necessary for the commodification of avoided deforestation (interview with the forest carbon expert at a consultancy, June 2011; interview with the methodology expert at a project developer, June 2011). The 'carbon forester', a new type of expert, emerged. Only in rare cases do single individuals possess a combination of all the necessary skills for modelling, measuring and monitoring. But in order to do their work, organizations that want to run REDD+ projects, or are asked to audit such projects, require interdisciplinary teams that possess these skills. In this light, it is not surprising that Wildlifeworks, the company running the first voluntary market project to issue REDD+ credits, is based in San Francisco. The proximity to big research centres, like the University of California, Berkeley, made it relatively easy for Wildlifeworks to gain access to people with the right skills.[11]

6. Avoided Deforestation: Fully Disentangled?

The previous sections have shown how a rationale for REDD+ has developed, and how initial concerns about legitimacy have disappeared. Furthermore, we have seen how the emergence of the carbon industry has resulted in the normalization of various carbon accounting practices, and how the appearance of the carbon forester has provided the necessary skill set to develop and run REDD+ projects. It is yet to be seen whether this is enough to fully disentangle avoided deforestation as a tradable commodity on the carbon market.

11. Wildlifeworks' Vice President, responsible for Carbon Development, used to work for Berkeley's Geopspatial Innovation Facility. Ecopartners, the consultancy they hired to develop the methodology for their first project, consists of PhD students from UC Berkeley working on 'Biometrics and Remote Sensing', 'Climate Science and Monitoring' as well as 'Forest Ecology' (Ecopartners 2011).

Thus far, REDD+ projects are not accepted in any compliance market.[12] And in the case of voluntary market REDD+ projects, we cannot speak of full disentanglement. Credits from these projects – as from voluntary forest carbon projects in general – tend to be bought by companies for marketing and CSR purposes, because they are 'easier to communicate than other types of offsets, as well as visually compelling through images of forested ecosystems, thereby potentially yielding brand-enhancement benefits' (Waage and Hamilton 2011: 6).

> Forestry is a very attractive emission reduction investment for many [investors], because it has so many Corporate Social Responsibility benefits. To be able to say that you are getting emissions reductions and you are also protecting elephants or tigers, and to say that you are also providing an income to communities that are desperate and schools and this and that. It is very attractive.
>
> (Interview with a project developer, running voluntary market REDD+ projects, June 2011)

Voluntary forestry credits are sold directly by the project developer to a company that then exploits the investment for CSR or marketing reasons. Generally, these credits are not resold on the secondary market – as their value draws on a direct connection to the project they originated from.

In this context, a forest is not fully carbonified; its biodiversity and livelihood-meaning play an important role in the value of the credits. As opposed to a forest's carbon stock function, these aspects can be documented easily, and visualized in colourful videos and photos. As a consequence, full commensurability is not achieved. In this case, we cannot speak of full disentanglement of avoided deforestation.

7. Conclusion

This chapter has developed a governmentality perspective on commodification, and applied this perspective in order to understand the current attempts to make avoiding deforestation tradable. Even though governmentality studies are often concerned with markets as technologies of government, the commodification and market creation process itself has yet to be discussed from this perspective. Besides closing a gap within the governmentality literature, a governmentality perspective on commodification adds value beyond existing ap-

12. Furthermore there are discussions to include REDD+ type offsets from Acre, Brasil and Chiapas, Mexico into the Californian ETS.

proaches – particularly with regard to its micro-level problematizations, and its holistic take on a wide array of facets of the commodification process.

Looking at REDD+, this chapter has reconstructed how a rationale for commodification emerged, and how – to use the sociology of markets terminology – avoided deforestation has been qualified and legitimized as a tradable object. Furthermore, this chapter has shown how a particular field of visibility has been created through the use of measuring and accounting practices: forests are being carbonified, and all their non-carbon characteristics are being obscured. This carbonification is necessary for avoided deforestation to become commensurable on the carbon market.

This chapter has also shown that the full commodification of avoided deforestation within a compliance market, which was ruled out during the CDM negotiations, is becoming increasingly likely – in part, because new types of subjects, such as carbon professionals, have normalized initially contested accounting and modelling practices. In this context, this chapter highlights the emergence of the carbon forester – a role able to connect previously divergent scientific fields, and providing the skill set necessary for REDD+ projects. As long as REDD+ is not part of a compliance market, however, full disentanglement of avoided deforestation cannot be achieved. Voluntary market REDD+ credits rely on a direct connection to their respective projects in order to realize their value.

As this chapter could only devote limited space to development of a governmentality perspective on the commodification of avoided deforestation, not every aspect has been considered. A governmentality approach also offers interesting insights on the consequences of commodification. In the case of REDD+, for instance, it is crucial to understand how the commodification process plays out on the ground. Further research is necessary in order to gain a full understanding on how REDD+ impacts local communities and other actors.

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Appendix

List of Interviewees

(1) REDD+ negotiator of an EU member state, interviewed on April 26th 2011
(2) REDD+ expert of an international climate policy think tank, interviewed on June 2nd 2011.
(3) Michael Korchinsky, Founder of Wildlife Works, interviewed on June 2nd 2011.
(4) Forest carbon specialist of an international verification body, interviewed on June 2nd 2011.
(5) REDD+ expert of an international standard organisation, interviewed on June 2nd 2011.
(6) Brazilian forest carbon expert, interviewed on June 3rd 2011.
(7) Forest specialist of voluntary market standard organisation A, interviewed on June 24th 2011.
(8) Forest specialist of voluntary market standard organisation B, interviewed on June 26th 2011.
(9) Forest carbon expert from a globally operating carbon market consultancy, interviewed on June 26th 2011.
(10) Member of the Senior Management of the Forest Carbon Partnership Facility, interviewed on August 30th 2011.
(11) REDD+ expert of an US-American conservation organisation, interviewed on September 15th 2011
(12) Norwegian REDD+ negotiator, interviewed on October 3rd 2011.
(13) Member of the Senior Management of UN-REDD, interviewed on September 23rd 2011.
(14) Brazilian REDD+ negotiator, interviewed on November 25th 2011.
(15) IPCC lead author on forestry issues, interviewed on December 15th 2011.
(16) Climate and forestry expert of international environmental NGO *A*, interviewed on January 11th 2012
(17) International climate politics expert, of international environmental NGO *B*, interviewed on February 21st 2012.
(18) Interview with a forest carbon expert from a German environmental think tank, inter-

viewed on February 21st 2012.

(19) Group interview with a REDD+ policy officer and a forest carbon specialist of international environmental NGO *B*, interviewed on February 22nd 2012.

(20) REDD+ expert of an EU based environmental NGO, interviewed on June 1st 2012.

(21) Chris Lang, founder of redd-monitor.org, interviewed on September 13th 2012.

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Not Seeing the Forest for the Carbon in the Trees — Synopsis

Diese Dissertation befasst sich mit der Bekämpfung von tropischer Entwaldung und der wandelnden Bedeutung dieser im Kontext internationaler Klimagovernance. Der Fokus liegt auf REDD+ — *reducing emissions from deforestation and degradation and the conservation, sustainable management of forests and enhancement of forest carbon stocks* — einem neuen Policy-Instrument das gegenwärtig im Rahmen der Klimarahmenkonvention (UNFCCC) verhandelt wird. Durch diesen Mechanismus sollen Entwicklungsländer für die Reduktion von Entwaldung entschädigt werden. REDD+ kam 2005 auf die UNFCCC Agenda und hat seit dem breite Zustimmung von Regierungs- und Nichtregierungskakteuren, aus industrialisierten sowie Entwicklungs- und Schwellenländern, erfahren. REDD+ selbst, sowie die bereite Zustimmung die es erfährt, werfen einige Fragen auf, mit der sich dieses Dissertationsprojekt auseinandersetzt:

(1) Vor dem Hintergrund, dass die Vermeidung von Entwaldung 2001, wegen großer Bedenken und einer scharfen Auseinandersetzung, als möglicher Projekttyp aus dem Mechanismus für umweltverträgliche Entwicklung (CDM) ausgeschlossen wurde, überrascht die breite Zustimmung, die REDD+ heute erfährt. Wie kann also die breite Unterstützung für REDD+; im Licht der kontroversen Geschichte von vermiedener Entwaldung in der internationalen Klimapoltiik verstanden werden?
(2) REDD+ ist eine neue Art und Weise das Problem Entwaldung anzugehen. Es fasst verschiedenste Aspekte und Governance-Instrumente zusammen. Aber wie genau funktioniert REDD+? Wie wird durch REDD+ das Problem Entwaldung bearbeitet und regierbar gemacht?
(3) Einer der Kernaspekte in der gegenwärtigen Debatte ist eine mögliche Integration von REDD+ in den internationalen Kohlenstoffmarkt. In diesem Falle würden Entwicklungs- und Schwellenländer durch die Vermeidung von Entwaldung Emissionszertifikate generieren, die sie dann auf dem Kohlenstoffmarkt handeln könnten. Aber wie genau wird *etwas nicht zu tun* — in diesem Falle Wälder zu zerstören — eine Ware, die international gehandelt werden kann?

Diese Dissertation stützt sich auf einen post-strukturalistischen Theorierahmen, um diese Fragen zu beantworten. Er kombiniert Michel Foucault's Konzept der Gouvernementalität mit Ernesto Laclau und Chantal Mouffe's Hegemonie und Diskurstheorie. Ersteres erlaubt es zu verstehen wie Probleme — in diesem Falle tropische Entwaldung — begreifbar und bearbeitbar gemacht werden. Letzteres macht verständlich wie sich bestimmte Diskurse oder

bestimmte Art und Weisen Probleme zu bearbeiten, durchsetzen, während andere scheitern.

Das Dissertationsprojekt besteht aus fünf Artikeln. Der erste, *Third Side of the Coin: Hegemonie and Governmentality in Global Climate Politics*, wurde zusammen mit Delf Rothe und Chris Methmann verfasst. Er wirbt für eine Kombination von Gouvernementalität mit Hegemonie- und Diskurstheorie und hebt die Vorteile eines solchen integrierten Ansatzes hervor. Der zweite Artikel, From *Pariah to Messiah: The Role of Avoiding Deforestation in International Climate Governance* beschreibt die Schlüsselnarrative im gegenwärtigen Diskurs zu Entwaldung und Klimawandel. Diese werden mit den Narrative verglichen, die für den Zeitraum identifiziert wurden in dem vermiedene Entwaldung als möglicher Projekttyp vom CDM ausgeschlossen wurde. So wird herausgearbeitet was die breite Unterstützung, die REDD+ gegenwärtig erfährt, ermöglicht. Der dritte Artikel *Governing the Forest Frontier: A Governmentality Analysis of REDD+* untersucht wie Entwaldung und so die *Forest Frontier* Regionen dieser Erde regierbar gemacht werden. Die letzen beiden Artikel, *Bringing Discourse to the Market: The Commodification of Avoided Deforestation* und *How to Trade 'Not Cutting Down Trees': A Governmentality Perspective on the Commodification of Avoided Deforestation*, untersuchen die Voraussetzungen und Folgen einer möglichen Integration von REDD+ in den Kohlenstoffmarkt.

Not Seeing the Forest for the Carbon in the Trees
A brief summary

This thesis investigates the changing role fighting tropical deforestation has had in international climate governance. It focuses on *reducing emissions from deforestation and degradation and the conservation, sustainable management of forests and enhancement of forest carbon stocks* (REDD+), a new policy mechanism currently negotiated under the United Nations Framework Convention on Climate Change. Through this mechanism tropical developing countries are supposed to be compensated for reducing deforestation. REDD+ was proposed in 2005 and has since achieved broad support among governmental and non-governmental actors from both industrialised and developing countries. REDD+ itself and the large scale support it receives raises a number of questions that this thesis addresses:

(1) The broad support REDD+ receives is rather surprising considering that an attempt to include avoided deforestation as an eligible project category in the Clean Development Mechanism (CDM) was abandoned in 2001 due to major reservations and fierce opposition by a number of actors. How can the broad support for REDD+ be understood in light of this controversial history of avoided deforestation in international climate politics?

(2) REDD+ is a new mode of governing deforestation, combining a wide variety of different aspects and governance tools. But how exactly does REDD+ function? What are its underlying rationalities? How is the problem of deforestation being addressed through REDD+?

(3) A core aspect in the current debates is a possible integration of REDD+ into the carbon market. In this case, by avoiding deforestation, countries generate emissions reduction credits that can be traded on the carbon market. But how exactly is *not doing something* — in this case not destroying forests — turned into a commodity?

To investigate these questions the project draws on a poststructuralist theoretical framework, combining Michel Foucault's concept of governmentality with Ernesto Laclau and Chantal Mouffe's hegemony and discourse theory. The former provides us with a powerful toolkit with which to understand how problems — tropical deforestation in this case — are being rationalised and hence made governable. The latter provides us with insights on how particular discourses or certain forms of making things governable prevail while others fail.

The dissertation project consists of five papers. They draw on these approaches to address the questions raised above. The first paper, *Third Side of the Coin: Hegemony and Governmental-*

ity in Global Climate Politics, was co-authored with Chris Methmann and Delf Rothe. It makes the case for combining governmentality with hegemony and discourse theory, highlighting the advantages of such an approach. The second paper *From Pariah to Messiah: The Role of Avoiding Deforestation in International Climate Governance* maps the key narratives in the current discourse on deforestation and climate change. They are compared to those found when avoided deforestation was excluded from the CDM in order to shed light on what enabled REDD+ to gain such broad support. The third paper, *Governing the Forest Frontier: A Governmentality Analysis of REDD+*, asseses how deforestation and, through it, forest frontier regions are being made manageable and governable by REDD+. The last two papers, *Bringing Discourse to the Market: The Commodification of Avoided Deforestation* and *How to Trade 'Not Cutting Down Trees': A Governmentality Perspective on the Commodification of Avoided Deforestation*, investigate the prerequisites and consequences of a possible carbon market integration of REDD+.