

Interactions between initiatives addressing the sustainability of woodfuels

Master thesis

submitted by

Jonas Raulf

supervised by

Dr. Ingrid J. Visseren-Hamakers

Forest and Nature Conservation Policy Group (FNP)
Wageningen University

January 2014

Title: **Interactions between initiatives addressing the sustainability of woodfuels**

Master thesis – FNP 80436

Student: Jonas Raulf

Registration Number: 850126681040

Email address: jonasraulf@gmail.com

Supervisor: Dr. Ingrid J. Visseren-Hamakers

Examiner: Associate Professor Dr. Esther Turnhout

Forest and Nature Conservation Policy Group (FNP)
Wageningen University and Research Center

January 2014

Statement of Authorship

I declare that this thesis is my own work and has not been submitted in any form for any other degree at any university or other institute of tertiary education. Information derived from the published and unpublished work of others has been acknowledged in the text and list of references. I did not make use of any other tools than those stated in the text.

Signed:

Wageningen, 06 January 2014

Jonas Raulf

Acknowledgements

I would like to express my gratitude to my supervisor Dr. Ingrid J. Visseren-Hamakers for her excellent support, helpful advices and patience. Without her guidance this study would not have been possible.

I am very grateful to all the interviewees. They dedicated a lot of valuable time to this research and provided indispensable information. I would also like to thank them for their encouragement.

Many thanks to all who supported me during my Master studies, in particular the coordinators of the Master European Forestry program Dr. Marjoriitta Möttönen and Pauliina Karvinen.

Interactions between initiatives addressing the sustainability of woodfuels

Contents

List of Tables	VII
List of Figures	VII
List of Acronyms	VIII
Summary	1
1 Introduction	4
1.1 Problem statement.....	6
1.2 Research objective and research questions.....	7
1.3 Outline of the thesis	8
2 The current status of woodfuel use and regulation in the European Union	10
2.1 The increasing use of woodfuels in Europe.....	10
2.2 EU policies on securing the sustainability of bioenergy	12
2.3 Forest Europe	16
2.4 The Forest Stewardship Council	20
2.5 The Roundtable on Sustainable Biomaterials	22
3 Theoretical framework.....	24
3.1 Governance	24
3.1.1 Definition of ‘soft’ and ‘hard’ law.....	28
3.2 Institutions	30
3.3 Regimes	33
3.4 Institutional interplay	35
4 Conceptual framework	41
4.1 Type and extent of influence	41
4.2 Framework on effective governance task selection	44
4.3 Application of the reinterpreted framework.....	47
5 Methodology	52
5.1 Methods.....	53

5.2	Data Analysis.....	56
6	Results.....	57
6.1	Interplay between Forest Europe and the RED	57
6.2	Interplay between the RSB and the FSC.....	69
6.3	Interplay between the RED and the FSC	71
6.4	Interplay between the RED and the RSB	79
6.5	No interplay cases in the issue area of woodfuels.....	81
6.6	Institutional features as explanatory variables.....	81
7	Discussion.....	84
7.1	Discussion of the results	84
7.2	Reflection on the theoretical and conceptual framework	91
7.2.1	Limitations of the study	92
7.3	Complementary theoretical approach	96
8	Conclusions	99
8.1	Policy recommendations.....	102
8.2	Recommendations for future research	105
9	References.....	107
9.1	Web sources.....	114
10	Appendices	115

List of Tables

Table 1: Stokke's (2011: 151) framework on effective governance task selection: Conditions favoring institutional interplay conducive for problem-solving.	45
Table 2: Conceptual framework for analyzing inter-institutional influence and the potential reasons for its occurrence. Source: Adapted from Stokke (2011: 151). .	51
Table 3: Answers to the two research questions concerning the instances of interaction between Forest Europe (FE) and the RED.....	67
Table 4: Answers to the two research questions concerning the instances of interaction between the RSB and the FSC.....	71
Table 5: Answers to the two research questions concerning the instances of interaction between the RED and the FSC.....	78
Table 6: Answers to the two research questions concerning the instances of interaction between the RED and the RSB.....	80
Table 7: Summary of reasons for the (non-) occurrence of influence that correspond to the institutional features identified by Stokke (2011).	83

List of Figures

Figure 1: Categories denoting the extent of influence:	43
--	----

List of Acronyms

C&I	Criteria & Indicators
CAP	Common Agricultural Policy
CBD	Convention on the Biological Diversity
CEPI	Confederation of European Paper Industries
CHP	Combined Heat and Power production
CoC	Chain of custody
DG	Directorate General
EC	European Commission
EFI	European Forestry Institute
EU	European Union
FAO	Food and Agriculture Organization
FE	Forest Europe
FMP	Forest Management Plan
FSC	Forest Stewardship Council
GGL	Green Gold Label
GHG	Green House Gas
ILO	International Labor Organization
ILUC	Indirect Land Use Change
IPCC	Intergovernmental Panel on Climate Change
IR	International Relations
ISCC	International Sustainability and Carbon Certification
ISEAL	International Social and Environmental Accreditation and Labeling alliance
ISO	International Standards Organization
IWPB	Initiative Wood Pellets Buyers
LBA	Legally Binding Agreement on all types of forest
LCA	Life Cycle Assessment
LUC	Land Use Change
MCPFE	Ministerial Conference on the Protection of Forests in Europe
MS	Member States
MW	Megawatt
NGO	Non-governmental organization
NSMD	Non-state market driven
P&C	Principles & Criteria
PEFC	Program for the Endorsement of Forest Certification

PJ	Petajoule
RED	Renewable Energy Directive of the European Commission
RSB	Roundtable on Sustainable Biomaterials
SFI	Sustainable Forestry Initiative
SFM	Sustainable Forest Management
UK	United Kingdom
UNECE	United Nations Economic Commission for Europe
WG	Forest Europe ad-hoc working group on sustainability criteria for forest biomass production including bioenergy
WWF	World Wildlife Fund for Nature

Summary

The increasing use of woodfuels inside the European Union (EU) might exert pressure on forest ecosystems outside of the EU. National law in countries that are exporting woody material to the EU may be an insufficient guarantee for the sustainability of woodfuels.

EU legal instruments, voluntary certification and intergovernmental organizations may compensate for the inefficiencies of national law.

However, at the moment these initiatives are addressing the sustainability of woodfuels only as a peripheral issue. While some of these initiatives are forest-focused institutions, others have a focus on biofuels and climate change mitigation.

This study assumes that improved coordination among the initiatives with different backgrounds may benefit the sustainability of woodfuels. It regards the better understanding of the interactions between the initiatives as a necessary first step for improved coordination. Furthermore, it considers it as important to know why the initiatives influenced each other in the way they did. It is the objective of this study to analyze the interactions between four initiatives. Two of them are forest-focused institutions, namely the voluntary forest policy process Forest Europe and the forest certification scheme FSC. The other two focus (partially) on biofuels, namely the EU Renewable Energy Directive (RED) and the biofuel certification scheme RSB.

The two research questions are: (1) How and to what extent did the initiatives influence each other in the issue area of woodfuels? And (2) how can these influences be explained?

The theoretical part introduces the concept of governance with a focus on the “privatization” of governance. It shortly introduces hard law and soft law as two options for governance.

Since the interactions between the initiatives can be analyzed from an institutional perspective, concepts of institutions and regimes are presented. It is followed through an introduction to the study of institutional interplay. Finally, it is outlined how conceptual frameworks developed by scholars studying institutional interplay will be used to address the two research questions.

Qualitative methodology and methods were employed. First, literature review helped to identify influence between the institutions and potential reasons for why influence occurred in the way it did. The findings of the literature review were verified and

complemented through 14 interviews with informants from different organizations (government, academia, industry, NGOs).

The main findings of the research are as follows:

The RED sustainability criteria for liquid biofuels attracted the attention of the forest-focused institutions. Actors of the forest-focused institutions conceived some of the criteria as a useful source of inspiration to strengthen and renew the criteria and indicators of their own institutions. Because the RED addressed climate change mitigation and Land Use Change, these issues were pushed up higher on the agenda of the forest-focused institutions.

The diversity of actor interests within Forest Europe and the FSC are a main reason why at both institutions the issues the RED focuses on have not been incorporated into policies or rules, yet. Under Forest Europe a proposal to renew Forest Europe's criteria and indicators as well as the procedure used to verify that countries comply with the criteria did not get relevant support of other Forest Europe signatory countries. Next to other reasons, a probable reason for the failure of the proposal was that some of the signatory countries regarded additional requirements as a threat to their national sovereignty over forests.

Within the FSC discussions on how to address the issues the RED focuses on have not been finalized. The FSC is cautious about quantifying Green House Gas (GHG) emissions, which would adjust the FSC standards to the GHG criteria of the RED. Within the FSC some actors are warning against becoming involved in GHG quantification, because of potential negative social and ecological implications resulting from carbon accounting.

It was found that pellets-firing power companies play an important role in the interaction situation involving the RED and the FSC. They need to demonstrate that they are operating sustainably, because otherwise there will be pressure from environmental groups on the governments that subsidize the use of wood pellets for electricity. The companies could demonstrate that they are working sustainably through being certified. However, they prefer to join a certification scheme that covers all RED sustainability criteria. This is because the RED sustainability criteria might become binding for solid biomass including wood pellets and the European Commission might accept forest certification schemes as a proof of compliance. The FSC does not cover all RED criteria, but it has recognized the new demands of its stakeholders, the power

companies. The new demands gave the FSC an additional reason to reconsider its decision to not engage in carbon accounting.

In addition, instances of interaction were found where actors of one institution tried to convince actors of another institution to adapt its policies or rules. However, since the four institutions follow partially contradictory approaches towards governing woodfuels and each institution prioritizes its own approach, these attempts to exert influence failed, or in other words, the institutions rejected to be influenced.

This leads to the conclusion that better communication among the institutions is needed to avoid incompatibility among the institutions in the future.

The findings are further discussed with regard to difficulties to negotiate stricter sustainability requirements in intergovernmental forest-focused institutions. It is followed through a critical examination of the European Commission's practice to endorse voluntary schemes. After the discussion of the conceptual framework, it is illustrated how another theoretical approach with roots in historical institutionalism could be applied complementary to answer the second research question. Finally, recommendations for policy are made including enhancing communication among the initiatives.

Keywords: woodfuels, forest governance, institutional interplay, Renewable Energy Directive, Forest Europe, certification.

1 **Introduction**

There are concerns that the increasing demand for forest biomass based energy, or woodfuels, may affect the ecological conditions of forests throughout Europe and at a global scale.

Traditionally, national forest policies are addressing emerging challenges for forestry and potential threats to forest ecosystems. But the circumstance that effects on forests like air pollution, climate change, the spread of species or the trade in products including biomass for energy do not stop at national borders requires that supranational institutions deal with these effects. In recent years there have been fundamental changes in the global institutional framework governing the use of forests (Visseren-Hamakers & Glasbergen, 2007). Traditional forest government, which refers to forest policy making through the institutions of sovereign states, is increasingly complemented by forest governance, which involves intergovernmental and (public-) private institutions and non-governmental organizations.

Under the voluntary intergovernmental forest policy process Forest Europe negotiations on a Legally Binding Agreement (LBA) on forests at the pan-European level were finalized in 2013. It provides evidence that the development of forest-focused public institutional arrangements continues at the supranational scale. Private- and multi-stakeholder forest certification schemes like the Forest Stewardship Council (FSC) emerged as private and hybrid forms of forest governance. They achieved regulatory advances where states were unwilling or unable to act (Visseren-Hamakers & Glasbergen, 2007).

Until now most international forest-focused institutions, whether being private, public-private or intergovernmental, have not addressed the sustainability of forest biomass based energy in a systematic way (Stupak et al., 2011).

Whereas current European Union (EU) and national government policies encourage the use of woodfuels as a substitution of fossil fuels, there are no EU legal instruments in place that address the sustainability of forest biomass used for the production of heating and electricity.

Based on the Treaty between the EU Member States, the EU has a mandate to use government instruments that are binding in areas like agriculture and nature conservation for the Member States (Krott, 2008). The EU does not have an explicit forestry mandate. But, forest issues are affected by EU legal instruments that focus on other issues, such as agriculture, nature conservation, and climate. However, since the

power of the EU is rather limited, it deploys a number of governance instruments that are not legally binding on the issue of forestry (Krott, 2008: 15). While the Forest Europe process refers to forest governance among sovereign states and to some extent private actors, the European Union (EU) refers to forest-related governance and government.

There are expectations that in the near future a great part of the energetic use of forest biomass will be regulated through the European Union's *Renewable Energy Directive 2009/28/EC* (EC, 2009), hereafter referred to as RED. In 2009 the RED was developed with the aim to increase the share of renewable energy in the EU and to regulate the production of liquid biofuels mainly produced from agricultural feedstock (EC, 2009). The European Commission (EC) has chosen an approach for the implementation of the RED that relies on public-private biofuel certification schemes. It has created a politically instituted market for liquid biofuels. For biofuel certification schemes it is easier to compete on the biofuels market if they adapt to the requirements of the EU (Lin, 2011). Biofuel certification schemes like the Roundtable on Sustainable Biomaterials (RSB) adopted standards explicitly dedicated to the EU biofuels market.

Since 2009 an extension of the RED to electricity, heating and cooling generated from solid biomass including forest biomass has been on the agenda of the EC. The extension has been delayed several times. One argument of the EC to not adopt binding sustainability criteria for solid biomass was that the wide variety of biomass feedstocks (wastes and agricultural and forestry residues) make it difficult to formulate adequate criteria. Another argument was that "for biomass produced within the EU, the current legal framework related to agriculture and forest management gives certain assurances for the sustainable management of agriculture and forests" (EC, 2010: 2). Similarly, actors from the Forest Europe process have argued that the sustainable use of forest biomass based energy is implicitly guaranteed through national forest legislation and through Forest Europe's non-legally binding instruments for sustainable forest management (SFM) (MCPFE, 2009).

But, increasing import of woody material for energy like wood-pellets from outside the EU has given rise to continuous discussions about an extension of the RED to solid biomass. This is, because not all actors are convinced that national forest legislation can guarantee the sustainability of woodfuels in all the countries that are exporting woody material for energy to the EU.

At the time of writing (January 2014) the EC had still not decided whether it is going to introduce binding sustainability criteria for solid biomass used for electricity, heating and cooling, and if so, whether these would deviate substantially from the RED criteria for liquid biofuels.

On the one hand, it is likely that these criteria will deviate as little as possible from the criteria for liquid biofuels for consistency reasons. On the other hand, it has been criticized that the current criteria for liquid biofuels are not suitable in the case of biomass extracted from standing forests (European Parliament, 2011). The current RED criteria focus on Green House Gas (GHG) emissions and Land Use Change (LUC). LUC is considered as a problem mainly in connection with the conversion of high conservation value land into agricultural land for the production of feedstocks for liquid biofuels. The LUC criteria define *inter alia* primary forests as a no-go area, which means that biofuel feedstocks production is forbidden on land that is categorized as primary forest.

For comparison, SFM initiatives do not systematically ban operations in primary forests. However, given that energy tree plantations for the production of solid biomass may use up more land, the current LUC criteria may not be completely inappropriate for woody biomass.

The EC announced that it will further monitor the progress of sustainability initiatives like forest certification, so as to assess whether binding sustainability criteria for woodfuels would help to guarantee sustainability in the forestry sector (EC, 2010).

As stated above, forest certification standards have not systematically addressed woodfuels sustainability, yet. Stupak et al. (2011) conducted a detailed assessment of how woodfuel issues are addressed by SFM initiatives including forest certification schemes. They reported that forest certification standards address issues related to woodfuels mainly at the operational level of forest stands. The standards do not yet cover all of the risks related to more intensive woodfuel harvesting like increased reduction of soil carbon. Furthermore, unwanted LUC concerns the landscape level and may therefore not be adequately addressed by forest certification standards.

1.1 Problem statement

The responsibility to govern woodfuels is scattered across various initiatives with different backgrounds. There might an opportunity that the initiatives complement or reinforce each other. However, they may not be compatible on all aspects (e.g. banning operations in primary forests versus not banning them).

An EU stakeholder consultation revealed that 40% of the respondents, many from NGOs and citizens, considered traditional and recent initiatives related to biomass sustainability as insufficient to guarantee woodfuels sustainability (EC, 2011a).

This study argues that two kinds of action may help to reach a higher guarantee for woodfuels sustainability. First, initiatives need to address the sustainability of woodfuels more explicitly and not as a peripheral issue. Second, better coordination among the initiatives is needed to avoid that their activities related to woodfuels sustainability are incompatible with each other.

Knowledge on how the initiatives influenced each other consciously or unconsciously is a necessary first step to undertake coordination efforts among the initiatives. Until now it has not been studied systematically how initiatives influenced each other in the issue area of woodfuels. This study is a first attempt to conduct this analysis.

Furthermore, this study considers it as important to know why the initiatives influenced each other in the way they did. Since the initiatives are addressing woodfuels only as a peripheral issue, influence among them might be small in the issue area of woodfuels. Thus, it is interesting to know which factors favored influence between the initiatives in this issue area.

In cases where actors of one initiative made efforts to exert influence on actors of another one, it is also interesting to know why their attempts to exert influence were successful, or why they were not successful. This study therefore also addresses the question why influence in the issue area of woodfuels occurred, or why it did not occur.

1.2 Research objective and research questions

The objective of this study is to analyze the interactions in the issue area of woodfuels between four initiatives with different backgrounds. While two of them are forest-focused institutions (Forest Europe and the FSC), the other two institutions had been created (partially) to target the sustainability of liquid biofuels (the RED and the RSB). Institutions from two different backgrounds (forests and biofuels) were chosen. And for each background one institution is based on traditional state authority and the other one is steered by private actors and is market-driven. Since intergovernmental and private institutions are incorporated into the analysis, this study relates to the research on global (environmental) governance.

The interactions are analyzed mainly from an institutional perspective. This implies that the research concentrates mainly on distinct institutions and less on individual actors operating the institutions or being addressed by the institutions. More specifically, the

interactions are analyzed through using an institutional interplay approach, which is further explained in Chapters 3.4 and 4.

Research Questions

The two research questions of this study are as follows:

1. How and to what extent did the four institutions influence each other in the issue area of woodfuels?
2. How can these influences be explained?

This study uses the causal pathways concept of scholars of institutional interplay as a conceptual foundation in order to answer the first research question. Causal pathways denote how influence travels from one institution to another one in situations of institutional interaction. Causal pathways are useful categories to disaggregate a complex interaction situation into a number of single instances of interaction. This study follows the approach of Oberthür & Gehring (2006), which entails that each instance of interaction must allow the identification of a single source institution, a single target institution, and a unidirectional causal pathway connecting the two.

For answering the second research question, this study reinterprets the conceptual framework on effective governance task selection that was developed by Stokke (2011). Stokke's (2011) framework will be introduced in Chapter 4.

1.3 Outline of the thesis

Chapter 2, first, provides information on the growing demand for woodfuels in Europe (Ch. 2.1). It introduces EU bioenergy policies including the RED (Ch. 2.2). Thereafter Forest Europe is introduced and compared with the RED in terms of different approaches of regulating woodfuels (Ch. 2.3). Then background information on the FSC and on the RSB is given.

Chapter 3 starts with an introduction to the literature on governance with an emphasis on the privatization of governance (3.1) and a brief discussion of hard- and soft law, both of which are currently employed to regulate aspects of woodfuels. It is followed through a section on academic perspectives on institutions and regimes (3.2 and 3.3). A separate section introduces the study of institutional interplay.

Chapter 4 introduces a conceptual framework developed by Stokke (2011) to analyze institutional interplay. It is elaborated how the framework is adapted to answer the two research questions.

Chapter 5 outlines the methods that were employed.

Chapter 6 presents the answers to both research questions per pair of institution (e.g. the RED and Forest Europe are one pair).

Chapter 7 discusses the findings in the light of theoretically based literature (Ch. 7.1). Then, it discusses the usefulness of the conceptual framework (7.2). It closes through suggesting another theoretical approach with roots in historical institutionalism that could be applied complementary to answer the second research question.

Chapter 8 concludes and entails recommendations for policy and future research.

2 The current status of woodfuel use and regulation in the European Union

This chapter is divided into three sections. The first section outlines the increasing use of woodfuels in Europe. The second section gives an overview of EU bioenergy policy relating to solid biomass and including the RED. The third section provides general information on Forest Europe, the FSC and the RSB and on their activities related to woodfuels.

2.1 The increasing use of woodfuels in Europe

Solid woodfuels include cordwood, charcoal, prepared biomass (e.g. woodchips and pellets) and the various residues and recovered products from forest and wood-processing industries (Johnson, Tella, & Israilava, 2010).

An UNECE/FAO Joint Wood Energy Enquiry from 2009 concluded that 44% of all woody biomass used in Europe is for wood energy including heat and electricity (UNECE/FAO, 2012: 97).

In 2011 wood energy accounted for 3.4% of the total primary energy supply and 38.9% of the renewable energy supply in the UNECE¹ region, making it the leading renewable energy source (www.unece.org). Data from 11 UNECE countries² showed that co-products and residues from forest-based industries, including processed wood fuels such as wood pellets, briquettes and charcoal (also called indirect sources) contributed 57% of the total wood energy sources. Woody biomass from forests and other wooded land (referred to as direct sources) such as logging residues, thinnings and clearings, had a 34.1% share. Recovered waste wood (mainly waste from construction, but also packaging and old furniture) accounted for 3.7% of the supply. Wood energy was primarily consumed by the industrial sector (48%, typically indirect sources), followed by the residential sector (34.4%, mainly direct sources), and the power and heat sector (15%) (www.unece.org).

Global trade in solid biofuels increased six-fold between 2000 and 2010, with intra-EU trade accounting for two-thirds of the global solid biofuels trade in 2010 (Lamers et al., 2012). Among the global solid biofuel commodity streams, trade in wood pellets grew

¹ Data was provided by 25 European countries, the United States and Canada.

² Austria, Cyprus, Finland, France, Germany, Ireland, Serbia, Slovenia, Sweden, Switzerland and United Kingdom.

strongest from 8.5 PJ in 2000 to 120 PJ in 2010. During the last decade two thirds of the globally produced wood pellets have been combusted inside the EU (Lamers et al., 2012).

Growth in the EU's wood energy consumption has been primarily driven by a demand for industrial pellets for co-firing³, combined heat-and-power (CHP) and district heating, and pellets for residential heating (UNECE/FAO, 2012). Most wood pellets in the EU have been used for residential heating (mainly in Italy, Germany and Austria), followed by district heating (Sweden and Denmark), and large scale power generation (almost solely in Belgium, the Netherlands and the UK) (Lamers et al., 2012).

While the EU region produces most of the residential pellets used for heating, a large proportion of industrial pellets are imported (UNECE/FAO, 2012: 97). Wood pellets were increasingly imported from North America and North West Russia. Most of the North American wood pellets are destined for the energy markets in Belgium, the Netherlands and UK. Russian wood pellets enter the EU most of the times in Sweden and Denmark (Lamers et al., 2012: 3185).

Woody residues and wastes can be converted into the second generation liquid biofuels ethanol and Biomass-To-Liquid (BTL) diesel, which could be consumed by the transport sector. Second generation (or advanced) biofuels are produced from material that was not purposefully cultivated for the production of biofuels. Currently the production of second generation biofuels is not undertaken at a commercial scale, because of technical barriers and high processing costs (IEA, 2008: 1). However, research and developing is undertaken to improve conversion technologies. According to the International Energy Agency (2008: 1), once conversion pathways are proven, there will be a steady transition from first to second generation biofuels. It "would 'boost' the role of forestry on the biofuel market, but would also increase competition for raw materials for energy production and manufacture of products such as pulp and composite boards" (UNECE/FAO, 2012: 32).

³ Co-firing refers to the simultaneous combustion of different fuels e.g. wood and coal in the same boiler.

2.2 EU policies on securing the sustainability of bioenergy

During the last decade the EU and the governments of the Member States (MS) initiated various processes in order to increase the share of biomass energy from wood, waste and agricultural crops. In the case of biomass electricity and heating the main support mechanisms in the different MS have been quota systems and feed-in tariffs including bonus payment options for e.g. CHP. These mechanisms have created stable market conditions for investors (Lamers et al., 2012). In some countries like the Netherlands and Denmark a market independent feed-in tariff policy is employed, which means that biomass electricity producers receive a premium payment on top of the spot market electricity price (Held et al., 2010).

In 2009 the EU implemented the RED, which serves to promote renewable energy to reach a 20% share of renewables in transport and electricity by the year 2020. The MS are free to decide through which renewable energy source type like wind, hydro or biomass they will achieve the common objective for electricity.

Whereas the directive includes binding sustainability criteria for liquid biofuels used for transport, there are no criteria for solid and gaseous biomass used for electricity and heating. Environmental NGOs stated that the current national and EU policies put European forests at a risk, because they promote increased extraction of wood from forests for e.g. CHP, but lack sustainability criteria for solid biomass (EFI, 2012).

Liquid biofuels that do not meet the RED sustainability criteria can still be placed on the EU market. However, compliance with the RED criteria is a prerequisite in order to count emission reductions towards the mandatory GHG reduction targets of the EU Member States and to be eligible for governmental financial support. In article 17 of the RED the following environmental sustainability criteria for biofuels and bioliquids are defined:

1. Biofuels must achieve GHG emissions savings of at least 35%, increasing to 50% from 2017. From 1 January 2018, GHG savings must be at least 60% for biofuels produced in installations in which production started on or after 1 January 2017;
2. Biofuels shall not be made from raw materials obtained from the following land with high biodiversity value (such status as determined in January 2008): primary forest and other wooded land, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and

the ecological processes are not significantly disturbed; areas designated by law for nature protection purposes; and highly biodiverse grassland;

3. Biofuels must not be made from raw materials obtained from land with high carbon stock, which refers to land that was considered wetlands and continuously forested areas in January 2008 and no longer has that status;
4. Biofuels must not be produced from crops grown on land that was peatland in January 2008, unless evidence is provided that the cultivation of the crops did not involve drainage of previously undrained soil. (EC, 2009)

The RED contains no direct rules for other environmental aspects such as water and soil issues, but for agricultural conditions the EU's Common Agricultural Policy (CAP) will apply. Furthermore, the Commission shall, every two years, report to the European Parliament and the Council on social impacts in the EU and in third countries of increased demand for biofuel. Social impacts may refer to child labour, land use rights and freedom to trade unions. Each Member State shall report on economic, environmental and social impacts by 31 December 2011, and every two years thereafter.

In Article 17(9) of the RED it is stated that in December 2009 the Commission shall report on requirements for a sustainability scheme for energy uses of biomass, other than biofuels and bioliquids, if it regards it as appropriate.

In 2010 the European Commission (EC) released a report on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling in which it outlines its decision against a common harmonized scheme for solid biomass for the time being. Instead, it encouraged countries to develop voluntary schemes for solid biomass in accordance with the sustainability criteria for liquid biofuels (EC, 2010). Below, the report is presented in more detail.

The European Commission's press release from 2010

The EC's report from 2010 stated the following reasons for the EC's decision not to propose binding criteria for solid and gaseous biomass:

1. The wide variety of biomass feedstocks (wastes and agricultural and forestry residues) make it difficult to put forward a harmonized EU wide scheme at this stage.
2. Sustainability risks of using these feedstocks are considered low if no land use change occurs.

Furthermore, the report highlights that “the biomass sector is fragmented and there are numerous small-scale users of biomass. Placing requirements on small-scale producers to prove sustainability would create undue administrative burden”.

But, in the report the EC provided recommendations for developing national schemes for solid and gaseous biomass. It was recommended that sustainability schemes apply only to larger energy producers of 1 MW thermal or 1 MW electrical capacity or above. In order to create favorable conditions for a potential harmonized EU-wide scheme for biomass and bioenergy, the EC recommended that national sustainability schemes for solid biomass comply with the legally-binding requirements for biofuels and bioliquids of the RED. It was stated that for a potential extension of the RED to solid biomass, the EC will build on the criteria for liquid biofuels and will consider provisions made by Sustainable Forest Management (SFM) initiatives.

In the report the EC announced to reconsider its decision to not propose binding sustainability criteria for solid biomass at the end of 2011 (EC, 2010). It also intended to review the approach of voluntary national schemes for solid biomass. Until now the EC has not released any new decision or conclusion. According to EU media, in August 2013 a proposal for sustainability criteria for solid biomass failed to get sufficient support within the EC and from the European Parliament (www.europeanvoice.com). Until the European Elections in 2014 a new proposal was put on hold.

The meta-standard approach used by the European Commission

Several sustainability initiatives that emerged more recently like the RED and the RSB use a meta-standard approach. The rationale behind the meta-standard approach is that operators do not have to be certified by new sustainability initiatives (the meta-standard), but that they can demonstrate compliance with the meta-standard through being certified by existing standards (Lin, 2011). Thus, the EC recognizes existing certification schemes, rather than carrying out certification itself. The EC benchmarks any voluntary scheme or standard that applies for recognition against the RED requirements (the meta-standard). The ‘benchmarking process’ of the EC considers the sustainability criteria covered by a scheme and the robustness of the scheme’s control mechanisms. The requirement for the quality of the auditing procedure is laid out in Article 18.3 of the RED, which states that schemes shall ensure independent auditing of the information provided by an economic operator (EC, 2009).

Economic operators who join a scheme that is fully recognized by the EC can show full compliance with the sustainability criteria. The EC also allows for partial compliance via a scheme that does not cover all RED criteria. But then operators have to do supplementary checks in order to compensate for the compliance gap of the scheme.

The current status of sustainability scheme development in the EU

At this stage countries are not required to show compliance with the RED criteria in order to count GHG reductions from solid biomass used for electricity, heating and cooling towards the obligatory emission reduction targets. Hence, there has been no need at the EU level for the recognition of supranational schemes for solid biomass that could be used by EU Member States as an alternative to their own verification systems.

As has been elaborated by Lin (2011), the EC delegated scheme development to private actors. It could also be said that the mandatory criteria for liquid biofuels were an incentive for nonstate actor initiated certification schemes to develop biofuel standards that correspond to the RED criteria.

Currently the EC recognizes 13 international certification schemes for liquid biofuels that enable biofuel producers around the world to comply with the EU standards and exporting EU countries to demonstrate sustainable biofuel production.

Some of these schemes like NTA 8080 and the International Sustainability and Carbon Certification (ISCC) have also developed standards that address solid biomass used for electricity, heating and cooling.

In 2013 the RSB published a standard for biofuels produced from residues and wastes, which is not feedstock-specific and is not dedicated to a particular end use like transport or electricity. However, the standard includes a GHG calculation method that was developed under the consideration that biofuel for transport is the end use product. Hence, at this stage the standard could only be used for the production of biofuel for transport (Mathe, interview).

Schemes that were created after the adoption of the RED like NTA 8080 were directly developed in a way that they met the RED requirements, or went beyond them. The RSB that was established before the RED developed an additional standard especially suited for the RED.

Forest certification schemes like the Forest Stewardship Council (FSC) have not developed standards that address explicitly woodfuel harvesting. Furthermore, forest certification schemes do not address GHG emissions along the supply chain and have

therefore not been very receptive to the potential EU plans for a harmonized scheme (Stupak et al., 2011). However, collaborative schemes could alleviate compliance gaps. For example, the RSB global Standard for biofuels based on by-products and residues requires that “biofuel operators using forestry harvesting residues must source from operations which are certified by the FSC or an equivalent scheme and shall calculate the GHG emissions for the entire chain of production of the biofuel” (RSB, 2013).

2.3 Forest Europe

The Ministerial Conference on the Protection of Forests in Europe (MCPFE), nowadays Forest Europe, is a voluntary policy process that commenced in 1990. 46 European countries and the EU are signatories to Forest Europe. Among the signatories are the EU Member States and several other European countries like Norway, Switzerland, Turkey, some former Soviet Republics and the Russian Federation. Non-European countries like Japan and Canada, and international organizations hold an observer status to the process. Apart from its function as a forum for forest issues, the process has the purpose to enhance commitment of the signatory states with regard to sustainable forest management (SFM).

Forest Europe does not have the legal status of an international or intergovernmental organization in the sense of international law. But, its secretariat, the ‘Liaison Unit’, is regularly integrated into the administrative system of the country which is chairing Forest Europe (Gießen, 2008). The chairmanship is periodically passed from one or two signatory countries to other signatory countries.

In 2007 negotiations on a legally binding agreement on forests (LBA) commenced under the MCPFE. On the Ministerial Conference in Oslo 2011 the Intergovernmental Negotiating Committee (INC) was launched. It was assigned with the task to develop a LBA.

In November 2013 the negotiations on the LBA were concluded. The final draft text of the forest convention will be presented to an extraordinary Forest Europe ministerial conference within six months after the conclusion of the negotiations for its consideration, possible adoption and opening for signature.

The latest publically available version of the draft text includes *inter alia* the following points:

- It is reaffirmed that the forest convention shall help to reach the goals of other conventions, such as the Convention on Biological Diversity.

- Parties shall ensure the implementation of SFM and shall use criteria of the convention as an orientation for the implementation⁴. They shall report on the status of the implementation of SFM to the Conference of the Parties on a periodic basis.
- A Compliance Committee is established. It shall be facilitative, non-confrontational, transparent, cooperative and recommendatory in nature. (INC, 2013)

During the Ministerial Conference of 1998 (in Lisbon) the MCPFE developed Criteria and Indicators (C&I) that shall serve signatory states to assess changes of SFM. Members of MCPFE are required to report on the state of national forests and are advised to use the indicators for their assessments (MCPFE, 2007). “However, standards to record the status of the indicators are not clearly defined and leave a broad margin of interpretation when Member States compile their reports on SFM.” (Winkel et al., 2009)

C&I were compiled to meet all kinds of SFM objectives and do not address woodfuel harvesting as an independent activity (MCPFE, 2009). MCPFE’s 2007 Warsaw Resolution encourages signatory states to assess environmental impacts of woodfuel harvesting and to create enabling conditions for the mobilization of wood for energy and for the development of the bioenergy market (MCPFE, 2007).

In 2008 an ad-hoc working group (WG) on sustainability criteria for forest biomass production including bioenergy was established under MCPFE. The WG was led by Sweden. Other participants were Finland, Norway, the United Kingdom, the European Commission, and organizations like the Confederation of European Paper Industries (CEPI) and the World Wildlife Fund for Nature (WWF).

The purpose of the WG was to analyze needs for further refinements and/or developments of the following existing MCPFE tools for sustainable forest management (SFM) with respect to new demands like bioenergy:

“The general guidelines for the sustainable management of forests in Europe, the general guidelines for the conservation of the biodiversity of European forests, the criteria and indicators for sustainable forest management, the pan-European operational level guidelines, the pan-European guidelines for afforestation and reforestation, and the MCPFE approach to national forest programs in Europe.” (MCPFE, 2009)

⁴ Criteria align with the criteria of the non-binding MCPFE tools listed in Appendix 2.

“In spite of the broad acceptance (among the participants) and support of the MCPFE tools, the non-binding status of the tools was identified as an issue for them being used by regulatory processes and institutions.” (MCPFE, 2009) Participants agreed that the MCPFE should investigate possibilities to refine the MCPFE tools to better serve as a basis for verification, e.g. by a third party (such as Eco-Management and Audit Schemes of the EU, the International Standards Organization or others).

The elaborations within the WG were based on an analysis of MCPFE tools that had been conducted by Ms. Hillevi Eriksson from the Swedish Forest Agency. The proposed amendments to the MCPFE tools included defining threshold values on specific elements of sustainable forest management and the adding of a quantitative indicator regarding the GHG savings in heat and electricity generation and biofuel/bioliquid production from woody biomass (MCPFE, 2009). The MCPFE criteria developed during the Lisbon Conference, selected existing indicators and the suggested additional indicators are shown in Appendix 2.

A secondary task of the WG was to make recommendations to the European Commission and the RED.

Two competing approaches towards regulating the sustainability of woodfuels

Despite the RED and Forest Europe pursue the same objective of enhancing the sustainability of woodfuels, they could be seen as two competing approaches of regulating woodfuels at the European level. This section outlines two main differences between Forest Europe and the RED and provides arguments that can be given in favor of each approach.

One main difference between a future RED and Forest Europe is that the former would concern only the energetic end-use of forest biomass, while the MCPFE tools entail criteria for forest management irrespective of the end-use of wood raw material.

Forest Europe related actors gave the following arguments in favor of their approach: “Wood material is gathered from the forest in one wood procurement process regardless of the end use. This means very effective and cost efficient procurement procedures, and urges more than before the application of a holistic approach and requirements for sustainable forest practices, instead of separating the requirements according to only one end use.” (MCPFE, 2009) In the eye of some participants of the WG, the Forest Europe process followed a more holistic approach to forests than the RED.

The other main difference is that the RED is legally binding, while the MCPFE tools have a voluntary nature. It is expected that also a LBA will not differ much from the current MCPFE tools and will have a soft law character (Edwards and Kleinschmit, 2012). This section continues through introducing two types of policy instruments that differ in terms of the regulatory leeway which they leave to EU Member States. Thereafter it outlines in how far broadly defined sustainability criteria for woodfuels might be acceptable for a forest convention, but not for an EU directive.

The two types of policy instruments introduced here are EU regulations and EU directives. EU regulations are directly enforceable in the MS. They imply detailed rules that are directly applicable and leave little leeway to MS in the implementation phase (Winkel et al., 2009). “While state executives are inclined to adopt ambiguous formulations in the high politics of treaty making, they give the Commission latitude to formulate very precise regulations on specific policies. Instead of determining general provisions that are broadly applicable, state executives allow the Commission to propose legislation that approximates a ‘complete contract’.” (Marks et al., 1996: 355) EU directives offer MS the possibility to decide freely which rules and instruments they will use to reach commonly defined objectives of the directives (Winkel et al., 2009). Directives necessitate to be transposed into national law before they come into effect. Nevertheless, directives may imply compulsory and detailed criteria like the Habitats Directive and the RED.

EU regulations and directives are both legally binding. However, the variety of forest ecosystems and the varying economic importance of forestry in the European countries have constrained the establishment of an EU common forest policy with a mandate to adopt binding rules (EFI, 2012). These constraints at the EU level have paralleled constraints at the international level where negotiations on a global forest convention have failed repeatedly. While it is recognized that a universal standard for the forestry sector would be justifiable, as it would set uniform requirements across regions, its establishment is a challenging task. The prescription of a ‘one size fits all’ standard for forest management though feasible may not guarantee effectiveness with respect to its stated objective. “The ‘failure’ of a regime to develop hard law may simply reflect the lack of need for such efforts at the international level and the functional need to deal with an issue at a regional, national or local level instead.” (Rukundo et al., 2009)

In this context C&I of a LBA though binding may be formulated in a relatively broad way that facilitates to interpret them according to national forest management requirements. The EC does not disagree with this approach as long as forest biomass is produced

and traded only inside the EU. But since much of the woody biomass used for energy is imported from non-EU countries, the proposal of detailed, binding criteria for solid biomass is still on the agenda of the EC.

EU sustainability criteria that would mainly be developed for biomass imported from non-EU countries would also affect EU countries. Under World Trade Organization (WTO) rules the same criteria for imported goods also have to apply to goods that are produced and traded within the EU. Thus, a future RED though mainly targeting non-EU countries may give EU countries less leeway in regulating forest biomass based energy than a LBA.

The RED could also draw on voluntary forestry processes in other regions like the International Tropical Timber Organization (ITTO), or the Montreal process. But these processes do not provide the same control mechanisms as some international hard law institutions (e.g. WTO), or voluntary certification schemes (e.g. the FSC).

2.4 The Forest Stewardship Council

The first forest certification scheme, the Forest Stewardship Council (FSC), was founded through an initiative of environmental groups in 1993 as a response to concerns over global deforestation (Bernstein & Cashore, 2004). The FSC is owned by various stakeholders. Its governance structure is built upon principles of participation, democracy and equity. Governments have no decision making power within the FSC, but they are an interest group that may influence decisions made within the FSC (Cashore, 2002). The FSC was the forerunner of the roundtable initiatives (Fortin & Richardson, 2013: 143). The World Wildlife Fund for Nature (WWF) has played an active role in establishing the roundtable certification initiatives.

As of October 2013 180 million hectares in 80 countries have been FSC certified (FSC, 2013). The FSC accounts for one third of the world's certified forests. Slightly less than two thirds of the global certified forests are certified through other forest certification schemes that are endorsed through the Program for the Endorsement of Forest Certification (PEFC) (UNECE/FAO, 2012).

The FSC is designed for certification of timber production and of the chain of custody (CoC), which tracks the flow of a forest product from the production site to the consumer (Karmann & Smith, 2009). The FSC does not conduct certification audits itself and relies on third-party certifiers who are accredited by the FSC. Third-party certifiers carry out the initial certification and the subsequent audits. Their work involves

on-the-ground evaluation of the forest, assessment of the Management Plan and interviews with people familiar with the firms' operations.

The FSC was created partially to enhance the inclusiveness and stringency of environmental standards. According to Cashore (2002: 507), the FSC reaches its goal also through creating standards that limit the leeway for industries. The FSC conforms to a conception of Non State Market Driven governance that enables social, economic and environmental interests to compete equally (Cashore, 2002). The FSC achieves the equal representation of interests through its three chamber structure. Stakeholders need to select a chamber when they apply for membership within the FSC.

Cashore (2002) argued that the FSC competitor schemes follow a Non State Market Driven governance conception that does not seek to eliminate business dominance. According to Cashore, that conception assumes that there is a misunderstanding between civil society's perception of forest practices and reality. In the eye of Cashore (2002: 509), certification is then partially a "communication tool that allows industries to educate civil society."

The FSC engages in the development of national certification standards. FSC designated agencies organize stakeholder groups to create regional standards following the FSC principles and criteria. The global 10 FSC principles and related criteria (P&C) are also relevant to non-timber forest products, ecosystem services and rural livelihoods. One FSC criterion states that the rate of harvest of forest products shall not exceed levels which can be permanently sustained. Harvesting rates are further specified by national and sub-national FSC standards.

Stupak et al. (2011) conducted a detailed assessment of how woodfuel issues are addressed by Sustainable Forest Management (SFM) initiatives including the FSC. They reported that "none of the existing FSC standards explicitly addresses sustainable harvesting levels of woodfuel feedstock, even if, for example, the FSC Sweden draft refers to national guidelines that include such restrictions" (Stupak et al., 2011: 3293). Wood or deadwood removal for bioenergy is not addressed as an independent activity by national FSC standards, but standards include recommendations or entail directions for the treatment of logging residues. "Whereas some standards require that as much residue as possible be left to maintain ecological and productive functions, others encourage the commercial processing of residues as long as adequate amounts are left for ecological purposes and for the protection of forest soil on skid rows." (Stupak et al., 2011: 3294) According to Stupak et al. (2011),

only a few standards provide detailed directions on the amount and types of deadwood to be left in the forest (e.g. FSC UK and USA Pacific).

2.5 The Roundtable on Sustainable Biomaterials

The Roundtable on Sustainable Biomaterials (RSB) was initiated through the Swiss Federal Institute of Technology in Lausanne (EPFL) in 2007, after a stakeholder meeting in 2006. Its members are comprised by a large variety of stakeholders including oil companies, NGOs, governments and farmers.

The roundtable design implies that members devise the standards against which operators will be certified and elect a governing body that oversees revisions of the standards, acceptance of new members, the commission of consultations, and the resolution of complaints that arise through (non-judicial) grievance mechanisms (Fortin & Richardson, 2013). The RSB works towards stakeholder integration through encouraging stakeholders to give feedback on the principles and criteria on the internet and per mail or telephone (Martikainen et al., 2010).

The main task of the RSB is the development of a meta-certification system for biofuels that builds on existing schemes like agricultural and forest certification schemes. In total the RSB covers 12 environmental, social and economic principles and related criteria (Martikainen et al., 2010). The RSB developed two sets of feedstock independent standards. Whereas one targets the production and conversion of biomass at a global scale, the other one was specifically adapted to the requirements of the RED. Like the FSC and PEFC forest certification schemes, the RSB relies on independent third party auditing through accredited certification bodies.

In 2013 the RSB published a standard for the production of biofuels from by-products and residues. It applies to a broad range of residues and wastes including woody ones. It is not dedicated to a specific end use like BTL diesel or pellets, although it implies a method for calculating GHG emissions that is less applicable to an end use other than bioliquid (Mathe, interview). The standard demands forest operators to be FSC certified. It does not require them to comply with the RSB principles, despite the principles concerning soil protection (principle 8) and Green House Gas emissions. Furthermore, operators who want to supply forest biomass for energy use in Europe have to meet the RED criteria.

The RSB RED standard concerns several issues that are not addressed by the RED criteria, such as soil protection and social issues. For example, principle 5 and principle

12 consider rural and social development in regions of poverty and land rights, respectively. While other biofuel certification schemes focus on environmental and social impacts at the plantation site, the RSB looks at these impacts throughout the whole supply chain.

In 2009 commenced the testing of the RSB standards through pilot projects in cooperation with biofuel companies. In a second phase the test results helped to refine the standards. In July 2011 the EC officially recognized the RSB as a 'qualifying standard' that could be used internationally to demonstrate compliance with the RED requirements (EC, 2011b). The RSB standards became fully operational in the same year.

3 Theoretical framework

This chapter introduces theory that is relevant for the development of the thesis. It provides background information on the governance literature. A definition of soft law and hard law is given. Then, the chapter elaborates on concepts of institutions, regimes and institutional interaction.

3.1 Governance

This section provides insights from the governance literature, because the regulation of woodfuels in Europe is an issue of global (environmental) governance. Governance, in general, differs from government in that it is less state-centric. Governance is characterized through the inclusion of private actors and non-hierarchical steering modes (Biermann & Pattberg, 2008).

Governance in the issue area of woodfuels

In Europe and globally the sustainable management of woodfuels is addressed by initiatives that originated in the public and private sector. Woodfuels can be seen as a typical forestry issue. In Europe most forestry issues are dealt with by government instruments of the individual states. At the international level policy making requires consensus among sovereign states. Since top-down decision making is not possible at the intergovernmental level, governance is the only option (Krott, 2008). All instruments deployed for forest policy at an international level like the non-binding MCPFE tools and the expected LBA can therefore be described as forest governance instruments (Krott, 2008).

States may be able to control the sustainable production and use of woodfuels within their territories. But, utilities and environmental organizations are calling for an EU wide common sustainability scheme for biomass in order to cope with problems arising from increasing trade in woodbased biomass.

The EU is partially a supranational institution that can use government instruments that are binding for the EU Member States. For regulation outside the EU, the use of governance instruments like (public-) private certification schemes is an option. For the EU biofuels market, the EU endorsed certification schemes in order to give countries outside the EU the possibility to demonstrate compliance with the RED criteria. Most certification schemes endorsed by the EU like the RSB have created their own criteria and standards that are an addition to the RED criteria. Policy creation and implementation that involves interaction between actors from state, markets and civil

society refers to governance. Governance applies also to policy creation by private institutions, which does not necessarily require the consent from states. A typical example of such policy creation in the forestry area is the FSC.

Debate on the role of the state in governance

(Public-) private initiatives and intergovernmental organizations seem to play important roles for governing woodfuels in Europe. However, their influence may be limited as compared to government institutions of the individual states and the EU.

In the international relations (IR) literature it is disputed whether the study of the global governance process should begin with an analysis of the exercising of authority through sovereign states in that process. There is dispute about how state-centric the governance concept should be. Whereas Pierre (2000: 3) defined governance as “coordination of social systems and, for the most part, the role of the state in that process”, Rosenau (2000: 171) preferred a definition that does not reference the state. He defined governance as “systems of rules, as purposive activities of any collectivity that sustain mechanisms designed to insure its safety, prosperity, coherence, stability, and continuance.”

According to Rosenau (2000: 170), “most IR practitioners view governance as what governments do, whereas transnational processes and actors tend to be seen as relevant only as they make inputs into the work of governments.” He stated that those practitioners perceive international organizations and regimes as “actors that are engaging in cooperative acts to which authority may be attached but which can also be withdrawn if states wish so.” (Rosenau, 2000: 170) He criticized them for downplaying “the notion that global civil society may eventually emerge as the basis for global governance.”

Whereas the state-centric concept of governance is contested, there is large agreement that globalization has created shifts in the responsibilities and new interdependencies among public and private sectors. Thus, most IR scholars perceive a transformation of the state rather than a decline of the state as part of the new relationships (Pierre, 2000). Kooiman (2000) argued that a reshuffling of government tasks demonstrates greater awareness of the need to co-operate with other societal actors in order to address societal problems.

Shifts from the public to the private sphere include the deregulation of markets and privatization. But deregulation is limited, because of the problems of market failure. In Public Administration ‘governance through networks’ is seen as a solution to this

problem. Networks coordinate and allocate resources and are seen as an alternative to the market and the state (Rhodes, 2000: 61).

Social-political governance

Kooiman et al.'s (1993) analysis of public-private mixes of societal problem-solving belongs to the governance through networks literature.

Kooiman et al. (1993) referred to forms of governing in which public or private actors do not act separately but in conjunction or in combination as social-political governing and governance. While governing refers to goal-directed interventions, governance is the result of social-political interactions. "Social-political governance and governing are perceived as more or less continuous processes of interaction between social or political actors, groups and forces and public or semi public organizations or institutions." (Kooiman et al., 1993: 2) "Social-political governance is directed at the creation of patterns of interaction in which political and hierarchical governing and social self-organization are complementary." (Kooiman et al., 1993: 252) Examples of patterns of interaction are self-governing, governing through networks, public-private partnerships, communicative governing and hierarchical governing.

In a complex partly hierarchical, partly non-hierarchical environment it is a new task of the state to enable social-political interactions (Kooiman et al., 1993).

For example, governments may encourage private actors to create private governance institutions to pre-empt state regulation (van Kersbergen & van Waarden, 2004). State actors may also participate on equal terms with private actors in hybrid governance institutions.

Private or hybrid governance gain relevance when markets shall operate with minimal state interference. This relates to the notion of different scholars "that markets are not spontaneous social orders, but have to be created and maintained by institutions [...] Governments are only one source of such institutions. Others are contracts, commercial businesses, private sector hierarchies, voluntary associations, courts, clans and communities" (van Kersbergen & van Waarden 2004: 146).

Global environmental governance

The governance concept, as it is used in political sciences, has been discussed originally in a domestic context where it refers to forms of regulation that are seen as an alternative to state regulation and that often involve private actors (Biermann & Pattberg, 2008). The notion of 'global governance' built on the "domestic" governance concept. Thus, conceptually global governance and governance at the national level

have many things in common, such as the inclusion of private actors and non-hierarchical steering modes (Biermann & Pattberg, 2008).

The term 'global environmental governance' denotes the use of governance as a tool to solve problems originating from economic and ecological globalization. To solve these problems more effectively, global governance is institutionalized in the form of treaties and conventions and in the form of new institutions in which nonstate actors participate (Biermann & Pattberg, 2008). Private actors, both for profit and non-profit, have created new institutions for purposes of environmental governance. An example of such private institutions are 'Non State Market Driven' (NSMD) governance systems as described by Cashore (2002).

NSMD governance systems

According to Cashore (2002), the IR literature on the privatization of environmental governance does not sufficiently take into account "the emergence of domestic and transnational private governance systems that do not derive the authority to create policy from states, but from manipulating global markets and responding to customer preferences."

Bernstein & Cashore (2004: 35) stated that "intergovernmental organizations and the broader regimes or institutional arrangements in the areas they help to manage for the most part rest ultimately on the authority of their state members."

Whereas states dominate in intergovernmental organizations and treaties, they are usually not involved in decision making processes of NSMD governance systems.

Nongovernmental organizations together with industries have created NSMD governance systems that are using the market as a steering mechanism to develop and implement environmentally and socially responsible management practices (Cashore, 2002). A typical example of an international NSMD governance system is the FSC. In between intergovernmental- and NSMD forms of governance are various forms of hybrid governance where governments and nongovernmental groups – be they firms, NGOs, individuals, or expert groups – jointly participate (Bernstein & Cashore, 2004: 35). The RSB can be categorized as a hybrid governance institution, because governments participate in the scheme.

According to Bernstein & Cashore (2004: 35), what distinguishes NSMD governance from both traditional international governance and hybrid governance is that authority is diffuse and located in the marketplace. Producers and consumers along the supply chain grant authority or legitimacy to NSMD governance systems. Furthermore, NSMD systems achieve legitimacy through developing their standards in accordance with

international norms that define and regulate appropriate behavior and practices in the issue area.

Bernstein & Cashore (2004: 37) proposed the following reasons for the emergence of nonstate market-driven forms of governance: "Firms are seeking to co-ordinate standards, form associations, provide services for their own benefit, or avoid state regulation."

Critical perspective on the privatization of governance

It has been elaborated above that a multiplicity of nonstate actors, for profit and non-profit, create rules to be used globally. These rules may complement or even substitute state law and international law. While some authors emphasize the positive effects of the involvement of private actors in rule making (Cashore, 2002), others express concerns about this development (Cutler et al., 1999; Benda-Beckmann et al., 2009).

Those who are concerned point out the problem that nonstate actors cannot be controlled like governments that are periodically elected (Cutler et al., 1999; Benda-Beckmann et al., 2009). "Large areas of law making might be 'outsourced' to private institutions. The specific issues of governance, for which the private institutions have been established, are then separated from wider public interests. The mechanisms built into state governments that force them to consider broader public interests do not work for privatized governance." (Benda-Beckmann et al., 2009: 10)

Cutler et al. (1999: 3-6) stated that "international commerce functions most effectively when it is undertaken under the umbrella of a system of rules that govern the behavior of the participants [...] The private rules and institutions created to regulate inter-firm cooperation may also affect the opportunities available to the rest of society. Then, cooperation among private sector actors can become authoritative or government-like." Different authors argued that privatized governance structures can be characterized by an unequal representation of different actor interests. The image of private institutions as facilitators of greater participation can be a false one, if the financial requirements of participation are high. "The less well organized and least endowed stakeholders might be excluded from the decision-making processes and are governed over, rather than being participants of governance." (Benda-Beckmann et al., 2009: 11)

3.1.1 Definition of 'soft' and 'hard' law

The legalization of global governance may result in hard law and soft law. Hard law and soft law can be seen as competing or complementary options for governance. Hard law

is usually created through governments. The sources of soft law are varied. They include multilateral international organizations as well as non-governmental organizations and private actors (Benda-Beckmann et al., 2009: 4).

Governance instruments can be categorized as hard law or soft law instruments. “Law constitutes, organizes and legitimizes positions of authority of governance agents and governance activities.” (Benda-Beckmann et al., 2009: 4)

According to Abbott & Snidal (2000: 421), hard law “refers to legally binding obligations that are precise (or can be made precise through adjudication or the issuance of detailed regulations) and that delegate authority for interpreting and implementing the law.”

“Soft law refers to international norms that are deliberately non-binding in character but still have legal relevance, located in the twilight between law and politics.” (Skjærseth et al., 2006: 104) Scholars recognized that soft law is sometimes designed to make provisions for subsequent hard law, but that it is often preferable on its own term (Abbott & Snidal, 2000; Skjærseth et al., 2006).

The boundaries between soft- and hard law are often difficult to differentiate. Bernstein & Hannah (2008) pointed out that civil regulation can obscure the boundaries between hard- and soft law. For example, firms are free to decide if they want to join a certification system. But they might be driven by consumers and market pressure to join a system. Once they joined, they are subject to governance and rules that have more similarities with state regulation than voluntary standards that can be abandoned with little consequence (Bernstein & Hannah, 2008: 577).

Hard law institutions may complement their regulatory power with soft policy tools, such as certification.

While some of the instruments that are currently regulating aspects of woodfuels in Europe correspond to hard law (e.g. the RED), others correspond to soft law (e.g. forest certification). For the implementation of the RED for biofuels, the EC decided to allow states to use also soft law instruments, the international biofuel schemes.

Hard law at the intergovernmental level may imply the possibility of legal sanctions (e.g. the WTO), but does not necessarily so (e.g. the Convention on Biological Diversity). Voluntary instruments negotiated between states like the MCPFE tools correspond to soft law.

3.2 Institutions

The proliferation of sustainability standards for liquid and solid biofuels has been recognized (van Dam, Junginger, & Faaij, 2010). It is evidence of a growing number of regulations and standards for natural resources management. Scholars studying the interactions between these regulations have mainly focused on international environmental governmental agreements and to a lesser extent on private initiatives (Oberthür & Gehring, 2006; Young, 2002a). Scholars have analyzed the interactions from an institutional perspective. This is logical, because institutions can refer to “set of rules”. Studying the interactions between the four initiatives this study focuses on from an institutional perspective requires a clarification of what institutions are.

Young (2002a) wrote about a thin definition of institutions, which refers to rules on paper, and a thick definition of institutions, which emphasizes rules in use and includes social practices.

According to Young (2002a: 6), “institutions should not be confused with organizations that are defined as material entities with employees, offices, equipment, budget, and (often) legal personality”. He thought of organizations as actors whose activities are guided by the rules of the game of institutions in which they participate.

In contrast, Jørgensen, Oberthür, & Shahin (2011) perceived international organizations that are characterized by a postal address, a staff of bureaucrats, and a budget as one category of international institutions. Other categories were international regimes that are resting on international agreements and spontaneous institutions, such as customary law. According to the authors, “only organizations and regimes are negotiated and enable different actors to engage in global governance” (Jørgensen, Oberthür & Shahin, 2011). Oberthür & Gehring (2006) counted also EU legal instruments among negotiated institutions. Negotiated institutions correspond to the thin definition of institutions i.e. rules and procedures articulated in constitutive documents, but include also international organizations.

Spontaneous and some informal institutions correspond to Young’s (2002a) thick definition of institutions. Institutions that fall within the thick definition refer to “social practices that are based on rules, but also include common discourses, informal understandings regarding appropriate behavior, and routine activities that grow up in conjunction with efforts to implement the rules” (Young, 2002a: 6).

Informal institutions play an important role in governance and in environmental governance in particular. An example of an informal institution that affects global governance is customary law that gradually emerges from state practice.

At the local level informal institutions can be as common as formal institutions to govern an issue area or a resource. The existence of informal self-governing institutions for localized resources has been documented through hundreds of examples of long-term sustainable resource use in communities depending on subsistence economy (Dietz, Ostrom, & Stern, 2003).

This study adopts Oberthür & Gehring's (2006) concept of supranational negotiated institutions. Informal institutions like customary law are not included into the analysis. Furthermore, this study draws upon the work of Visseren-Hamakers et al. (2011) who included (public-) private steering mechanisms like multi-stakeholder certification schemes into the analysis of institutional interaction.

Per definition international private institutions are informal institutions. However, they have more in common with international formal (i.e. state-led) institutions than with the informal institutions described above, such as customary law. Below, it is briefly outlined why the same concepts that have been developed to analyze state-led institutions and their interactions can be used when voluntary (public-) private certification schemes are integrated in the analysis.

First, various authors have recognized the rise of private steering mechanisms in international sustainable development politics and their involvement with international organizations and treaties (Abbott & Snidal, 2010). Thus, it appears to be suitable to use the same concepts to analyze the interactions between (public-) private steering mechanisms and international organizations.

Second, private institutions like the roundtable certification initiatives balance different interests and enable different actors to engage in global governance. This corresponds with Jørgensen, Oberthür & Shahin's (2011) characterization of international negotiated institutions established for the purpose of global governance.

Several concepts of formal and informal institutions can be found in the literature gathered under the heading of 'new institutionalism'.

For instance, Kooiman (2000) related his concept of institutionalized interactions to insights from new institutionalism. The interactions between public and private actors or their governing activities take place in societal institutions that are maintained, designed or renewed by those interacting (Kooiman, 2000).

Some of the concepts explain the creation and maintenance of institutions by means of the functionality of institutions. Institutions are then created and maintained, because they help actors to pursue their interests (Schmidt, 2005). Other concepts emphasize that actors' interests are influenced by institutions that are norms and cultural scripts and schema (March & Olsen, 1998).

Historical institutionalism is one approach to new institutionalism, which highlights historical structures that add to norms to give meaning to actors' interests and worldview (Schmidt, 2005).

Historical institutionalism is well suited to describe the origins and development of institutional structures and processes over time. It does not only look at institutional structures of states, but at all the structures through which governing occurs (Schmidt, 2005). Negotiated institutions that were established for the purpose of global governance can be analyzed under a historical institutionalism perspective, too.

For example, insights from historical institutionalism could be useful to explain the process whereby institutions change, which relates to the second research question of this study: How can the influences be explained? Or, in other words, why could one institution (not) influence another one? Influence from one institution to another institution implies that actors relevant to the other institution change their beliefs, preferences or behavior. There is greater continuity of the other institution, if actors relevant to it do not change their beliefs, preferences or behavior in response to the first institution.

Historical institutionalism emphasizes the asymmetries of power related to the operation and development of institutions and highlights path-dependency and unintended consequences of the historical development of institutions (Hall & Taylor, 1996: 938). Historical institutionalists regard institutions as a causal force in politics and social causation as being path-dependent. They have the viewpoint that institutions push historical development along a set of paths (Hall & Taylor, 1996). Forks in the path are described as 'critical junctures'. At critical junctures a choice for a certain path must be made. Once a path is taken, it can become "locked in", as all relevant actors align their strategies in accordance with the choice that was made.

A model of institutional change is that of 'punctuated equilibrium'. It entails that a long period of institutional stability can be ended through major changes in the external environment (Krasner, 1984). Crisis can prompt institutional change, because "during periods of crisis politics becomes a struggle over the basic rules of the game rather

than allocation within a given set of rules” (Krasner, 1984). Crisis can result from disruptive events in the external environment of an institution.

With regard to path-dependency, some historical institutionalists emphasize the impact of existing ‘state capacities’ and ‘policy legacies’ on subsequent policy choices. “The argument made is that state structures are historically determined and reflect the biases of decision-makers present at their creation.” (Goldstein, 1988: 180) “Other authors stress the way in which past lines of policy determine subsequent policy by encouraging societal forces to organize along some lines rather than others, to adopt particular identities, or to develop interests in policies that are costly to shift.” (Hall & Taylor, 1996: 941) As a consequence institutions are not necessarily designed in accordance with principles of efficiency. Historical institutionalism offers the possibility to explain the unintended consequences and inefficiencies generated by existing institutions.

Goldstein emphasized ideas to explain changes within the state and to the state and the continuity of institutions. According to Goldstein (1988: 180), “institutions reflect a set of dominant ideas translated through legal mechanisms into formal government organizations. The later do change, but often more slowly than does their environment. If ideas become encased in institutions through legal procedures, they will continue to have policy impact over time. This institutional influence derives from the existence of formal organizations whose rules, norms, expectations, and traditions establish constraints on individuals within these organizations, on elected leaders outside these organizations and on society in general.”

3.3 Regimes

In addition to the concept of institutions, the regime concept is important for the further development of this study.

Most IR scholars agree on Krasner's (1982) definition of regimes. Krasner (1982) defined regimes as “principles, norms, rules, and decision-making procedures around which actor expectations converge in a given issue-area.”

According to Arts (2000), regimes can be considered institutions, because they are created to fulfill a similar function as institutions. “Institutions and regimes, both, prescribe roles and guide behavior and thereby increase predictability and security in international affairs.” (Arts, 2000: 516).

Furthermore, institutions can be elements of a regime. For example, the compliance mechanism of an intergovernmental regime is an institution or a set of institutions (Young, 1980).

Following Krasner's (1982) definition of regimes, a regime can encompass hard law and soft law instruments. Public and private actors may jointly construct a regime. For example, Lin (2011) understands the RED and its implementation through public-private certification schemes as the EU biofuels sustainability regulatory regime. Accordingly, the institutions this study focuses on can be seen as parts of the European regulatory regime for woodfuels.

"Regimes are by definition issue specific and they are generally established to deal with specific problems within specific issue-areas." (Rosendal, 2001) According to Rayner et al. (2011), traditionally in the international relations literature the regime concept refers to intergovernmental rules in a specific issue area and at least some of the rules have to be legally binding. Some international regimes can be described through a single international agreement. For example, the Convention on the Biological Diversity (CBD) is often used to denote the international biodiversity regime. According to Stokke (2001), "only rarely can a regime be described by reference to a single legal source." He understood regimes as networks of legal instruments and customary law.

Despite Krasner's definition of regimes recognizes the role of non-state actors, several writings about international regimes focus on international agreements negotiated by states. Sovereign states are always the members of international regimes (Young, 1982).

Rayner et al. (2011) argued that a state-centric definition of international regimes is increasingly questioned in the international relations literature and in international institutions themselves. For example, Arts (2000) suggested that non-state actors, and NGOs in particular, should not be ignored in regime theories. Cutler et al. (1999: 14) proposed that "issue areas can be organized and institutionalized as private- or as mixed public/private regimes where the private actors can be either firms or non-governmental organizations." To the authors a central objective of studying private international regimes was to clarify up to which extent private actors in a regime are independent from state actors.

International regimes address activities that cannot be controlled through national law alone, or that have an impact in more than one country (Young, 1982). Bearing in mind

that national law may be an insufficient guarantee for sustainable woodfuels, a regulatory regime for woodfuels comprised by EU legal instruments, intergovernmental agreements and voluntary certification schemes seems to be a justified construct. Thus, this study adopts a regime concept that includes hard- and soft law instruments developed by states as important regime elements, but that also comprises rules created by private actors.

3.4 Institutional interplay

Scholars interested in environmental governance have highlighted that environmental problems are frequently addressed through various fragmented institutions. They found that these institutions and their activities are often not steered through an overarching institution and that there is moderate or no cross-institutional coordination. Some scholars have associated such fragmentation with problems like fragmented and contested knowledge, and duplication of efforts. Others have argued that, despite these findings, institutions are sometimes successfully managing their interactions and are thereby enhancing the solving of environmental problems (Oberthür, 2009).

It was assumed by scholars of institutional interaction that the effectiveness or the development of one institution is affected through its interaction with another institution (Stokke, 2001a; Oberthür & Gehring, 2006). A (source) institution may enhance or undermine the effectiveness of another (target) institution through interacting with that institution. Whereas institutional interaction involves usually one target institution, institutional interplay may involve several target institutions (Oberthür & Gehring, 2006: 6-7).

When institutions make deliberate efforts to improve the interactions, the term interplay management is used. Interplay management involves efforts to impede, trigger, or shape the impact arising from institutional interplay (Stokke, 2011: 144).

It has been claimed that institutional interaction tends to involve synergistic effects among the institutions when they operate in the same issue area (Oberthür & Gehring, 2006). Studies have addressed institutional interaction in the issue areas of plant genetic resources, fisheries and Green House Gas emissions (Raustiala & Victor, 2004; Stokke, 2001a; Oberthür, 2006). In those studies interaction between the institutions occurred often in the context of an international agreement, such as the Kyoto Protocol, or a European Union policy involving mainly governments and to a lesser extent private or public-private institutions.

It is assumed that regimes affect each other's development and performance.

A growing density of regimes has given a reason to scholars to analyze interaction between the distinguishable regimes (Gehring & Oberthür, 2004).

'Inter-regime linkages' refers to institutional interplay among distinguishable regimes. 'Regime interplay' is another term for such interplay. "It implies that aspects of one regime influence the material contents or the operation or consequences of another." (Stokke, 2001a) 'Inter-regime linkages' can be distinguished from 'intra-regime linkages', which refers to the relations between the various legal instruments or institutions associated with one regime.

Usually, institutional interplay has attracted the attention of studies of inter-regime linkages. Institutional interplay might have been considered less problematic in connection with studies of intra-regime linkages, because a high level of normative coherence among the legal sources can be presupposed (Stokke, 2001a). Scholars have become more interested in institutional interplay between the institutions comprised by one regime when the term 'regime' is replaced by the term 'institutional complex' (Stokke & Oberthür, 2011). An institutional complex is comprised by several institutions that co-govern the same issue area. The difference between international regimes and institutional complexes is that, in contrast to international regimes, institutional complexes are rarely negotiated, and the boundaries of an institutional complex are less clearly defined than those of an international regime (Stokke & Oberthür, 2011). It could be said that there is a higher probability that institutions interact concurrently within an institutional complex than under an international regime.

Stokke (2001b; 2011) and Gehring & Oberthür (2009) established different categories that can be used to systematically analyze how one institution or regime influenced another one. These categories are referred to as casual pathways. The authors applied a reductionist approach, which entails that a complex interaction situation is disaggregated into a number of single instances of interaction. Usually, a single instance of interaction involves only two interacting institutions. This does not mean that actors outside of the interacting institutions cannot be involved in an interaction situation. An interaction situation may involve actors who are operating the institutions, the addressees of the institutions, but also other third actors like consultants of the institutions.

This section introduces causal pathway categories. Four were developed by Gehring & Oberthür (2009) and three were established by Stokke (2001b; 2011).

Gehring & Oberthür (2009) distinguished between a source institution, a target institution, which is affected by the source institution, and a unidirectional causal mechanism (or pathway) as the basic unit of analysis. Their approach implies that there cannot be an instance of institutional interaction without an observable effect in the target institution or the issue area governed by it.

The effect can be located at three levels, namely output, outcome, and impact. An institution's output comprises knowledge or norms. The output of an institution may generate behavioral change of relevant actors, the outcome. Finally, changes of behavior might have an impact on the ultimate governance target, which is often related with the biophysical environment (Gehring & Oberthür, 2009: 131).

Observable effects within the target institution may even result from the response of participants of the target institution to an action of the source institution that the participants of the target institution had only anticipated. "An institution may adapt its own rules in reaction to the development (rather than the adoption) of new rules by another institution." (Oberthür & Gehring, 2006: 27)

Based on the aforementioned approach Gehring & Oberthür (2009) developed four causal pathway categories: Cognitive interaction, interaction through commitment, behavioral interaction and impact-level interaction.

Gehring & Oberthür (2009) proposed **cognitive interaction** as the causal pathway that relates to the process of learning. They distinguished between two types of cognitive interaction, namely "policy model" and "request for assistance", depending on whether the learning process within the target institution is triggered unintentionally or intentionally by the source institution. If cognitive interaction occurs unintentionally, the target institution voluntarily adopts aspects of the source institution as a **policy model**. Aspects can be information, knowledge, ideas or rules generated within the source institution. For the occurrence of this influence, it is no precondition that actors of the source institution are conscious of the influence.

Intentionally triggered cognitive interaction implies that the source institution requests the target institution for assistance, so that the source institution can be better implemented. Intended cognitive interaction evolves as follows: "The source institution can draw the attention of actors within the target institution to a particular aspect of which they had so far not taken due account — at least seen from the perspective of the source institution. Accordingly, actors of the target institution learn that an adaptation of their institution or rules could strengthen the effectiveness of the source institution." (Gehring & Oberthür, 2009: 134-135) The secretariat of the source

institution will usually issue a formal request to the secretariat of the target institution that will officially feed it into the decision-making process of the latter (Gehring & Oberthur, 2009: 135). Usually, a **request for assistance** will be more successful when the target institution can benefit from the adaptation of its policies or rules to the demands of the source institution.

Interaction through Commitment entails overlapping memberships and overlapping issue areas of the interacting institutions. The source institution decides on an obligation that commits members of the target institution to modify their preferences or negotiating behavior related to the target institution. An example of this type of causal mechanism is the effect that an agreement achieved within an intergovernmental institution can have on the legislation of Member States.

Behavioral interaction refers to situations where the target institution's development or performance is affected, because the source institution triggered a behavioral change in the issue area governed by the target institution. Behavioral interaction typically occurs where institutions address different issue areas that matter to each other, such as climate change and biodiversity. For example, programs of a climate-focused source institution may induce actors to establish plantations that sequester carbon. Since plantations can be poor in species, the triggered activities may undermine the effectiveness of a biodiversity-focused target institution. Overlapping membership is not a precondition here, because the behavioral change can appear among the actors whose activities the target institution addresses.

Impact-level interaction occurs when the ultimate governance target of one institution is affected by side-effects resulting from the governance target of another institution. Impact-level interaction may rely on the stable relationships of the biophysical environment. For example, the conservation of one species might threaten the conservation of a species on which the first species is feeding. Success of the source institution protecting the first species will impact the performance of the target institution protecting the second species.

Stokke (2011) proposed three causal pathways to analyze institutional interplay. He also found them useful to analyze the relation between institutional interplay and regime effectiveness (Stokke, 2001b).

The central topic of regime-effectiveness studies has been the impact of a regime or an institution on problem-solving. The ability of an international institution or regime to

solve a problem that gave rise to the formation of the regime has been an indication of regime effectiveness (Stokke, 2001a: 10).

It follows that the three causal pathways may not only connect a source- and a target institution, but they may also link a source institution to behavior relevant to problem-solving. The latter is the case when the source institution induces actors to change their behavior in a way that contributes to problem-solving.

Stokke (2011: 146) defined **cognitive interplay** as follows: “It is the causal pathway that highlights cognition: institutions or regimes may affect behavior by influencing actor awareness about certain problems or the pros and cons of various mitigation options. It occurs whenever an institution influences how actors of the target institution define a problem including their assessment of the risk it poses relative to other challenges and the options available for mitigating or solving the problem.”

Cognitive interplay (originally referred to as ideational interplay) involves processes of learning (Stokke, 2001b). It may refer to instances where the tributary regime (the source institution) provides solutions of various kinds that are emulated or adapted for problem-solving purposes under the recipient regime (the target institution) (Stokke, 2001b: 10).

The causal pathway **normative interplay** applies to situations where the substantive or operational norms of the source institution either confirm or contradict those of the target institution and thereby affect the normative compellingness of the norms upheld by the target institution (Stokke, 2001b).

Normative interplay denotes how a source institution can strengthen or weaken the normative compellingness of a target institution or its rules. The compellingness of a rule refers to a rule’s ability to pull those to whom it is addressed towards compliance (Stokke, 2001b). It could be argued that the more compelling a rule is, the less it is likely that the rule will be violated.

When the norms of one institution confirm the norms of another institution, normative pull may occur. “Normative pull entails that institutions may affect perceptions about what is right and proper conduct within an issue area by altering the normative compellingness of prescriptions upheld by a regime”. (Stokke, 2011: 146)

Stokke related normative interplay to the “logic of appropriateness”. “The logic of appropriateness implies that action involves evoking an identity or role and matching the obligations of that identity or role to a specific situation. In the logic of appropriateness actors are acting in accordance with rules and practices that are socially constructed, publicly known, anticipated, and accepted.” (March & Olsen, 1998:

951-952) “The choice of a course of action depends on the interpretation of a situation rather than on purely instrumental calculation.” (Hall & Taylor, 1996: 939)

Normative interplay can emerge between the elements of a regime, but also between distinct regimes. For example, the parties of the forest convention reaffirm their commitment to implement the targets of the CBD. Thereby the forest convention enhances the normative compellingness of the CBD. This might lead to more forest protection and conservation measures “on the ground”.

“Utilitarian interplay denotes how institutions exert influence through altering the utility that actors assign to behavioral options within an issue area.” (Stokke, 2011: 146)

Stokke referred to the logics of action to differentiate between normative and utilitarian interplay. According to Stokke, utilitarian interplay relates to the second logic of action, the “logic of consequentiality”. Following that logic, the action of actors can be triggered through providing consequential incentives (March & Olsen, 1998). In contrast to the logic of appropriateness, where actors will always follow socially constructed rules in certain situations, the logic of consequentiality assumes that “the only obligations recognized by individuals are those created through consent and contracts grounded in calculated consequential advantage” (March & Olsen, 1998: 950).

The two logics of action were used to distinguish between utilitarian and normative interplay. Normative interplay may imply that an institution makes the norms upheld by another institution more compelling for those addressed by the institutions without requiring consequential incentives. Utilitarian interplay entails that a source institution issues consequential incentives that alter the costs and benefits that actors assign to an activity dealt with by the target institution. The behavioral changes triggered by the source institution must be relevant for the implementation or performance of the target institution.

4 Conceptual framework

The proliferation of initiatives regulating different aspects of woodfuels in Europe has been noted, but a systematic analysis on how the initiatives interact has not been carried out, yet.

This study intends to analyze the interactions between four of these initiatives that can be considered as institutions. When one conceives of the four institutions as elements of a regulatory regime for woodfuels, it could be stated that this study concentrates on the intra-regime linkages of the regulatory regime for woodfuels.

Conceptual frameworks developed by scholars studying institutional interaction will help to do the analysis. More specifically, this study will draw on conceptual frameworks developed by Gehring & Oberthür (2009) and Stokke (2011) to answer the two research questions.

This chapter proceeds in the following order: First, it repeats three causal pathways of Stokke (2011), or outlines their adaptation. Second, it explains how the extent of inter-institutional influence will be determined. Third, it introduces Stokke's (2011) framework on effective governance task selection. It explains why the framework needs to be reinterpreted for answering the second research question. Furthermore, it is outlined why a reduced version of the framework will be used. The chapter concludes with the elaboration on Stokke's framework as it is used to answer the second research question.

4.1 Type and extent of influence

Normative interplay, utilitarian interplay and an adapted version of cognitional interplay will be used to analyze how the four institutions influenced each other (first research question).

Normative interplay (Stokke, 2001b; 2011)

The source institution enhances or weakens normative commitment to the rules of the target institution.

Utilitarian interplay

Programs or rules of the source institution alter the costs and benefits that actors assign to an activity dealt with by the target institution (Stokke, 2011). The behavioral

changes triggered by the source institution must be relevant for the implementation or performance of the target institution.

Cognitive interplay

The source institution influences actors' awareness about an issue at stake including the pros and cons of options available for dealing with the issue (Stokke, 2011). Increased awareness on an issue may induce actors of the target institution to adopt a certain policy or rule.

Stokke (2011) did not specify whether the source institution intentionally or unintentionally influences actors' awareness about an issue and thereby leads actors of the target institution to adopt certain policies or rules.

But, this study considers it as important to take into account whether the source institution influenced actors' awareness about an issue with the aim to induce a change within the target institution or not. It could be argued that "intentionally triggered cognitive interplay" entails that actors of the source institution are hoping that their exertion of influence on a target institution will create a positive feedback effect on the source institution. It would indicate that those operating the source institution cannot ignore the target institution, its rules or policies.

The differentiation between "intentionally and unintentionally triggered cognitive interplay" allows this study to delineate a more accurate picture of the cause-effect relationship between two interacting institutions.

Thus, this study combines cognitive interplay with Gehring & Oberthür's (2009) policy model- and request for assistance types of cognitive interaction. This seems to be possible, because, both, cognitive interplay and cognitive interaction refer to the transfer of knowledge from a source- to a target institution and a subsequent change of the target institution. "Policy model" and "request for assistance" are sub-categories that serve to denote unintentionally and intentionally triggered cognitive interplay, respectively.

Categories denoting the extent of influence

Causal pathways entail various steps starting from negotiations within the source institution and ending with an effect felt by actors of the target institution.

Gehring & Oberthür (2009) referenced the work of Hedström & Swedberg (1998) to describe three steps of a causal pathway:

"The source institution affects the preferences or behavior of relevant actors within its own domain (step 1). An action-formation mechanism denotes how this effect leads to

a change of individual preferences or behavior of actors relevant to the target institution. In this step influence is transferred from the domain of the source institution to the domain of the target institution (step 2). Finally, a transformational mechanism explains how the adaptation of the individual preferences or behavior of relevant actors leads to a change of the target institution (e.g. in the form of adapted rules) or of its effectiveness within its issue-area (e.g. through an increased rate of noncompliance) (step 3).” (Gehring & Oberthür, 2009: 129)

This study draws on these three steps to elucidate up to which extent a source institution exerted influence on a target institution (Figure 1). In case that in a situation of inter-institutional influence step 2 and step 3 have not been finalized, the influence is categorized as “weak or absent influence”, or as “possible future influence”. If step 1 *and* step 2 have been finalized, the influence is categorized as “moderate influence”. When all steps have been finalized, the influence is referred to as “large influence”. When it can only be hypothesized that a change of preferences or behavior of actors relevant to the target institution can be attributed to a source institution, a fourth category is used: “unclear influence”.

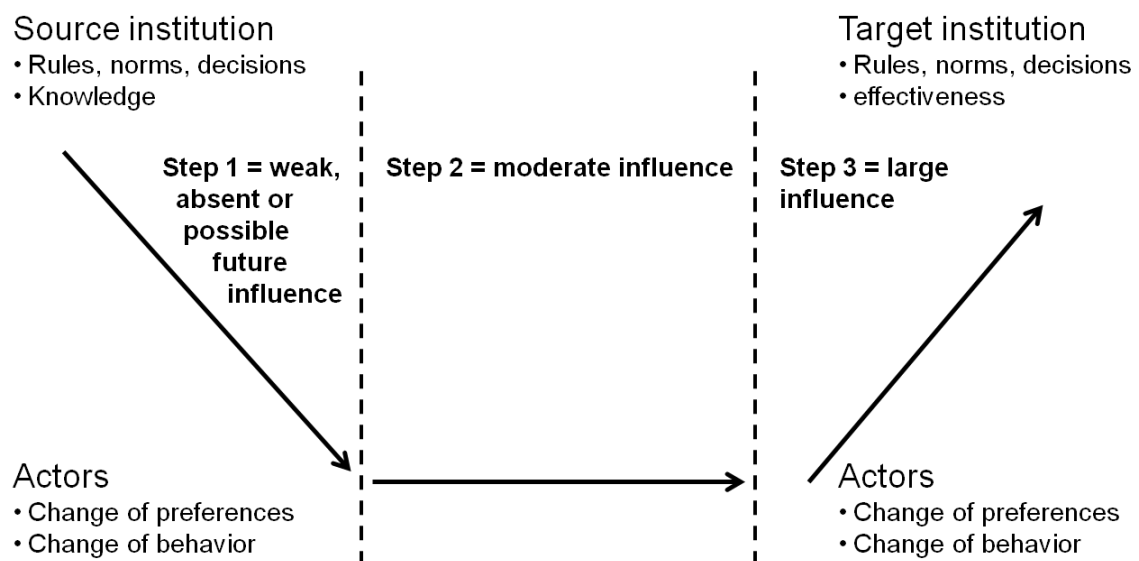


Figure 1: Categories denoting the extent of influence: For each causal pathway step that has been finalized, the respective extent of influence is indicated behind the equals sign “=”. In this figure the category “unclear influence” is not included. Source: Adapted from Gehring & Oberthür (2009: 130) and Hedström & Swedberg (1998: 22).

4.2 Framework on effective governance task selection

This section introduces the framework that will be adapted to answer the second research question.

Stokke (2011) developed a framework for analyzing under which conditions institutional interplay contributes to problem-solving. According to Stokke (2011), in environmental governance institutions specialize in the four governance tasks: knowledge-building, norm-building, capacity-building and rule-enforcement. The framework on effective governance task selection builds on cognitional-, normative- and utilitarian interplay and on findings from the international relations literature.

Stokke (2011) applied his framework to a case where ‘complementary institutional interplay’ took place within an institutional complex comprising an international institution addressing a broad range of environmental problems in the Arctic and regional institutions each of which was focusing on a specific environmental problem. According to Stokke (2011), the question to participants in each institution was how to maximize its contribution to overall problem-solving.

According to Stokke (2011), causal pathways help to explain the impact of the individual institutions on overall problem-solving. Under certain conditions an institution’s conductance of a governance task may trigger cognitional, normative or utilitarian interplay supportive for problem-solving. Participants operating the institutions are aware of these conditions and may select the tasks for their institution accordingly. Stokke (2011) derived the conditions from theory-based studies. He referred to the conditions as institutional features.

Table 1 displays the institutional features that favor effective conductance of a governance task, whereby the conductance is considered effective if it triggers cognitional-, normative-, or utilitarian interplay conducive to problem-solving. As can be seen, an institution specialized in knowledge-building is effective if it can raise the credibility, legitimacy or salience of scientific input to decision making on a problem.

Table 1: Stokke's (2011: 151) framework on effective governance task selection: Conditions favoring institutional interplay conducive for problem-solving.

Causal pathway		Governance tasks		
	Knowledge-building	Norm-building	Capacity-building	Enforcement
Cognitive	Credibility	Determinacy/ Coherence	Model	Verification
Normative	Legitimacy	Coverage	Commitment	Review
Utilitarian	Salience	Strength	Funds	Punishment

Reinterpretation of the framework on effective governance task selection

Even though Stokke's (2011) study addressed institutional interplay, it was ultimately interested in the impacts individual institutions have within the issue area governed by them, or in other words, the impacts individual institutions have on overall problem-solving in the issue area co-governed by them.

If this study had the same interest as Stokke's (2011) study, it, firstly, would have to define the overall problem in the issue area of woodfuels and then assess the impacts of the institutions or their interactions on overall problem-solving. The overall problem could be defined in terms of a use of woodfuels that does not offset GHG emissions and that causes adverse effects on forest ecosystems like biodiversity loss. Hence, the problem has two aspects. When an institution or its interaction with another one has a positive impact on both aspects, this could be counted among the impacts that contribute to overall problem-solving in the issue area of woodfuels. Overall problem-solving would be advanced when the effects of institutional interplay enhance benefits for the climate and forest ecosystems.

This study claims that all of the four institutions address both aspects of the overall problem. However, they follow different and partially contradicting approaches of dealing with problems related to woodfuels. While the EU seems to favor "one size fits all" sustainability criteria for solid and liquid biomass for all countries, Forest Europe defines sustainability criteria for forests in a broader way which leaves room for interpretation.

Forest Europe and the FSC are forest-focused institutions and claim to follow a more holistic approach that does not concentrate on the energetic use of wood. For

comparison, the RED and the RSB have a stronger focus on emissions reductions and biodiversity conservation in all ecosystems, not primarily in forests.

Each approach may entail advantages and disadvantages. Inter-institutional influence may support one approach and undermine the other one. Actors of the institution whose approach has been favored through the interplay will probably perceive the interplay as beneficial for the sustainability of woodfuels. But, it is difficult to objectively evaluate the interplay in terms of its contribution to solving overall problems related to woodfuels.

Consequently, this study does not address the question to what extent institutional interplay contributed to overall problem-solving in the issue area of woodfuels. Instead, it aims at analyzing how the institutions influenced each other and how the occurrence of that influence can be explained.

This study adopts the understanding of causal pathways as causal connections between a source and a target institution. Causal pathways are the conceptual foundation to answer how the institutions influenced each other.

This research draws on Stokke's (2011) framework to answer the second research question: How can the influences be explained? Or, put in another way, why did one institution (not) influence another one?

Furthermore, for answering the second research question, it is decided to only use the first three columns of the table picturing Stokke's (2011) framework i.e. the columns with the headings "causal pathways", "knowledge-building" and "norm-building". The columns with the headings "capacity-building" and "rule enforcement" are not needed as conceptual foundations. This study assumes that at this stage inter-institutional influence in the issue area of woodfuels is rather related to the knowledge- and norm-building activities of the four institutions than to their capacity-building and rule enforcement activities.

Capacity-building and rule enforcement are relevant for rule implementation. According to Stokke (2011: 144), capacity-building refers to the facilitation of implementation of rules in cases where some participants would otherwise be unable to adhere to the rules. This study argues that the current interaction situation in the issue area of woodfuels does not involve inter-institutional influence resulting from rule implementation activities of the four institutions. Such influence may occur when woodfuel specific rules exist. Currently they do almost not exist at the four institutions. Or, they are not at an implementation stage like the RSB standard for liquid biofuels

produced from wood based material. For answering the second research question, this study therefore does not draw on the conditions favoring interplay conducive to problem-solving that are associated with capacity-building and rule enforcement.

4.3 Application of the reinterpreted framework

This section outlines how Stokke's framework will be used to answer the second research question.

The framework makes it easier to carry out the research in a structured way. It is used to avoid a simple listing of reasons why influence between the four institutions emerged in the way it did. It provides potential factors or conditions that favored the emergence of influence. This section provides more details on the conditions identified by Stokke. It draws on the writings of scholars that Stokke used for his framework and on the writings of other scholars.

Features supportive for Knowledge-building

In most institutions created for purposes of governance science is used when appropriate to inform decision-makers. An institution that is specialized in knowledge-building may influence the incorporation of scientific input into decision-making processes of other institutions (Underdal, 2000).

Stokke (2001a: 344) wrote: "The quality and legitimacy of scientific advice appear to be closely related to the level of inclusiveness of interested parties in the generation of the advice." Later Stokke (2011) referenced the work of Cash et al. (2002) who differentiated between three attributes – credibility, salience, and legitimacy – that scientific information required to be incorporated into decision-making processes.

Credibility

According to Stokke (2011: 147), credibility highlights the cognitional mechanism and denotes a perception among decision makers that scientific input reflects the best available knowledge concerning a problem. A knowledge-building institution is better equipped to engage in cognitional interplay, when it can raise the credibility of the knowledge it produces.

It is more likely that an issue will attain cognitional prominence when information on the issue is credible. "Credibility" is given when information appears scientifically plausible and technically adequate to an actor. With regard to the research process, independent research that is not driven by political or economic interest, but by "science" receives

higher credibility. The reputation of involved scientists and organizations may also determine credibility (Cash et al., 2002).

Legitimacy of the knowledge-building process

“Legitimacy refers to how ‘fair’ an information production process is and whether it considers values, beliefs, and perspectives of different actors.” (Cash et al., 2002: 2) Consequently, the legitimacy of a knowledge-generating organization is determined by values and norms that persist within its cultural environment. An organization has to achieve cultural conformity to gain legitimacy (Suchman, 1995). Suchman (1995: 574) highlighted that “legitimacy is a perception or assumption in that it represents a reaction of observers to the organization as they see it; thus, legitimacy is possessed objectively, yet created subjectively”. He pointed out that it depends on the consent among a group of actors that shares the same beliefs whether an organization maintains or loses its legitimacy. Cash et al. (2002: 2) referred to developing countries as an example of a group of actors that did not attribute legitimacy to certain international agreements, because they saw the opinion of scientists from developing countries underrepresented in the agreements.

The target institution may incorporate knowledge generated through the source institution into decision- and/or rule-making. If the knowledge has been produced through a legitimate process involving different stakeholders, there is a higher chance that the decisions or rules will be perceived as legitimate, or in other words, that the compellingness of the rules is enhanced.

Salience

“Salience denotes the relevance that information may have for the decision choices of an actor, or for the choices affecting an actor.” (Cash et al., 2002: 4) Politically salient information may inform decision-makers about the costs and benefits of policy options and thus about consequences entailed by the options (Stokke, 2011: 148). Salience of information is a condition favoring the occurrence of utilitarian interplay according to this study’s use of Stokke’s (2011) framework.

Information is usually salient if it responds in a timely manner to the issues that rank high on the agenda of decision-makers. “Information that arrives at the wrong time in the evolution of an issue (too early, or too late), or that is too broad or narrow in scope, or is not at the right scale for a decision-maker can fail to influence action for lack of salience.” (Kingdon, 1995 cited through Cash et al., 2002) Salience may be influenced by what Underdal (2000) called ‘responsiveness to the concerns of decision-makers’. Responsiveness may imply the framing of scientific findings. “For decision-makers to

respond positively to policy implications or explicit advice, they will want to make sure that factual conclusions or recommendations for actions are framed to address *their* problems.” (Underdal, 2000: 11)

Features supportive for Norm-building

Norm-building refers to the elaboration of behavioral norms, whether soft law instruments or binding rules (Stokke, 2011: 144).

For this study’s interpretation of Stokke’s (2011: 148) framework an institution is better equipped to trigger institutional interplay through the governance task norm-building, if its norms imply determinacy, coherence and substantive strength and if the institution is able to achieve a high coverage of actors that adhere to these norms. Stokke referenced Franck (1988) with regard to determinacy and coherence and Barrett (2005) with regard to user-coverage and strength.

Determinacy

According to Franck (2006: 93), “determinacy is the quality of a norm that generates an ascertainable understanding of what the norm permits and what it prohibits.”

When a rule prohibits the doing of “bad things”, without any further specification of actions, it is likely that actors will not understand the purpose of the rule. Understanding or comprehension relates to cognitional interplay.

An institution or regime that issues indeterminate rules may fail to generate an understanding of what is allowed and what is forbidden among the addressees of the rule, but also among states or other actors who intend or are expected to adopt the rule. The more determinate a rule, the better can states or other actors visualize whether actual adoption or strengthening of the rule will yield potential future benefits for them (Franck, 1988: 716). Abbott & Snidal (2000: 442) complemented the statement through stating that determinacy (Abbott & Snidal used ‘precision’) informs states and other actors about future consequences that may result from an adoption of the rule.

Coherence

According to Franck (1988), “coherence” is another quality of a rule. Coherence relates to consistency, which entails that like cases are treated alike in the application of the rule and that the rule relates in a principled fashion to other rules of the same system (Franck 1988, 741). There is another aspect of coherence: “A rule gathers force, if it is seen to be connected to a network of other rules by an underlying general principle”

(Franck, 1988: 741). A rule has to follow general principles based on rational reasoning in order to be applied differently in similar cases (Franck, 1988).

It could be argued that a target institution will be more inclined to emulate or adapt rules of a source institution, if the rules are coherent with other rules relevant to the target institution, or if they can be connected to other rules through an underlying principle. For example, one explanation why some certification programs are modeled on the International Organization for Standardization's (ISO) environmental management system's model is that the World Trade Organization accepts ISO rules as appropriate and compatible with its own rules (Cashore, 2002). A certification scheme would probably not gain sufficient support, if its rules were seen as incompatible with WTO rules.

User-coverage

Stokke (2011, 149) pointed to the significance it can have for the success of an international agreement addressing a problem that those countries participate where the problem emerges.

Barrett (2005: 356) stated that in international treaty-making "compliance needs to be enforced, but participation is the binding constraint on international cooperation." Apart from deterring non-compliance, a treaty should also deter non-participation. Consequently, participation should be addressed in any treaty negotiation (Barrett, 2005: 356). Barrett also noted that the deterrence of non-participation is more difficult to achieve than that of non-compliance. It could be argued that compliance can be achieved through enforcement. But it may be more effective, if participation is reached through assistance in the clarification of common norms (Tallberg, 2002). In the words of Stokke (2011: 157) an international institution addressing an environmental problem may function as a vehicle for enhancing the coverage of normative commitments to best practices. Thereby, it engages in normative interplay with other institutions that deal with the same problem, but that lack coverage of member countries.

Substantive strength

It could be argued that the benefits and costs that actors assign to an activity depend on the substantive strength of the rules created to regulate the activity. Hard law can be considered stricter than soft law. According to Abbott & Snidal (2000), in international affairs hard law should be prioritized over soft law when the risk of opportunism is high. If rules are strict, for example if they are legally binding, it is less likely that states or other actors will act in an opportunistic way with little regard for principles.

Stokke referenced Barrett (2005) and Downs et al. (1996) when he introduced the institutional feature ‘substantive strength’. He highlighted that in treaty-making there may be a trade-off between achieving user-coverage and having strong norms.

For comparison, Barrett (2005: 293-294) noted that there can be a trade-off between the breadth and the depth of international cooperation or between a “broad but narrow” and a “narrow but deep” treaty. Whereas Barrett (2005) perceived a treaty with high membership, but shallow norms superior to a treaty with scarce membership, but strong norms, Downs et al. (1996) pointed out the significance of enforcement, which is sometimes connected to substantive strength.

Table 2 shows the conceptual framework to address the two research questions of this study.

Table 2: Conceptual framework for analyzing inter-institutional influence and the potential reasons for its occurrence. Source: Adapted from Stokke (2011: 151).

Causal pathway	Condition favoring occurrence of influence	
	Knowledge-building task	Norm-building task
Cognitive interplay <ul style="list-style-type: none"> • Policy model • Request for assistance 	Credibility	Determinacy/ Coherence
Normative interplay	Legitimacy	User-coverage
Utilitarian interplay	Salience	Substantive strength

5 Methodology

This study employed qualitative methodology. It is a collective case study. With four institutions this study focuses on, there are six pairs of institution (e.g. the RED and Forest Europe are one pair). Since data is collected for all six pairs of institution, the number of cases is six. The boundaries of the case study are defined in terms of the four institutions and their involvement with woodfuels.

With a focus on the European level, it appeared suitable to include Forest Europe and the RED as the state-led institutions into the analysis. Note that the latest draft text of the LBA was made available after this thesis research and has therefore not been considered.

It was decided to incorporate the FSC as the private forest-focused initiative into the analysis. The FSC was prioritized over the Program for the Endorsement of Forest Certification (PEFC), although the PEFC is larger than the FSC. This decision was made, because in contrast to the PEFC, governments have no vote in the FSC. Thus, the FSC can be considered a pure private initiative.

Among the 13 EU endorsed (public-) private biofuel certification schemes the RSB was selected for the analysis. Upon an initial review of documents, it was found that the RSB published a standard that makes it easier for FSC certified operators to access bioenergy markets. Due to the RSB's links with the RED and the FSC, it was assumed that enough empirical data exists to analyze its interactions with the other two institutions.

It needs to be mentioned that except Forest Europe, all of the institutions have a global scope, which is due to the global trade in wood and biofuels.

5.1 Methods

This section elaborates on the methods employed, namely literature review and interviews. It also reflects on the choice of methods with regard to the criteria ‘reliability’ and ‘validity’. It has been stressed that qualitative research is evaluated against these criteria.

- “Reliability: the extent to which findings can be replicated, or reproduced, by another inquirer
- Internal validity: the degree to which findings correctly map the phenomenon in question
- External validity: the degree to which findings can be generalized to other settings similar to the one in which the study occurred.”
(Silverman, 2000: 90-91)

Methods applied in this study comprised literature review, content analysis and semi-structured expert interviews. Triangulation was used to make more objectivist assumptions about influence that has occurred among the institutions and about reasons for the emergence of the influence. Triangulation implies that more than one source of data is used in order not to miss relevant information (Silverman, 2010: 133). In this study the three sources of information were a) primary sources i.e. legal texts and policy documents, and secondary literature including academic literature and policy-oriented assessments, b) answers given by representatives from the source and the target institutions, and c) answers given by experts who were not representing the institutions involved in an instance of interaction.

This study assumes that the findings on the ways the four institutions influenced each other have a certain external validity, because the causal pathways this study draws on have already been tested or explored by several other case studies (Stokke, 2001b; Oberthür & Gehring, 2006).

Choice of methods

Interviews are often used when the data collection aims at exploring “individual lived experiences” of the respondents or at exploring issues in “real time” during the interviews (Silverman, 2000: 89; Deegan and Blomquist, 2006).

It could be argued that data collection through interviews limits the degree of replication (reliability) of the research, because the quality of data generated during an interview is influenced through the skills of the individual interviewer.

However, interviews provided higher flexibility than e.g. open-question questionnaires to ask more details about issues as they occurred during the interview. Questionnaires appeared also inappropriate, because they are usually used in studies aiming to infer generalizations from large samples. In this study it was more important to collect information from people who are knowledgeable about the interactions and from experts than from a larger population.

Research tools

Interviews were carried out either via telephone or Skype and were tape-recorded if the respondent agreed. The interview schedule contained some open-ended questions that were the same for every interview (Appendix 3). But, several questions were added depending on the issues that emerged during the interviews.

Selection of interviewees

In total fourteen semi-structured interviews were conducted. Interviewees were selected from the four institutions plus organizations representing the following stakeholder groups: industry, NGOs, academia and governments (see Appendix 1).

Interviewees were selected on the basis that it could be assumed that they are knowledgeable about the interactions between the four institutions. It was of secondary importance that people from different backgrounds were interviewed.

Nevertheless, this study tried to enhance internal validity through collecting data not only of representatives of the four institutions, but also of representatives from other organizations that have got a stake in woodfuel issues.

It was assumed that information required to answer the two research questions will be more accurate and complete when interviews are conducted with people from different organizations. Doing qualitative research related to woodfuels sustainability meant to conduct research on a topic related to controversies. Hence, it was believed that information generated during an interview could be shaped by an interviewee's standpoint in the debate on regulating woodfuels in Europe. The decision to interview people from a variety of organizations and countries helped to counterbalance the risk that the findings of the research are biased.

The names of interviewees were identified in three ways: first, their responsibility at the respective organization was inferred from the website of the organization. A person was selected as an interviewee on the basis that it could be assumed that he/she was responsible for dealing with woodfuel issues at the respective organization, or for establishing and managing the links among the organization and the four institutions this study focused on; second, a person's name was provided in primary or secondary textual sources on the sustainability of woodfuels; third, a person was mentioned as an important interviewee by another interviewee. The latter point refers to the sampling technique 'snowball sampling' (Kumar, 2005).

The interviews that were conducted seem to represent a balanced mix of different organizations. Of the total 11 interviewees from organizations others than the case study institutions, one was a governmental representative, 3 were from policy-oriented research organizations, one was a forest ecologist, one was a forest economist, 3 were industry representatives and 2 were from environmental NGOs. Of the 11 interviewees, 4 had been participants of the WG. It has to be mentioned that Forest Europe is a voluntary policy process and does not have a regular staff that could be interviewed.

People who did not reply to the interview request or who did not have the time for the interview were from the DG Energy and the DG Agriculture of the EC and the Confederation of European Forest Owners. Especially, the absence of an interview with a person from the DG Energy is a pity, because the Commission's Energy and Transport department had most influence on the development of the RED. In addition, an employee of ISEAL alliance was contacted. But, since the person stated that ISEAL staff members were unable to provide perspectives on the topic of woodfuels, no interview was conducted.

Data collection process

The data collection comprised literature review and the conductance of interviews. Some instances of influence were already documented in written form and also some reasons for the emergence of the influence could clearly be identified in documents. About other instances of influence only assumptions could be made on the basis of the literature review.

Interviews were carried out in the following order: Prior to approaching interviewees with the instances of interaction found during the literature review, they were asked about instances of interaction they were aware of. Then potential reasons for the emergence of influence needed to be assessed during the interviews. Finally,

interviewees were approached with the interactions already found during the literature review or other interviews in order to verify that those instances of influence have occurred, and to assess whether interviewees give different reasons for the emergence of influence among the institutions. Snowball sampling was applied until no more new information occurred, or in other words, until the 'saturation point' was reached (Kumar, 2005).

The author of this study is of the opinion that the saturation point was reached i.e. more interviews would not have added new significant information. However, it is acknowledged that the saturation point is a subjective judgement (Kumar, 2005).

5.2 Data Analysis

Interview replies were transcribed. It was checked in how far an influence mentioned by an interviewee corresponded with the three causal pathway categories.

The reasons (that were inferred from the literature and that were verified and complemented through the interviews) for the (non-) emergence of influence were scrutinized in terms of their similarities with the institutional features identified by Stokke (2011).

Content analysis of the transcribed interviews was applied to see if people gave different reasons for why influence occurred in the way it did. Finally, content analysis helped to identify verbatim responses that could be integrated in the thesis text.

6 Results

This section presents the instances of interaction found during the desk study and during the interviews. It is outlined why an instance of interaction is interpreted as cognitional-, normative- or utilitarian interplay. Also, cases where actors of one institution tried to influence actors of another institution in vain are presented. These instances of moderate interaction also need to be considered in an analysis of how the initiatives are related to each other and which factors influenced their interactions.

To organize this chapter headings contain the names of the institutions involved in an instance of influence and an arrow indicating the direction of influence. Answers to both research questions are summarized in the Tables 3-6. At the end of the chapter it is summarized which of the institutional features identified by Stokke (2011) were particularly helpful to address the second research question.

6.1 Interplay between Forest Europe and the RED

One objective of Forest Europe is to achieve political commitment and action at all levels for the implementation of Sustainable Forest Management (SFM) (MCPFE, 2007). It implies that it attempts to influence EU legal instruments that are concerning forest issues, such as the RED (Eriksson, interview).

From the desk study analysis the most evident finding of Forest Europe's attempts to influence the development of the RED is the ad-hoc working group (WG) on defining sustainability criteria for forest biomass including bioenergy, which was established under MCPFE in 2008 shortly before the directive came into effect. "The Renewable Energy Directive was an important reason for establishing the working group and the possibilities to influence the developments on the Directive was a reiterating topic during the three working group meetings." (MCPFE, 2009)

Interviewees considered the actual impact that the discussions within the WG had on the RED development to be low.

At the meetings of the WG participants suggested the possibility to verify the sustainability of forest biomass at national level for the Forest Europe signatory countries. According to Eriksson (interview), participants discussed whether and how existing MCPFE tools should be refined to better serve verification purposes, so that they could become an alternative to an extension of the RED to solid biomass.

A main concern of the WG participants was that with the RED there could evolve different rules for and definitions of “sustainability” of forest biomass, used for energy versus other uses (MCPFE, 2009). Furthermore, it was stated that exemptions for the use of wood biomass from primary forests are needed in the case of storm events and subsequent rescue harvesting (MCPFE, 2009). Eriksson stated that especially the RED classification of primary forest as a no-go area was a reason for concern.

It was inferred from the interviews that not all participants of the WG were equally concerned about an extension of the RED. The finding is reflected in the following statements:

Eriksson from the Swedish Forest Agency stated that “the initiation of the group was based on a fear that the RED would be extended without prior adjustment to the forest environment. Another goal of the group was to make MCPFE C&I more complete, because there was something important lacking with regard to increased demand for forest biomass.”

De Galember stated: “While the EU was not willing to go into solid biomass sustainability criteria at that time, a group of actors felt that Forest Europe could build on its existing criteria and propose an initiative in the field of sustainability of biomass and biofuels.”

De Galember perceived unadjusted criteria of an extended RED as no interference with forestry: “It would demonstrate the agreement among countries to the least common denominator. The RED defines no-go areas like primary forests, but entails no rules for forest operations outside the no-go areas.”

An interviewee from the Commission’s DG Climate, Asger Olesen, confirmed that the applicability of the MCPFE tools for regulatory purposes has been much discussed within the Commission. Olesen did not see the MCPFE tools or the Legally Binding Agreement (LBA) on forests as an alternative to the RED, but as complementary tools in the issue area of woodfuels.

From the perspective of four interviewees, there has been no outcome of the WG. It did neither change the content of the MCPFE tools (e.g. by adding new climate change relevant issues), nor their form (e.g. by developing a procedure for the verification of sustainability). As a consequence, the MCPFE tools could not serve as an alternative to an extension of the RED to solid biomass.

FE → RED (cognitive interplay – request for assistance)

This study argues that cognitive interplay took the form of a request through Forest Europe for the assistance of the EC. Through a request for assistance, “the source institution can draw the attention of actors within the target institution to a particular aspect of which they had so far not taken due account — at least seen from the perspective of the source institution”. (Gehring & Oberthür, 2009: 134-135) Participants of the WG tried to draw the attention of the EC to the possibility of verification of sustainable forest biomass through MCPFE tools in order to avoid different rules for and definitions of “sustainability” of forest biomass, used for energy versus other uses. It seems that the EC is willing to comply with the request only to a limited extent. From the interviews it was inferred that the EC will take into consideration the outcome of the negotiations on a LBA in order to avoid diverging definitions regarding forests. According to Olesen, the EC is attentive to the negotiations on a LBA.

“If the Commission proposed binding criteria for solid biomass, it would try to not distort the picture more, and not create more definitions with regard to forests, but rely on an existing approach. And there, the Forest Europe process would be a very obvious input.” (Olesen, interview)

The announcement of the EC to harmonize forest definitions of a future RED with those of Forest Europe could be interpreted as some willingness to comply with Forest Europe’s request. Nevertheless, an extension of the RED to solid biomass will probably imply different rules for forest biomass used for energy versus other uses.

The reason why the request for assistance was not more successful is stated in the report of the WG. Participants of the WG recognized that it was “outside the current procedural elements of the MCPFE tools to meet the requirements of the RED for the verification of sustainability, or evidence of compliance” (MCPFE, 2009: 3). Consequently, the EC did not adapt the RED to an approach where MCPFE tools would be used alternatively to a future RED. Since Forest Europe related actors succeeded in drawing the attention of EC officials to the MCPFE tools, but could not convince them to use them alternatively to a future RED, the influence has been moderate.

FE → RED (utilitarian interplay)

At the moment there are no legally binding instruments that would increase compliance with woodfuel specific requirements. It follows that companies may assign only benefits to a more intensive use of woodfuels, because the use is financially supported in several EU Member States (EC, 2010).

In theory the MCPFE tools might be able to add costs to noncompliance with woodfuel specific requirements. At least, they could increase the reputational costs implied in non-compliance. Reputational effects are a disincentive for violation. Countries may try to comply with requirements, because they care about their reputation.

Compliance with MCPFE woodfuel specific requirements would probably enhance the effectiveness of the RED. Thus, there is a potential for utilitarian interplay between Forest Europe and the RED.

FE → RED (cognitive interplay – policy model)

The interview with Olesen from the EC suggested that Forest Europe engaged with the RED in cognitive interplay that took the form of a policy model.

Olesen framed Forest Europe's influence on the development of the RED as follows: He argued that forest industries, and forest rich countries had persuaded those who were developing the RED of the impossibility to formulate anything more precise with regard to forests than what was formulated in the MCPFE tools.

According to Olesen, on scientific grounds it is not possible to formulate more precise definitions of what a forest is and what SFM is.

As a consequence, "it is impossible to legislate on this area" (Olesen, interview). From this perspective, forest industries and countries have successfully lobbied against the inclusion of sustainability criteria for biomass based electricity, heating and cooling in the RED through pointing to the broadly defined C&I of the MCPFE tools and a potential LBA.

EC officials "shied away" from legislating on solid biomass, because they were aware of the difficulties encountered by the Forest Europe process to define threshold values on specific elements of sustainable forest management like the amount of dead wood to be retained on the forest site.

The indeterminacy of the C&I of the MCPFE tools supported the occurrence of cognitive interplay between Forest Europe and the RED. It is thinkable that the broadly defined MCPFE C&I reinforced the awareness of EU officials about the options that are available to legislate on woodfuels. There is little to suggest that those who formulated the MCPFE C&I had the intention to demonstrate that a more precise formulation is not possible. Thus, the interaction can be considered as a policy model (i.e. unintentional).

According to Olesen, EU officials may have realized that it is too difficult to adopt detailed criteria for woodfuels, for which they could demonstrate a legitimate scientific

justification. They may have realized that the variability of forests between the European countries constrains the adoption of “one size fits all” criteria. This awareness may have favored the delays of an extension of the RED to solid biomass. Thus, interaction between Forest Europe and the RED may have contributed to the non-emergence of hierarchical governance at the supranational level. It may have supported the maintenance of governance of woodfuels at the national level.

It needs to be clarified that Forest Europe cannot clearly be established as a source of influence to EC officials’ awareness about the national differences that constrain the adoption of determinate criteria for solid biomass. People from the EC had already experienced the difficulties of legislating on forest issues through other EU policies like the Forestry Strategy⁵. Thus, the extent of Forest Europe’s influence on the EC is difficult to determine in this instance. The influence is categorized as “unclear influence”.

Furthermore, it can only be speculated that Forest Europe influenced EU officials’ decisions to not adopt detailed, binding criteria for woodfuels. During the interviews the most often stated reason for the delay of an extended RED was the lacking support from the Scandinavian countries for binding criteria for woodfuels.

Several interviewees claimed that the EC refrained from proposing binding criteria for solid biomass in 2013, because it was afraid that a controversial proposal could influence the outcome of the European elections in 2014.

Hontelez stated: “Inside the EC there are people who think that a euro-sceptical outcome of the European Parliament elections can be avoided through avoiding controversial proposals soon before the elections.”

Two interviewees who had insights into a leaked proposal draft for criteria for solid biomass stated that the EC had chosen “watered-down” requirements. According to the interviewees, the existence of a Forest Management Plan (FMP) had been proposed as the basic requirement of a future RED. They claimed that officials from the EC had mainly been interested into how forest management initiatives including Forest Europe and the FSC define a FMP. A FMP comprises long-term goals as well as annual plans

⁵ The Forestry Strategy started in 1998 and had the aim to improve the visibility of the forest sector at EU level. It was followed by a voluntary Forest Action Plan that ended in 2011 and that operationalized the principles of the Forestry Strategy into key actions like the promotion of bioenergy and actions on biodiversity. Member States could choose freely to consider the key actions in their forest-related policies. Most parties involved in the discussions about appropriate instruments of a future Forestry Strategy preferred its voluntary nature, because it provided higher flexibility than a directive (EC, 2011).

of operations. The existence of a FMP can be considered a weak requirement, because FMPs show great variability among and within countries.

Two interviewees from environmental NGOs had another perspective than Olesen: They argued that sometimes people from the EC used the foreseen LBA as an excuse to take less action in the compilation of a future RED. According to one interviewee, people from the EC have no motivation to address questions that need answering before an extension of the RED. He argued that for them it is more convenient to claim that a LBA will give sufficient assurances for the sustainable management of forests than to address these questions.

FE → RED (normative interplay)

It seems that a future LBA has the capacity to trigger normative interplay with the RED. In the eye of some countries of the European community it may be unjustified and inappropriate when EU legal instruments affect forestry issues, even though the EU legal instruments had been agreed upon in a democratic process. Thus, the normative compellingness of an extended RED may be low.

The compellingness of a rule refers to a rule's ability to pull those to whom it is addressed towards compliance (Franck, 2006). In general the normative compellingness of a regime plays a more important role in securing compliance when compliance is voluntary. Since the RED imposes legal obligations directly upon Member States, the normative compellingness of its requirements is less decisive for securing compliance. The probability that the RED requirements are violated by the states that perceive them as inappropriate is relatively small.

But, it could be argued that a possibly low normative compellingness of an extended RED carries the risk that countries will look for possibilities to circumvent the RED requirements. The LBA could play a role in preventing such circumvention through enhancing the normative compellingness of bioenergy specific rules.

The RED and the LBA could be seen as two elements of a European regulatory regime for woodfuels. The probability that a LBA will immediately include specific bioenergy indicators, possibly reinforcing the normative compellingness of a regulatory regime for woodfuels, was considered low by all interviewees. They claimed that, nevertheless, in the long term a LBA may include such criteria. Hence, in this instance of interaction the extent of influence is best described as "possible future influence".

The following statement of an interviewee illustrates the potential for normative interplay between Forest Europe and the RED.

Olesen from the DG Climate stated: “In the EU legislative procedure you need a qualified majority. So, you could end up in a situation where a couple of Member States would have to respect legislation that they basically opposed, because the majority of Member States voted it through. In contrast, decisions made under Forest Europe require almost consensus. Whatever comes out of the negotiations on a LBA is agreed upon among all of the involved countries – so it has some kind of democratic legitimacy. That might be the most noteworthy quality through which it may complement a future RED.”

The statement seems to support Stokke’s (2011, 154) notion that an institution’s achievement of legitimacy for certain rules may result in normative interplay capable of triggering regulatory advances in broader regimes.

RED → FE (cognitive interplay – policy model)

Among the proposed amendments to the MCPFE tools, the following three had been inspired by the criteria of the RED: adding new climate change relevant issues including Life Cycle Analysis, a quantitative indicator regarding the GHG savings and protecting peatland from drainage (Eriksson, interview; MCPFE, 2009). Indicators that had been suggested during the WG meetings partially reflect these issues (Appendix 2).

Before aspects of a source institution can serve as a policy model for a target institution, there must be a transfer of ideas, information or knowledge from the source- to the target institution. This stage of cognitive interplay between the RED and Forest Europe was finalized. Thus, there has been “moderate influence”.

Forest Europe related actors put the RED criteria as a policy model on the agenda of Forest Europe. However, new criteria or indicators were not adopted, because they lacked the support of relevant actors within Forest Europe. Thus, the RED criteria failed to serve as a policy model.

Reasons given by interviewees for the difficulty of Forest Europe or of the WG to enhance the substantive strength of the MCPFE tools are presented below. They may explain why the RED criteria failed to become a policy model for Forest Europe and also why Forest Europe did not engage in utilitarian interplay with the RED. As outlined above, there was a potential for utilitarian interplay in that direction, because MCPFE

tools capable to enhance compliance with woodfuel specific criteria would also affect the effectiveness of a future RED.

According to Stokke (2011: 158), negotiating stricter regulations within an international institution will fail when such rules would distribute the costs and benefits asymmetrically among the participating states.

It has been noted that the variety of forest ecosystems and the varying economic importance of forestry in the European countries have constrained the establishment of a European forest policy with a mandate to adopt binding rules (EFI, 2012). Sweden, which had been an opponent of an EU common forest policy, had also a leading role in the WG (Edwards and Kleinschmit, 2012; MCPFE, 2009).

De Galember was of the opinion that the same countries that are trying to keep full national sovereignty over forests in the EU are also opposed to the development of woodfuel specific criteria that could become binding at a supranational level.

In Stokke's (2011) terms, there was no strong incentive for forest-rich countries to negotiate woodfuel specific principles or indicators that would constrain regulatory leeway. Consequently, the substantive strength of the MCPFE tools was not raised. Tools that could have added costs to noncompliance with bioenergy specific criteria did not come into effect.

Eriksson from the Swedish Forest Agency provided another explanation on why the WG had not gone further. Eriksson stated that she had the support from the Swedish government for her suggested changes to the MCPFE tools. Eriksson gave four other reasons in her explanation. The main reason she mentioned was that there was not enough support within the group for the criteria that she had suggested for refining the MCPFE tools.

"There was maybe a limited understanding for the need of the criteria. Maybe some participants feared that they would be too sharp. But, I am not sure. Nobody said that explicitly." (Hillevi Eriksson, interview)

The second reason she pointed out was that in the occasional meetings of Forest Europe people who have the expertise that is needed to make amendments are not always present. According to her, adequate expertise in the issue areas biodiversity and GHG balance is rare. It has been shown that there is a wide range of parameters and factors that determine the GHG balance, and that it has been difficult to achieve a unified and internationally accepted approach to calculate GHG emissions (van Dam et al., 2010).

According to Eriksson, the third reason was that a multitude of issues were discussed in the group. Thus, there was not enough focus on the proposed criteria and refinements of the MCPFE tools. They may have lacked political salience from the perspective of some participants. Eriksson gave a fourth reason that related to an internal Swedish conflict. The Swedish WWF had argued that her suggestions were not coherent with the Swedish Forest Agency's tolerance for stump harvesting. She found that thereby her "credibility within the group had been reduced". However, Eriksson regarded the internal conflict as less decisive for the progress of the group.

Janse from the Swedish Forest Agency also mentioned a lack of salience of the proposal to refine the tools as a reason why further action did not take place. The proposal was unable to alter the perceived contracting costs, because it lacked political salience. According to Janse, some countries were not willing to invest time and money into the refinements of the tools at that time. They believed that bioenergy and climate relevant indicators will be included in a LBA at some point in time anyway. Countries preferred to add bioenergy specific indicators after the conclusion of the LBA in order to avoid a duplication of work.

RED → FE (cognitive interplay)

Participants of the WG tried to draw the attention of the EC to the possibility of verification of sustainable forest biomass through the MCPFE tools. The EC was not willing to utilize the MCPFE tools as an alternative to an extended RED. One main argument of EC officials against the approach proposed by WG participants was that the tools were not legally binding. The MCPFE tools did not meet the EC's requirement to have a legal instrument to regulate woodfuels.

It could be argued that the RED requirements "helped" Forest Europe related actors to recognize that the voluntary nature of the tools was an issue for them being used by regulatory processes and institutions.

The policy model category does not apply here, because no aspects of the RED served as a policy model for Forest Europe. Instead, Forest Europe "learned" through its interaction with the RED about its limitations to interact with other regulatory institutions. The RED gave Forest Europe related actors an additional argument to negotiate a LBA.

Janse referred to this in an email that he wrote in connection with this study: "The EC's main counter argument was that the MCPFE tools were not legally binding. Hence, one of the arguments why Forest Europe is now changing into a legally binding agreement ..."

However, up to which extent the RED affected the decision to negotiate a LBA is unclear, because the idea to negotiate a LBA received great support already before the arrival of the RED.

Table 3: Answers to the two research questions concerning the instances of interaction between Forest Europe (FE) and the RED.

Direction of influence	Instance of influence	Causal pathway	Extent of influence	Reason why influence did (not) occur	Reference to conditions implied in Stokke's (2011) framework
FE → RED	FE related actors tried to draw attention of EC to the possibility to verify sustainable forest biomass through the MCPFE tools.	Cognitive interplay: Request for assistance not successful	Moderate influence: Increased awareness among EC officials about MCPFE tools. But EC officials did not see them as a viable alternative to future RED.	MCPFE tools lack bioenergy specific indicators and procedural elements for evidence of compliance	
	MCPFE tools unable to increase costs of non-compliance with bioenergy specific sustainability criteria. Consequently, they could not complement the current or future RED.	No utilitarian interplay	Absent influence	Factors hindering strengthening of tools: Some signatory states opposed to more regulation (stricter rules); Experts needed to carry out changes were irregularly present; During meetings other distracting issues were discussed; Internal Swedish conflict	Substantive strength of norms
	Broadly defined MCPFE C&I may have reinforced awareness of actors developing RED of factors constraining 'one-size-fits-all' criteria for woodfuels.	Cognitive interplay: Policy model	Unclear influence: Influence cannot be solely attributed to FE.		

Direction of influence	Instance of influence	Causal pathway	Extent of influence	Reason why influence did (not) occur	Reference to conditions implied in Stokke's (2011) framework
FE → RED	Future LBA with bioenergy specific C&I may reinforce normative commitment to future RED.	Possible future normative interplay	Possible future influence	Forestry sector and some countries may grant legitimacy to LBA, while they may perceive extended RED as interference with sovereignty over forest issues.	
RED → FE	RED criteria failed to serve as a model for MCPFE tools	Cognitive interplay: Policy model failed	Moderate influence: Individuals of FE considered some RED criteria useful for the MCPFE tools. But, renewal of tools lacked support of other relevant actors.	Some signatory states opposed to more regulation (stricter rules); Experts needed to carry out changes were irregularly present; During meetings other distracting issues were discussed; Internal Swedish conflict	
	RED reinforced awareness of Forest Europe about limitations of non-binding MCPFE tools. It gave Forest Europe an additional reason to negotiate a LBA.	Cognitive interplay: neither policy model, nor request for assistance are suitable categories. FE learned through its interaction with the RED about limitations of the MCPFE tools.	Unclear influence: Idea to negotiate a LBA received great support already before the arrival of the RED.		

6.2 Interplay between the RSB and the FSC

The RSB officially recognizes the FSC for the RSB standard for biofuels based on by-products and residues, instead of reinventing all kind of criteria relevant for forest biomass production. The recognition entails that the auditing becomes cheaper and easier for forest operators who seek to be certified by both schemes. The RSB's decision to recognize the FSC was based on a benchmarking study in which the International Social and Environmental Accreditation and Labeling (ISEAL) alliance principles were applied (Mathe, interview). According to Bernstein and Hannah (2008: 595), ISEAL members try to develop their standards through open, transparent, and accountable processes and thereby conform to, or even surpass, commonly accepted democratic norms. The results of the benchmark study showed that RSB and FSC standards are aligned on most sustainability aspects.

RSB → FSC (utilitarian interplay)

On the FSC website it is stated that the RSB's recognition facilitated that "FSC certified forests and operators can now easier access bioenergy markets". The RSB's recognition of the FSC entails that the auditing costs are not doubled for those FSC certified operators who want to allocate woody material on biofuel markets. Financial barriers that may hinder such allocation are reduced through the recognition. However, there is no significant market for second generation biofuels yet where forest operators could allocate their wood. Hence, the RSB standard for second generation biofuels has not been implemented in the field yet (Mathe, interview).

In this study it is argued that the RSB's recognition of the FSC could become a case of utilitarian interplay when there is a market for second generation biofuels.

In the future RSB's recognition of the FSC may alter the costs that FSC certified forest operators assign to accessing biofuel markets, because they do not have to bear additional auditing costs to be certified by the RSB. Decisions of operators to place woody material on the biofuel market have no direct impact on the FSC, because the FSC does not prioritize any end-use of wood. But, as the market for second generation biofuels develops, the demand for RSB certificates and thereby for FSC certificates may increase.

The circumstance that there is no significant market for second generation bioliquids hampers the capacity of the RSB to alter the costs and benefits that forest operators assign to becoming FSC certified.

Interviewees were of the opinion that the RSB's recognition of the FSC could not affect established preferences of forest operators to be FSC certified or not. The RSB's recognition of the FSC was not regarded as a strong economic incentive.

According to Mathe, "the forest owner must want to become FSC certified. When only a small proportion of his revenue comes from biomass harvesting, the RSB's recognition of the FSC can influence that decision only marginally."

FSC → RSB (cognitive interplay – policy model)

There are several elements of the FSC that may have served as models for certification schemes that were established later, especially the roundtable schemes. For example, interviewees suggested that the FSC's chamber structure i.e. the equal representation of business and civil society served as a model for the RSB. The RSB was also inspired by the FSC rules for developing standards, such as defining High Conservation Value areas in a participatory process (Haye, interview). Thus, there has been cognitive interplay in the direction from the FSC to the RSB. And the extent of influence has been large.

This study argues that FSC P&C did not serve as models for the creation of the RSB standard for biofuels based on by-products and residues. Instead, the RSB refers to the FSC standards to cover aspects like forest biodiversity that are less comprehensively covered by the RSB standards.

The RSB acts in accordance with the Code of Good Practice of the ISEAL alliance. The ISEAL code encourages ISEAL members to coordinate their standard setting activities and to reduce overlap of standards (Bernstein and Hannah, 2008: 597). Visseren-Hamakers et al. (2011: 92) referred to such coordination as a form of interplay management, which is at a somewhat other level than institutional interaction.

Also other bioenergy certification schemes recognize the FSC. Like the RSB they demand operators to be FSC certified before they give a certificate to the operators. But, the other bioenergy schemes recognize also competitor schemes of the FSC. Thus, the other bioenergy schemes differ from the RSB with regard to how the interplay with the FSC is managed.

The RSB announced to investigate whether it can also recognize other forest certification schemes (RSB, 2013). However, the interviews suggest that the RSB would never endorse a competitor scheme of the FSC, because a competitor scheme would not have the support from the environmental NGOs. One interviewee from an

NGO supporting the RSB stated: “We think that credible standards should only cooperate with credible standards.”

Table 4: Answers to the two research questions concerning the instances of interaction between the RSB and the FSC.

Direction of influence	Instance of influence	Causal pathway	Extent of influence	Reason why influence did (not) occur	Reference to conditions implied in Stokke's (2011) framework
RSB → FSC	Recognition reduces auditing costs → reduces barriers to allocation of wood for biofuel production; → may become incentive for forest operators to be FSC certified	Possible future utilitarian interplay	Possible future influence	No market for second generation biofuels yet	
FSC → RSB	Elements of the FSC (e.g. chamber structure) served as policy models for the RSB	Cognitional interplay: Policy model	Large influence	FSC was the first roundtable certification scheme	

6.3 Interplay between the RED and the FSC

This section starts with briefly describing the relationship between the RED and the FSC. Then, it outlines how the considerations of extending the RED to solid biomass are affecting pellets-firing power companies who are stakeholders of the FSC. It is followed by the presentation of an instance of influence in which the power companies play a role. Thereafter, other instances of influence are presented.

Lin (2011) argued that an economic operator who intends to access the EU biofuel market will seek certification by a standard that covers most sustainability criteria of the RED in order to avoid having to carry out supplementary checks to address the compliance gaps.

The FSC can only be used to show partial compliance with the RED criteria, because it does not cover all of them.

However, in the case of an extension of the RED to solid biomass, forest certification schemes may gain significance for showing compliance with the RED criteria. They are more specialized than biofuel certification schemes in forest related issues like forest biodiversity.

In a benchmark study that was carried out for the Directorate-General for Energy and Transport in the European Commission it is stated that “verification of wood products and verification of sustainability criteria set by a future EC directive may be eased if existing certification systems are suitable as proof of woodfuel sustainability. Existing systems relevant to verification of sustainable woodfuels include the forest certification schemes FSC and PEFC endorsed schemes.” (Londo, 2009)

There is awareness among power utilities firing pellets that the sourcing of forest biomass could be affected by addition of biomass sustainability requirements in the RED and the implementation of the RED by the individual Member State governments (Smith & Flach, 2013). At the moment most power utilities have not committed themselves to use pellets only from certified forests (Fritsche, interview).

However, the Initiative Wood Pellets Buyers (IWPB), which comprises large power companies, encourages its members to apply a uniform approach with respect to sustainability principles applicable to wood pellets/woody biomass sourcing and trading (IWPB, 2012). It serves to avoid incoherent implementation of sustainability criteria across countries, which can be a barrier to trade. The IWPB aims at following the recommendation of the EC to harmonize criteria for solid biomass with the RED criteria for bioliquids. The majority of power companies is calling for EU binding sustainability criteria, especially for types of biomass that are more likely to be traded in high quantities on a global scale e.g. pellets and woodchips (EC, 2011b). The IWPB has not decided yet whether it will use the meta-standard approach recognizing other standards like the FSC, or whether it will become an independent standard (Fritsche, interview).

RED → FSC (utilitarian interplay)

Interviewees argued that EU binding criteria for solid biomass would force forest owners, pellet producers, and all companies in the supply chain to deliver by the terms the power companies committed themselves to. Power companies recognized that they will be confronted with supply shortages if the criteria they commit themselves to are not mandatory. There are two reasons why large power companies committed themselves to the RED criteria also for solid biomass:

First, they want to serve the environment. Second, they need to enhance their “green” image among the general public, because otherwise there will be pressure from environmental groups on the governments that subsidize the use of wood-pellets for electricity.

In the countries where most of the pellets-firing power companies are located, like the Netherlands and Belgium, environmental groups have relatively large influence on the governments. One interviewee stated that the use of pellets for electricity relies on subsidies.

Utilitarian interplay entails that rules or programs of the source institution alter the costs and benefits that actors assign to an activity dealt with by the target institution. The IWPB and large power companies that are the actors here are calling for these rules.

However, the large companies are better off if the source institution, the RED, triggers behavioral change also among other actors like forest owners and pellets producers.

Power companies’ commitment to the RED criteria also for the use of solid biomass may contribute to a decision to make the criteria binding for solid biomass, which would obligate other actors as well. In the absence of strict, binding criteria other actors may find it too costly to become certified e.g. through the FSC. The potential strength of its future criteria influences the RED’s ability to trigger utilitarian interplay with the FSC from which the FSC may benefit.

Furthermore, the potential extension of the RED led the pellets-firing power companies to prefer to join a certification scheme that covers all RED criteria (Schouwenberg, interview). It is still open whether the power companies will develop a FSC competitor certification scheme that covers all criteria, or whether they will recognize the FSC as compliant with a meta-standard and will carry out supplementary checks e.g. of GHG performance. Thus, until now the RED’s influence on the power companies has not affected the FSC negatively. The extent of influence can be considered as “weak influence”, because the FSC’s effectiveness has not been affected yet.

RED → FSC (cognitive interplay – policy model)

Although the FSC has been reluctant to adapt its standards to the RED, interviews suggest that the RED criteria for land use change (LUC) and GHG emission reductions have attracted the attention of the FSC. Hence, the RED criteria are a potential policy model for the FSC.

The RED allows the use of biomass for biofuels from wetland, undrained peatland, and wooded land as long as they maintain their status. While the FSC standards address the conversion of natural forest into plantations, the conversion of peatlands, and

grasslands into plantations have been outside the scope of the FSC standards (Goh et al., 2012).

The land use change (LUC) criteria outlined in Article 17 of the RED have triggered considerations within the FSC to address the conversion of peatland, wetland, and grassland with high biodiversity value into forest plantations (Hontelez, interview).

The extent of the RED's influence on the FSC can be categorized as "moderate influence", because an adaptation of the FSC standards has not taken place yet. It could also be referred to as "unclear influence". From the beginning of the FSC there has been a debate to what extent it should address issues outside the forest (Karmann & Smith, 2009). So, the RED cannot be established as the only source of influence.

The LUC criteria may have attracted the attention of the FSC, because they correspond to a main target of the FSC, which is securing biodiversity. Within the FSC the GHG criteria are more controversially discussed than the LUC criteria.

RED → FSC (cognitive interplay – request for assistance)

Until now no interplay between the RED and the FSC that could be observed in form of an adaptation of standards has occurred.

There has been no strong incentive for the FSC to adapt its standards to the RED for two reasons: First, the current RED requirements apply to forest biomass only for the production of bioliquids. And the market for that is still marginal. Second, the FSC has another scope than the RED: While the RED focuses on the energetic use of biomass, the FSC does not aim at issuing standards that apply to a specific end use of forest products (Hontelez, interview).

It would be a challenge for the FSC to apply standards for a specific end use, because in most cases the end use of the wood raw material cannot be predicted by the forest owners. Thus, if the FSC added new criteria in response to a future RED, it would have to explain to forest owners that they have to comply with additional criteria, because there is the possibility that the wood will be used in large energy plants. Forest owners who produce mainly for the paper- and buildings market may perceive additional criteria as an unnecessary burden. Thus, mandatory criteria for woodfuels may affect the relationship between the FSC and its customers negatively.

In 2009 a benchmark study carried out for the DG Energy and Transport reported that "the FSC is examining possibilities of using the Chain of Custody to calculate carbon footprints of forest products" (Londo, 2009: 111).

Subsequently, the EC sent an official request for assistance to the FSC in which it asked whether the FSC could integrate Life Cycle Analysis (LCA)⁶ into its Chain of Custody (CoC) system (Hontelez, interview). A system that can assess the environmental and climate impacts of a product like pellets throughout the supply chain and compare them with impacts from fossil fuels would be required for the implementation of an extended future RED. This demonstrates an elementary stage of intentionally triggered cognitional interplay where actors operating the source institution, the RED, request actors from the target institution, the FSC, for assistance, so that the source institution can be better implemented.

Similarly, representatives from large pellets-firing energy companies asked the FSC whether it could add criteria like GHG criteria, so that they could use the FSC to proof that they are working sustainably (Schouwenberg, interview).

The FSC did not meet the requests for two reasons:

First, the FSC considered its CoC system not advanced enough to integrate a LCA (Hontelez, interview). Second, the FSC has not made a final decision whether it should become more active in calculating carbon emissions, because of unknown social and environmental implications of carbon accounting.

A 2012 FSC strategy paper states: “The hypothetical or speculative nature of carbon accounting causes critics to question the environmental integrity of forest carbon credits altogether. Until the main concerns are addressed, uncertainties removed, and risks better understood, FSC will therefore not become involved in carbon offset quantification and verification.” (FSC, 2012: 6)

Better knowledge on the potential risks of carbon accounting might enhance the RED’s capacity to trigger cognitional interplay with the FSC. The RED as an institution does not involve knowledge production. However, the EU established a joint research centre to support its legislation.

According to Stokke (2011), an institution is well equipped to trigger cognitional interplay with another institution if it is able to raise the credibility of scientific input to

⁶ “LCA is a powerful tool for scenario comparisons as the incremental variation between each scenario would provide valuable insights for decision making. As there have been many concerns on the true impacts and degree of sustainability of biomass energy systems, LCA has been used extensively in recent years to evaluate a wide range of bioenergy systems and, sometimes for comparison purposes, fossil fuel energy systems.” (Pa, Bi, & Sokhansanj, 2011: 6168)

decision making on an environmental problem. Yet, the 2012 FSC strategy paper referred to insufficient scientific input rather than to unreliable scientific input to decisions concerning carbon accounting.

The request by the EC for the assistance of the FSC to strengthen GHG quantification had no immediate success. Thus, the influence is categorized as “moderate influence”. Nevertheless, interviews indicated that in the long term cognitional interplay may go one step further and lead to an adaptation of the FSC standards.

Hontelez from the FSC stated: “We have learned about a few relevant complications with our system in relation to requirements for biofuels. The RED has given us reasons to start discussions on how to address these challenges, but we haven’t finalized them.”

From the interviews it was concluded that the RED has reinforced considerations of the FSC to become more pro-active in climate change issues. The FSC is also aware of the possibility that some of its stakeholders, namely large energy companies, will develop an independent competitor scheme, if the FSC does not meet their request for additional criteria. Nevertheless, no projections can be made whether the FSC will engage in calculating GHG emission reductions or the carbon footprint of forest products.

The relatively small influence of the RED on the FSC with regard to GHG quantification may accelerate the creation of new schemes that cover all types of solid biomass and GHG quantification. The IWPB is an example of an industry initiated initiative that may become an independent scheme for biomass used for electricity and heat, which would cover all RED criteria.

New schemes may confront the FSC with additional competition. If the new schemes were less stringent than the FSC, they would undermine the effectiveness of the FSC. In contrast to the FSC, these new schemes might be governed predominantly by industry representatives. For example, the IWPB is mainly comprised of industry representatives. Discussions to include NGOs in the new scheme are still ongoing (SBP, 2013).

It could be argued that the lack of influence of the RED on the FSC indirectly favors the creation of NSMD governance systems in which industrial actors dominate. So, institutional interaction supports a certain form of NSMD governance in this case.

FSC → RED (cognitive interplay – policy model)

In general the RED influences voluntary schemes rather than the other way round.

The EU has been the main driver behind the creation of the global biofuels market through its climate change and renewable energy policies (Lin, 2011: 45). Voluntary biofuel schemes like the RSB adapted their standards to the requirements of the RED in order to increase their market share. So, influence has taken place in the direction from the RED to the voluntary schemes. One interviewee stated: “The EU dictates what is happening.”

The FSC started to target governments to adopt FSC standards in their procurement policies (Bernstein & Hannah, 2008: 581; Visseren-Hamakers & Glasbergen, 2007). However, it is unlikely that the FSC will try to induce the EU to adopt FSC standards in its procurement policies.

Olesen stated that his colleagues from the DG Agriculture and DG Energy might have been inspired by principles and criteria of voluntary schemes when they compiled the LUC criteria of the RED. But, there is no strong indication that FSC principles and criteria served as models for the existing RED criteria, because the RED criteria were designed specifically for liquid biofuels, mostly produced from agricultural feedstock.

The criteria were developed for different purposes as is illustrated through the following example:

The RED includes a strict definition on ‘continuously forested area’. Lands that fall within the definition are excluded from operations (EC, 2009). For comparison, the FSC follows an approach in which high-conservation-value forests are defined in a participatory process including local people. Operations are not per se excluded from those areas (Karmann & Smith, 2009).

It is more likely that the FSC will influence a future RED. The 2010 press release of the EC stated that for a potential extension of the RED to solid biomass, the EC will build on the criteria for liquid biofuels and will consider provisions made by Sustainable Forest Management (SFM) initiatives (EC, 2010). Interviewees stated that there is a relatively high probability that FSC principles and criteria and/or definitions regarding forests and forestry will serve as models for a future RED. As stated previously in this thesis two interviewees claimed that officials from the EC had mainly been interested into how the FSC defines a Forest Management Plan (FMP).

Table 5: Answers to the two research questions concerning the instances of interaction between the RED and the FSC.

Direction of influence	Instance of influence	Causal pathway	Extent of influence	Reason why influence did (not) occur	Reference to conditions implied in Stokke's (2011) framework
RED → FSC	RED criteria for LUC attracted attention of FSC.	Cognitive interplay: Policy model	Moderate influence: Within FSC considerations to address LUC outside of forests were reinforced.	Biodiversity conservation ranks high on FSC agenda	
	FSC did not meet the EC's request to include LCA in the FSC CoC system.	Cognitive interplay: Request for assistance not met	Moderate influence: RED contributed to draw FSC's attention to certification of carbon sinks.	Scope of FSC less on CoC, more on forest. Insufficient knowledge about implications of carbon accounting	
	Pellets-firing power companies are calling for binding RED criteria for solid biomass, so that other actors will be forced to become certified by e.g. the FSC.	Possible future utilitarian interplay	Possible future influence	Strength or binding nature of future RED is advocated by actors (power companies) that are relevant to the FSC.	Substantive strength of norms
	Power companies may decide to develop a new scheme that covers all RED criteria, instead of recognizing the FSC as an element of a meta-standard. It could undermine the effectiveness of the FSC.	Possible future utilitarian interplay	Weak influence: RED led power companies to consider the creation of a FSC competitor scheme. However, until now this did not affect the effectiveness of the FSC.		
FSC → RED	Future RED might be inspired by FSC P&C	Possible future cognitive interplay: Policy model	Possible future influence		

6.4 Interplay between the RED and the RSB

RED → RSB (Cognitive interplay – request for assistance)

Voluntary biofuel schemes like the RSB adapted their standards to the requirements of the RED in order to increase their market share. As a consequence, RSB certified operators who sell a product on the EU market have to comply with the RSB standards and the RED criteria.

In the area of woodfuels these adaptations apply also for the RSB global standard for biofuels based on by-products and residues.

This demonstrates an instance of cognitive interplay in the form of an unofficial request for assistance from the source- to the target institution. The decision of the EC to recognize voluntary schemes as a means to show compliance with the RED criteria can be seen as an unofficial request for assistance of the EC to the voluntary schemes. Usually, a request for assistance will be more successful when the target institution can benefit from the adaptation to the rules of the source institution.

Despite the RSB aligned its standards with the RED requirements, it presents itself as an independent initiative (Haye, interview). The RSB tries to stay independent from governments in its decision making as well as in its standard developing.

The RSB employs its own GHG calculation methodology. The methodology has been integrated into an online tool that operators can use to calculate the GHG emissions along the production chain. Operators are required to enter data like land use type, material and energy usage etc. The RSB GHG calculation methodology is very similar to that of the RED, which made it easier to integrate both methodologies into the same online tool. It also prevents conflict between the RSB standards and the RED requirements.

One could guess that there is no great divergence between the GHG calculation methodologies, because the EC and the RSB sought advice from the same experts. But, the RSB emphasizes that it consulted experts on GHG calculation who had no official connections with the EC (Haye, interview).

Haye mentioned a factor that helped to prevent too much divergence between the RSB- and the RED GHG methodologies:

Haye: “In the US another approach to GHG accounting is more popular. The experts who developed our methodology were based in Europe. They were aware of the state of the art. There are some major publications and methodological approaches that all the experts will know – and that’s what creates some kind of convergence in GHG accounting.”

While the RSB developed its own GHG calculation methodology, other bioenergy schemes incorporated the methodology of the RED into their standards. Hence, the GHG calculation methodology of the RED clearly served as a policy model for other bioenergy schemes. It is thinkable that those who consulted the RSB got information from experts who were working for the EC. If that was the case, the interaction could be categorized as a policy model type involving actors from outside the interacting institutions. Since there is no evidence for that, the extent of influence can be categorized as “unclear influence”.

Table 6: Answers to the two research questions concerning the instances of interaction between the RED and the RSB.

Direction of influence	Instance of influence	Causal pathway	Extent of influence	Reason why interplay was (not) triggered	Reference to conditions implied in Stokke’s (2011) framework
RED → RSB	RSB adapted parts of its standards to RED requirements.	Cognitive interplay: Request for assistance was met.	Large influence	RED gave RSB a possibility to increase its market share.	
	Those who advised the RSB on GHG calculation methodology may have used information from consultants working for the EC.	Cognitive interplay: Policy model	Unclear influence	Scientific community for GHG calculation is small.	

6.5 No interplay cases in the issue area of woodfuels

Interplay in the issue area of woodfuels did neither evolve between Forest Europe and the RSB, nor between Forest Europe and the FSC.

Forest Europe with its focus on forest policy, but without a direct impact on the forest products market, has no significant relevance for the RSB that focuses on the biofuels market.

The other large forest certification scheme next to the FSC, the PEFC, relies on the intergovernmental principles of Forest Europe. Participants of the WG argued that “the relation of MCPFE tools to the RED legality principle comes indirectly through PEFC certification, which uses, as a basis for standard setting, the MCPFE indicators and Pan-European Operational Level Guidelines” (MCPFE, 2009).

In contrast, the FSC develops P&C independently. It is unlikely that there would be interaction between Forest Europe and the FSC that would relate in particular to the issue area of woodfuels, because both are not explicitly addressing woodfuels.

6.6 Institutional features as explanatory variables

The results of this study show potential reasons why instances of interaction did occur in the issue area of woodfuels, and why they did not occur. In most instances of interaction the extent of influence was categorized as moderate influence or as possible future influence.

Table 7 summarizes the reasons for the (non-) occurrence of influence that correspond to the institutional features identified by Stokke (2011). The following institutional features of Stokke’s (2011) framework helped to explain the (non-) emergence of influence per pair of institution:

Credibility – ‘An institution’s ability to raise the credibility of scientific input into decision-making may affect the occurrence of inter-institutional influence.’ It was found that insufficient knowledge rather than unreliable knowledge on GHG accounting hindered the FSC from adapting the GHG criteria of the RED.

Determinacy – Determinacy may indirectly have affected the capacity of Forest Europe’s criteria to serve as a model for a future RED, because their indeterminacy may have reinforced the assumption that it is impossible to formulate precise binding criteria for solid biomass. EC officials may have refrained from adopting a “one size fits all” standard for solid biomass, thus following an approach preferred by Forest Europe.

Substantive strength – Relevant participants of the WG blocked the adoption of stricter criteria and control procedures. As a consequence, the MCPFE tools did not add costs to the use of woodfuels in a way, which may be unsustainable. Hence, the MCPFE tools were of little help to achieve the objectives of a possible future RED.

Furthermore, the potential inclusion of stricter binding sustainability criteria for solid biomass in the RED provides an incentive for pellets-firing power companies to be certified through a voluntary scheme that covers all RED criteria. In case that they developed an independent standard that covers only the RED criteria and no other sustainability aspects, such standard might undermine the effectiveness of the FSC. If the power companies used a meta-standard approach, this could increase the demand for FSC certificates and thus benefit the FSC.

Table 7: Summary of reasons for the (non-) occurrence of influence that correspond to the institutional features identified by Stokke (2011).

Causal pathway	Knowledge-building task	Comments	Norm-building task	Comments
Cognitive	Credibility	RED → FSC: The FSC did not meet the EC's request for integrating LCA, because of insufficient knowledge on impacts of GHG accounting.	Determinacy/ Coherence	FE → RED: Indeterminacy of MCPFE C&I may have reinforced awareness of EC officials of national variability of forests that constrains the adoption of a "one-size-fits-all standard" for forestry and forest biomass.
Normative	Legitimacy	No corresponding instance of influence found.	Coverage	No corresponding instance of influence found.
Utilitarian	Salience	No corresponding instance of influence found.	Substantive strength	<ol style="list-style-type: none"> 1. FE → RED: There was no incentive for forest-rich Signatory States to negotiate stricter bioenergy and climate specific C&I for the MCPFE tools. Consequently, the tools did not contribute to the effectiveness of the RED. 2. RED → FSC: Possible stricter RED requirements for solid biomass may lead power companies to either develop a FSC competitor scheme, or accept the FSC as an element of a meta-standard. The FSC might be affected negatively or positively, respectively.

7 Discussion

In the first part of this chapter the findings of this research are discussed with reference to studies of other authors. In the second part the findings are reflected upon in the light of the chosen theoretical and conceptual framework.

7.1 Discussion of the results

This section discusses two main findings of the study: First, it was found that the RED and Forest Europe did not affect each other's effectiveness or development in a significant way, yet, although the RED criteria could have served as a policy model for Forest Europe. Second, findings of this study indicate relatively large independence of private certification schemes from intergovernmental processes and institutions.

The first finding is discussed through referring to a study of Karlsson-Vinkhuyzen & Kok (2011) who analyzed three cases where it was difficult to achieve mutual learning and coordination between institutions with different backgrounds.

Thereafter, it draws on the studies of Skjærseth et al. (2006) and Abbott & Snidal (2000) to discuss the first finding with a focus on the failed incorporation of climate and bioenergy specific norms into Forest Europe's instruments. Skjærseth et al. (2006) found indications that soft law institutions can strengthen institutions based on hard law. They argued that agreement on ambitious norms is easier achieved in soft law processes. From there the norms may find their way into hard law institutions. The findings of this study do not support their proposition. The findings indicate that Forest Europe's status as a voluntary process has not eased the agreement on ambitious climate and bioenergy specific norms.

Then the section introduces the work of Bernstein & Cashore (2004) who perceived private forest certification as advantaged over multilateral diplomacy to reach stricter regulations. One reason why the authors perceived private certification as superior was that private certification can be kept independent from intergovernmental processes.

It is discussed in how far the independence of private certification from the RED may affect the effectiveness of a regulatory regime for biofuels and woodfuels, respectively.

Finally, the section reflects upon the EU regulatory regime for biofuels with regard to legitimacy aspects of rule-making through private institutions.

Discussion of the public-public interplay

This study perceives a lack of coordination between the RED and the forest-focused institutions. Until now the lack of coordination among the RED and Forest Europe did not have negative implications for none of the two. However, better coordination might be needed in the future. This section reflects on two factors that may constrain future coordination and mutual learning among the RED and Forest Europe.

The relatively weak institutionalization of forestry at the EU level is one factor. It is a reason why forestry concerns are sometimes ignored in EU policy making. State sovereignty over forests is the other factor. It makes it more difficult for participants in the two institutions to propose regulations that affect forestry.

To reflect on these factors, this section draws on a study of Karlsson-Vinkhuyzen & Kok (2011). The authors analyzed the possibilities for interplay management among the energy-, development- and climate change policy domains at the global scale. The institutional complex which is associated with these domains emerged without planned integration, which made interplay management or coordination more challenging in this institutional complex. The authors discussed how integration can be achieved through improved interplay management.

According to the authors, integration refers to a two-way process between the components being integrated, with no prioritization of either one. They argued that, “however, in many cases the concept of policy integration implies a one-way direction reflecting specific policy priorities.” (Karlsson-Vinkhuyzen & Kok, 2011: 288) Another term for such unidirectional integration is streamlining. For instance, there might be a one-way integration of environmental concerns into other policy domains.

Karlsson-Vinkhuyzen & Kok (2011) argued that policy domains that are functionally linked need to be integrated to balance economic, social and environmental objectives in each domain. There are functional interdependencies among the energy-, development- and climate change policy domains. Functional interdependencies occur when “the substantive problems or activities that two or more institutions address are linked in bio-geophysical or socio-economic terms” (Young, 2002b: 264). The sectors could build on these linkages to advance integration. For example, “if the future international climate change regime created a global market for carbon, this could provide incentives for private research, developments and investments into low-carbon development in the energy sector.” (Karlsson-Vinkhuyzen & Kok, 2011: 300)

In the eyes of Karlsson-Vinkhuyzen & Kok (2011), legalization may constrain or support policy integration. For example, “there is very limited global-level legalization with

regard to the production and consumption of energy [...] Thus, there is not much global energy governance into which the concerns of other policy domains could be incorporated” (Karlsson-Vinkhuyzen & Kok, 2011: 293-294). The authors suggested that the “density” of norms within the different policy domains should be assessed to determine the potential for policy integration. “If there is a high density of norms such that they hinder integration, they should be changed.” (Karlsson-Vinkhuyzen & Kok, 2011: 287)

This study argues that the biofuels policy domain and the forest policy domain are functionally linked and require further integration, too. Biofuel concerns such as unwanted LUC and GHG balance need to be incorporated into the forest policy sector. In turn, forestry concerns like securing forest biodiversity in all types of forests through SFM might be streamlined into the biofuels policy sector.

However, it seems that in Europe policy integration is hampered between the biofuels policy domain and the forest policy domain. Norms of sovereignty might hinder the incorporation of concerns of the biofuels policy domain into the forest policy domain. It could be argued that norms of sovereignty are particularly strong in the forest policy domain and cannot be easily changed. Proposals to address forestry issues at the supranational scale are easily perceived as violating norms of sovereignty over resources and free trade (Bernstein & Cashore, 2004). Accordingly, participants of the WG encountered difficulties to streamline biofuel concerns like drainage of peatland into the forest policy domain.

In the other direction integration is constraint by the EC’s current approach that foresees that sustainability criteria for solid biomass should differ as little as possible from the sustainability criteria for liquid biofuels. Forestry concerns are not much reflected in the current RED criteria. For example, “survey results suggest that the EU Forest Action Plan⁷ has only managed to have a limited impact on the preparation of the RED” (EFI, 2012: 61).

Furthermore, the degree of legalization differs from one policy domain to the other one and thereby also affects the possibilities for integration. While broadly defined criteria might be an option for a forest convention, this might not be the case for an EU directive.

The section continues through concentrating on the difficulties to negotiate more regulations within Forest Europe. The findings of this study do not support the notion

⁷ The EU Forest Action Plan was associated with the EU Forest Strategy.

that softer legalization can help to achieve more ambitious norms in hard law institutions (Skjærseth et al., 2006).

Soft law can make provisions for future hard law. In that context Skjærseth et al. (2006) wrote about institutional interplay between intergovernmental hard law- and soft law institutions addressing environmental issues. They regarded hard law as superior to soft law in terms of achieving compliance. However, their analysis concentrated on how soft law can be used to reach higher targets in subsequent hard law. They pointed to cases where parties were more willing to agree on ambitious norms in soft law processes than in hard law negotiations. Since for soft law, national ratification is not needed and elements of legalization like compliance checks can be relaxed, states are less concerned that agreed upon rules will threaten their national sovereignty (Abbott & Snidal, 2000: 423).

Skjærseth et al. (2006) showed that ambitious soft law norms, once agreed upon, are better implemented when they are transferred into hard law institutions. This is the case, because states often negotiate and prepare binding rules more thoroughly. The authors pointed out the risk that additional preparation may also water down the targets achieved in the soft law institution.

The interviews of this study suggest that the WG could not agree upon stricter requirements related to forest biomass, because some countries feared that they would be too restrictive. It seems that, even though the requirements would have been non-legally binding, countries wanted to avoid anything that came close to an infringement of their national sovereignty over forest issues.

The WG did not produce an output such as stricter requirements for woodfuel harvesting that could have been transferred into a hard law institution, such as the LBA.

It can only be speculated that countries rejected to agree upon stricter requirements, because they feared that these could be transferred into a legally binding agreement later on. The decision not to agree on stricter requirements may have been made as well, if the LBA negotiations had not been foreseen.

The findings of this study indicate that in intergovernmental forest policy it is not necessarily easier to achieve more ambitious sustainability targets and requirements for forestry in soft law institutions than in hard law institutions.

Discussion of the public-private interplay

NGOs and businesses created the FSC *inter alia*, because they did not believe that states would agree on more ambitious requirements for forestry. NGOs were

concerned that a forest convention could even entrench “watered-down” rules (Bernstein & Cashore, 2004).

Bernstein & Cashore (2004) discussed the possibilities of private forest certification to become an alternative to a forest convention. Certification schemes can be kept relatively independent from multilateral processes and are less affected by the difficulties encountered in these processes (Bernstein & Cashore, 2004).

For example, when governments have no decision making power in a private institution, sovereignty issues have usually no impact on the negotiations of rules within the institution. Furthermore, Bernstein & Cashore (2003: 42) argued that “certification is advantaged over multilateral diplomacy in the case of forestry because it is a market-driven mechanism consistent with environmental cost internalisation and the polluter-pays principle.” The polluter-pays principle refers to the idea that the polluting firm should pay for the pollution. In the eye of the authors the failure of states to consider norms like the polluter-pays principle in policy making accounts for much of the difficulty to reach a global forest convention. For comparison, in certification the firm internalizes the costs of pollution through the requirements the firm has to fulfil to gain the certificate (Bernstein & Cashore, 2004).

As outlined above, the independence of private institutions from intergovernmental processes and governments can be regarded as an opportunity to reach higher sustainability standards. Based on the assumption that private institutions are parts of a broader regime, it can be asked how their independence affects regime effectiveness. The ability of a regime to solve a problem that gave rise to the formation of the regime has been an indication of regime effectiveness (Stokke, 2001a: 10).

With regard to the EU regulatory regime for liquid biofuels as described by Lin (2011), the findings of this study indicate that private actors operate relatively independent from public actors. Among the voluntary schemes for bioenergy, at least the RSB decided not to use the GHG calculation methodology of the RED.

On the one hand, it can be considered as beneficial for regime effectiveness, if methodologies are developed through different institutions. This may lead to knowledge exchange and enhance the overall accuracy of the different GHG calculation methodologies.

On the other hand, the circumstance that the GHG calculation methodology of the RSB does not deviate too much from that of the RED might be considered supportive for regime effectiveness. It prevents that there are diverging assumptions about the GHG performance of an operation and thereby reduces the risk of confusion. Furthermore,

biofuel operators who use the RSB online tool for calculating the GHG performance of their operations do not have to enter different data for different GHG calculation methodologies. Keeping the additional administrative work of the individual operator small is helpful to implement the institutions on the ground.

In the regulatory regime for woodfuels the privately owned FSC operates largely independent from the RED. This study argues that the independence will rather enhance regime effectiveness than undermine it. For example, the cautiousness of some actors within the FSC to engage in GHG quantification may lead to more carefully designed standards that take into account potential adverse effects resulting from carbon accounting. The critical voices may also be heard by actors from other institutions, which may lead to increased deliberation on GHG accounting.

According to Bernstein & Cashore (2004: 43), there is a supportive normative environment for certification. Its environment is supportive for seeing certification as a legitimate form of regulating environmental problems.

Notwithstanding the above, the endorsement of voluntary schemes through the EC is considered controversially. NSMD systems like voluntary certification schemes receive legitimacy usually through the market and its supply chain. The endorsement of voluntary schemes through the EC implies that they are no longer authorized only through the market. Once a scheme is endorsed, its standards count as a proof of legality and not “just” as a proof of sustainability.

There might be a reason for concern that EC endorsed private certification schemes gain rule making authority comparable to that of states without being in the same way accountable. Benda-Beckmann et al. (2009: 11) stated: “Some private institutions assume so much power and operate so independently that they in effect perform public tasks and assume public authority while dodging any public responsibility.”

It is therefore important that states have the possibility to intervene when private institutions no longer conduct their tasks in a socially responsible way.

This seems to correspond to Kooiman et al.’s (1993) view on the role of governments in governance. They argued that it is a task of governments to enable social-political interactions i.e. governance, which can involve private actors (Kooiman et al., 1993). At the same time “it is the responsibility of public organizations to take care that problems and opportunities within and around the activities of nonstate actors take place according to principles and rules that reflect common and broader system/society-wide interests that are connected with these activities.” (Kooiman, 2000)

The EC as a public body seems to fulfil its task responsibly, because it checks the schemes periodically. The EC recognizes voluntary schemes only for a period of five years (EC, 2011a). Hence, the risk that schemes will change their rules without the EC taking notice is low.

Given that voluntary certification schemes aim to realize broader sustainability goals, one might assume that it is very unlikely that they will not act in accordance with broader society-wide interests.

However, Lin (2011) did not preclude that certification scheme operators might act in a rent-seeking way, which is not in accordance with broader interests of the general public. Lin (2011) argued “that, nevertheless, the potential for rent-seeking behavior by the biofuel certification scheme operators is restricted by the EC’s ability to monitor the behavior of these schemes and the need for certification schemes to maintain their legitimacy.”

The legitimacy of the schemes depends *inter alia* on the pragmatic and moral evaluations on the part of those the schemes seek to regulate and other key audiences like environmental groups (Cashore, 2002). Pragmatic evaluations refer to evaluations of whether joining a scheme imposes greater benefits like market access than costs like giving up own authority about what to do about an environmental problem. Moral evaluations refer to evaluations of whether the activities and rules of a scheme conform to guiding principles about “the right thing to do”.

Lin (2011; 2010) perceived a greater risk that third party auditors will act in a way that diverges from the EC’s sustainability objective. She was afraid that third party auditors have no real incentive to ensure the integrity of the verification process. Usually, they are hired by the firm that needs a certificate. They may apply less stringent standards, because of their interest to remain in business. Lin (2010: 11) stated that “the meta-standard approach of the EC means that auditors are one more step removed from the EC’s supervisory realm (compared to the voluntary schemes), further diluting the influence, if any, of the EC in this scheme of things.”

The EC’s practice to endorse voluntary schemes can be criticized on another aspect. On the one hand the EC remains neutral between competing schemes, because it uses the same benchmarking process for all schemes that apply for recognition. On the other hand, the EC prioritizes schemes that cover all sustainability criteria of the RED. Schemes that cannot or are not willing to cover all criteria, such as the GHG criteria, take the risk to lose their competitiveness. Thus, the EC encourages schemes

to engage in carbon quantification. One could question whether the EC should remain neutral between schemes that engage in the carbon business and those that do not. During this study it was found that literature on certification tends to emphasize the benefits of certifying carbon sinks (e.g. Nussbaum & Simula, 2005). In the academic literature certifying carbon sinks is also seen critically (e.g. Pistorius et al., 2012). Currently, the FSC seems to be rather isolated with its cautiousness to engage in the carbon business.

7.2 Reflection on the theoretical and conceptual framework

The governance concept and concepts of institutional interplay were useful to identify and analyze the inter-institutional influence in the issue area of woodfuels and its effects on the RED, Forest Europe, the FSC and the RSB.

The causal pathways concept made the identification and classification of the instances of influence between the institutions more precise.

Until now there are relatively few studies on institutional interaction among institutions operated by private actors (Visseren-Hamakers, 2009). It could be argued that most studies on institutional interaction reflect a quite 'state-centric' concept of governance. At the same time the literature on global governance and international law provides many examples of new interdependencies among public and private actors (Abbott & Snidal, 2000). This study can serve as an illustration of how the causal pathways concept was applied to the influence between soft law- and hard law institutions and between institutions steered by public and private actors.

This study drew on Gehring & Oberthür's (2009) description of the three steps of a causal pathway to elucidate up to which extent a source institution influenced a target institution. The terms that were used to denote different extents of influence, namely "absent-, weak-, moderate- and large influence", may sound evaluative. At this point the author of the study would like to emphasize that they are not meant evaluative.

For example, when a source institution was able to draw the attention of another target institution to a certain issue, this influence was categorized as "moderate influence". One might disagree with this categorization, especially if the instance investigated involves a target institution whose attention can usually not be captured easily. One may argue that "large influence" is a more appropriate categorization. However, "moderate influence" was chosen, because the influence is relatively smaller compared to the influence that is established when a source institution not only draws attention to an issue, but succeeds in convincing a target institution to change its rules or policies.

7.2.1 Limitations of the study

This section, first, reflects on the suitability of the general causal pathway concept for answering the first research question. Second, it discusses the usefulness of Stokke's (2011) framework for answering the second research question.

This study used the causal pathway concept to analyze instances of institutional interplay. It was a presupposition of the causal pathway concept that an observable effect within a target institution or the issue area governed by it would not have occurred in the absence of the source institution (Gehring & Oberthür, 2009). It has been reported that one method employed in connection with the analysis of causal relationships is the exclusion of alternative explanations. The method investigates whether factors other than the source institution might explain the effects within the target institution or its issue area (Gehring & Oberthür, 2009).

The use of the causal pathway concept may have become obsolete in those instances investigated by this study where an effect within a target institution or its issue area could not clearly be attributed to a source institution.

At least in the following two instances this might have been the case: (1) The fact that an EU legal instrument addressed issues related to climate change mitigation and LUC was probably not the only reason why these issues were elevated on the agenda of the forest-focused institutions. (2) Under Forest Europe the possibilities to negotiate a LBA were discussed already two years before the adoption of the RED. The RED gave Forest Europe related actors merely an additional reason to negotiate a LBA, because they recognized that the verification procedure of the non-legally binding instruments could not be used for regulatory purposes.

This study argues that using the causal pathway concept to analyze these instances was still useful, because it helped to elucidate how influence traveled from a source- to a target institution. In both aforementioned instances the influence was categorized as cognitional interplay. In addition, alternative explanations for the effects within the target institutions were found. They are repeated below.

- Since the 1992 UN Conference on the Environment and Development (UNCED) in Rio de Janeiro several states supported negotiations of a forest convention with stricter control mechanisms than those implied in non-legally binding agreements on forests. Thus, it can be expected that the negotiations on a LBA would have started also in the absence of the RED.

Some factors other than the RED that might explain why issues like climate change mitigation and LUC were elevated on the agenda of the forest focused institutions are as follows:

- Among policy makers and the general public the mitigation of GHG emissions is currently the most prominent forest service (Pistorius et al., 2012). The Stern Report (Stern, 2006) and the Intergovernmental Panel on Climate Change (IPCC) report (IPCC, 2007) drew the attention of policy makers and the international forest agenda toward the notion that forests will play an important role in any cost-effective climate change mitigation arrangement (Rayner et al., 2011). Since then market based mechanisms further addressed forests in a climate change mitigation context. A prominent example is 'Reducing Emissions from Deforestation and Forest Degradation in Developing Countries (REDDplus)'. In light of the increased awareness to forests for climate change mitigation it is no surprise that actors of Forest Europe and the FSC raised the question in how far their standards should address climate change issues.
- According to Stupak et al. (2011: 3304), "since their emergence, forest certification schemes have been aware of the interaction between the forest management unit and its local surroundings, including landscape level and other ecological, social and economic side-effects." Thus, it can be expected that forest certification schemes have been aware of problems like LUC, which arises at the landscape level.

Usefulness of Stokke's (2011) framework

Some of the institutional features of the framework could explain the (non-) emergence of influence per pair of institution (Table 7). However, the institutional features were not sufficient to explain the (non-) occurrence of cognitional-, normative- and utilitarian interplay in all instances explored by this study. In this section three limitations of the framework as it has been used to answer the second research question are identified.

The first limitation of the framework would also be a limitation of any other framework, because there is no framework that can account for all factors influencing the occurrence of institutional interplay. It is reasonable that the theoretically derived conditions favoring supportive interplay cannot account for every factor or circumstance influencing institutional interplay in a specific situation.

The second limitation of the framework is not restricted to this study. There is general inconsistency between the integration of 'determinacy of a rule' and 'a rule's coherence with other rules' in the framework and Stokke's (2001b) earlier theorizing on normative interplay. Stokke (2001b) discussed 'determinacy' and 'coherence' in connection with normative interplay. But, for the framework, he (2011) related the two attributes of a rule to cognitional interplay.

Stokke (2001b) drew on the literature on international legitimacy to derive a concept of normative interplay. According to him, how one institution can strengthen the normative compellingness of another institution or its rules is elucidated in the literature on international legitimacy. Stokke (2001b) used 'legitimacy of a rule' synonymously to 'normative compellingness of a rule'.

"Legitimacy is the capacity of a rule to pull those to whom it is addressed towards consensual compliance." (Franck, 2006: 93) Or in the words of Stokke, the compellingness of a rule refers to a rule's ability to exert a pull towards compliance.

According to Stokke (2001b), increased normative compellingness of certain norms underpinning a regime can be a consequence of normative interplay. Stokke (2001b) referred to the work of Franck (1988) in order to elucidate how an institution may trigger normative interplay capable to enhance the compellingness of certain norms underpinning a regime. More specifically, he referred to the factors that, according to Franck (1988), influence a rule's ability to exert a pull towards compliance. Among these factors were *determinacy*, *symbolic validation*, *coherence* and *adherence* (to a normative hierarchy) (Franck, 1988).

Stokke (2001b) concentrated on 'determinacy' and 'coherence'.

With regard to 'determinacy', Stokke (2001b) argued that an institution or regional regime engages in normative interplay with other regional regimes, when it helps to clarify the content of indeterminate soft law principles that are underlying the international regime with which the different regional regimes are associated.

This type of normative interplay is especially relevant for regimes with partly overlapping scope and membership. According to Stokke (2001b: 17), "when parties agree to such specification of a vague rule, this might not only enhance the legitimacy of the rule but, by extension, also the compliance pull of regional management regimes in place. The correctness of this proposition may be tested through examining whether states that had failed to adhere to the rules of regional regimes have changed their practice after the strengthening of the global norm."

There will be normative interplay when an institution enhances or weakens the coherence of soft law principles of one regime with those of another regime. For example, institutions that are part of environmental regimes have often struggled to achieve coherence between their rules and the rules of the trade regime. It has been reported that incoherence between trade measures included in international environmental regimes and global rules of free trade has sometimes undermined the compellingness of the latter (Stokke, 2001b).

The large body of literature on international legitimacy can provide several factors affecting the capacity of normative interplay to enhance the compelling force of certain rules. Stokke (2001b) highlighted three of them. He stated: “We may expect, for example, that normative interplay supports the normative compellingness of a regime, if it adds to the determinacy of crucial rules or their coherence with other norms held in esteem by the international community, or if it reinforces the perception that regime outputs have been reached in the right and proper way.” (Stokke, 2001b: 20) The later point refers to the legitimacy of the rule-making process. Below, it is illustrated that findings of this study suggest that it is an important point that could be included in the framework on effective governance task selection.

Some parts of the forestry sector and EU Member States may perceive the regulation of woodfuels through an EU legal instrument as unjustified and inappropriate against the backdrop that the EU has no official mandate to propose legislation for forestry. They may also see themselves inadequately represented in the process by which binding criteria for solid biomass would be included in the RED. This could be the case, because those who are mainly developing the RED have no background in forestry.

In contrast, Forest Europe has considerable acceptance and support by the forest sectors of many European states (Winkel et al., 2009). The parties who must give their consent before rules are adopted under Forest Europe are mainly representatives of forest ministries and administrations. Furthermore, consensus is needed for the adoption of rules. Thus, if woodfuel specific C&I were included into a LBA, it could be assumed that the forestry sector would hold the belief that these have been reached in the right and proper way.

The LBA may include less prescriptive criteria than a future RED. However, it may enhance the normative compellingness of a regulatory regime for woodfuels from which also a future RED may benefit. As stated in the Results Chapter, it could be assumed that countries that commit themselves to woodfuel specific rules of a forest convention will be less inclined to circumvent rules of a future RED.

The third limitation of the framework was that the conditions favoring interplay supportive for problem-solving could better be reinterpreted as conditions favoring the emergence of influence than as conditions hindering the emergence of influence. The framework provided potential explanations for the non-emergence of influence only in terms of the absence of conditions that favor the emergence of influence.

The following section discusses in how far path dependency, a concept which has its roots in historical institutionalism, could be used complementary to explain the (non-) emergence of influence.

7.3 Complementary theoretical approach

Path dependency could be a reason why Forest Europe and the FSC are adapting only slowly to their changing environment in which issues like bioenergy and GHG accounting become more popular. They are not very responsive to influence exerted by their environment.

The FSC Global Strategy 2007 makes reference to the climate change context (Karmann & Smith, 2009). But, the FSC was not designed for forest carbon projects per se, although some actors see it as an element to build a meta-standard framework for carbon offsetting. Although the FSC acknowledges the need for developing its own strategy on certification of carbon offsets, it is cautious to engage in activities like GHG quantification. There are voices recommending that the FSC get into the carbon-business as soon as possible, other voices are warning not to get involved (Karmann & Smith, 2009).

The newer roundtable initiatives including the Roundtable on Sustainable Palm Oil (RSPO) and the RSB engaged in the quantification of GHG emissions in response to national and regional biofuel policies and regulations. One may wonder why concerns about potential negative implications of GHG calculation had little or no influence on the development of the newer schemes. An explanation may be the difference in membership, even though the WWF is an important member in the biofuel schemes and in the FSC. Actors who are warning against the involvement in carbon-business may be stronger represented in the FSC than in the biofuel schemes. Their warnings relate to the latest concerns about potential negative social and environmental impacts of carbon accounting.

With regard to path dependency, the FSC's reluctance to certify carbon offsets is not just the 'policy legacy' of the past focus of the FSC on issues others than climate change. Nevertheless, there is also the viewpoint that there is no need that the FSC prioritizes climate issues more. The idea conceives forest management as the primary mission of the FSC.

This is expressed through a statement in a strategy paper on climate issues: "It can be argued that responsible forest carbon management is implicitly required by the FSC P&C through the requirements to sustain the yield of forest products, to conserve biological diversity and soils, and to maintain the ecological functions of forests." (FSC, 2012: 6) The statement evokes the idea that SFM automatically delivers so-called 'forest services' including beneficial effects on the climate. The idea is popular in forestry circles and dates back to Dieterich (1968) who argued that foresters are responsible for balancing different forest functions.

From a historical institutionalism perspective, it could have been a dominant idea that was encased in forestry institutions like the FSC and Forest Europe. Once translated into a formal organization, the idea established constraints on individuals within the organization. They viewed sustainable forest management by necessity as the ultimate solution to environmental problems like climate change.

The interviews seem to support this assumption.

De Galember stated: "The RED, Forest Europe and the FSC have all been building on different backgrounds with somehow different purposes. Therefore, they have developed their own way without much interaction between each of them. Forest Europe was a regional response to the debate on sustainable development and tried to further elaborate on the SFM concepts in the absence of an agreement at the global level. And the FSC somehow covers the same, but with a different angle. Because originally it was developed by a group of NGOs and social and economic players with a view to avoid bans or boycotts of certain species or certain varieties of wood that may come from not responsibly managed forests. The RED is about all kinds of feedstocks and includes the GHG benefits or their sustainability, which are not at all part of Forest Europe or of the FSC."

The arrival of the RED and the considerations to extent it to solid biomass are a major change in the FSC's and Forest Europe's external environment. With regard to the model of 'punctuated equilibrium', the RED does not appear as a disruptive event that may prompt institutional change of the FSC and Forest Europe. But it induced actors

within the forest-focused institutions to reconsider their approach towards climate issues.

The point in time where the FSC decides to engage in GHG quantification can be seen as a critical juncture at which a choice for a certain path is made. Once the path is chosen, it will be difficult to leave it. The initiation of a program may inevitably lead to the maintenance and expansion of the program, because of the vested interests it creates (Krasner, 1984).

A decision of the FSC to certify carbon offsets may not be taken back easily, because forest owners and firms may incorporate the possibility to gain revenue from carbon offset projects certified by the FSC into their long term investment planning. These implications might be a disincentive for the FSC to engage in GHG quantification.

8 **Conclusions**

The responsibility to guarantee the sustainability of woodfuels is shared among policy initiatives with different backgrounds. It is possible that better coordination among the activities of the initiatives would benefit the sustainability of woodfuels. Before actions are carried out to improve the coordination, it is necessary to understand the interactions between the initiatives. Being a first attempt to analyze the interactions, this study concentrated on the interactions between the RED, Forest Europe, the FSC and the RSB.

The two research questions were as follows:

1. How and to what extent did the four institutions influence each other in the issue area of woodfuels?
2. How can these influences be explained?

The main findings are as follows:

Most instances of interaction clustered around the RED. In the words of Oberthür & Gehring (2006), the RED constitutes the core of a cluster of interacting institutions that are addressing woodfuels sustainability. This can be explained on the basis that the RED is the main driver of bioenergy policy in Europe (Upham et al., 2011).

The potential inclusion of binding sustainability criteria for solid biomass in the RED could change the rules of the game for the forest sector (MCPFE, 2009). Consequently, the RED receives attention from Forest Europe and other institutions focusing on forest policy. Forest Europe related actors tried to exert influence on the development of the RED.

The RED relies on voluntary biofuel schemes for its implementation. Thus, interplay between the RED and the RSB has occurred almost by default. The potential that a RED that is extended to solid biomass will also rely on voluntary schemes has supported the occurrence of interplay between the RED and the FSC.

Mainly, the following influences took place in the direction from the RED to the forest-focused institutions (Forest Europe and FSC) as well as in the reverse direction:

- Cognitive interplay in the form of a policy model: Actors of a target institution were inspired by knowledge, ideas, or rules of a source institution.

- Cognitive interplay in the form of a request for assistance: Actors of a source institution tried to convince actors of a target institution to adapt their institution in a way that would help to implement the source institution.

With regard to cognitive interplay in the form of a **policy model**, the following finding seems to be most relevant: There are indications that because an EU legal instrument addressed issues like climate change mitigation and LUC, these issues were elevated on the agenda of Forest Europe and the FSC. This may have happened irrespective of the considerations to extend the RED to solid biomass.

The finding does not contradict, but complement, other authors' findings that led to the conclusion that environmental issues are put on the agenda primarily by private initiatives (Visseren-Hamakers, 2009). It needs to be mentioned that issues like climate change mitigation and LUC have been on the agenda of the forest-focused institutions already before the arrival of the RED. Hence, the RED could not be established as the only source of influence.

The diversity of actor interests within Forest Europe and the FSC are a main reason why at both institutions the issues the RED focuses on did not find their way into policies or rules, yet. It seems that within both institutions there are actors who consider the current SFM standards as a sufficient guarantee for the sustainability of all kinds of forest services including the use of forest biomass for energy.

Still, the forest-focused institutions differed from one another with regard to issues around which diverging actor interests revolved. Within Forest Europe a proposal to use aspects of the RED as a policy model for Forest Europe's voluntary instruments lacked relevant support probably because some actors perceived an addition of rules as a threat to national sovereignty over forests.

Within the market-based privately owned FSC the issue of sovereignty does not affect decision making. But, some actors within the FSC are skeptical towards quantifying GHG emissions, which would match the FSC standards to the GHG criteria of the RED. The FSC did not foster a climate strategy through engaging in the quantification of GHG emissions, because relevant actors warned against adverse social and ecological effects related to carbon accounting.

In those instances of interaction where actors of a source institution actively tried to exercise influence over actors of a target institution through a **request for assistance**, the influence did not reach its objective, or in other words, actors of the target institution did not comply with the request. For example, the EC did not agree to an approach

where the voluntary MCPFE tools would have been used instead of a future extended RED.

It seems that the four institutions follow partially contradictory approaches towards governing woodfuels and each institution prioritizes its own approach and is not very responsive to external influence. In the opinion of the author, this calls for better communication among the institutions, especially among the EC and the forest-focused institutions.

The level of coordination is more advanced between the institutions operated by nonstate actors (FSC and RSB) than between the state-led institutions (Forest Europe and RED). The relatively high level of coordination between the institutions steered by nonstate actors can *inter alia* be explained through the fact that the RSB and the FSC are both members of ISEAL alliance, which encourages its members to cooperate and to coordinate their standard setting activities.

To conclude, the RED was able to push climate change and LUC higher up on the agenda of the forest-focused institutions. Furthermore, the different foci of the forest-focused institutions (i.e. policy versus market) played a role for how they were influenced by the RED and for how they responded to the influence.

Some interactions might be at an intermediate stage (e.g. the FSC has not finalized discussions on how it will address issues the RED focuses on) and the interacting institutions might affect each other in the longer term. Until now the interaction between the RED and the forest-focused institutions did not have a significant impact on the development or performance of the institutions involved. The main foci of the institutions are lying on other issues than woodfuels. Thus, activities of one institution did not affect those of another one in a substantial way.

The overall interaction situation will probably change when binding sustainability requirements are included in the RED. Then the nature of the interactions (i.e. the causal pathways) and the extent of the interactions would depend much on the design of the sustainability requirements and on the verification procedure (e.g. if the EC endorses voluntary forest certification schemes or not).

Furthermore, also in the future the choices of actors operating the institutions will affect the interaction situation. Actors of an institution may consciously reject to be inspired by aspects of another institution, even if the conditions are favorable to be inspired. For example, the RSB tried to stay independent in its standard development and did not use the GHG calculation methodology of the RED.

Overall, this study contributed to a better understanding of the interactions between four institutions that are considered as important to guarantee the sustainability of woodfuels. The analysis helped to clarify the nature of the interactions and to identify potential explanations for why the institutions influenced each other in the way they did. This study might provide useful information for decision makers who aim to improve coordination among the institutions.

8.1 Policy recommendations

The author of this study considers better coordination as important to prevent problems related to incompatibility among the sustainability standards of the institutions.

Some incompatibility problems might not be easily solved or might be unsolvable. For example, binding sustainability criteria for solid biomass used for energy production would always be incompatible with an approach where sustainability criteria are not end use specific. It might be difficult to reach consent on one approach.

Thus, there is a potential for disruptive interaction between the RED and the forest-focused institutions. However, the findings of this study indicate that mutual learning took place between the institutions and might increase in the future. For example, interviews indicated that the EC intends to harmonize definitions regarding forests and forestry of a future RED with definitions used by forest-focused institutions. It needs to be seen whether mutual learning leads to the development of standards that contribute to woodfuels sustainability on the ground.

Efforts to improve the coordination between the four institutions might be made within the individual institutions, but also outside of the four institutions. Oberthür (2009) distinguished between four levels of coordination and institutionalization of interplay management. These levels correspond to differences in decision making and governance conditions. They help to present recommendations for improving the interactions in an organized way. The four levels of interplay management are as follows:

Conditions favorable for improved interaction could result from decisions made within an **overarching institutional framework**, which involves decision-making beyond the interacting institutions. **Joint interplay management** entails efforts to coordinate activities between the interacting institutions, which may lead to definitions of common rules to govern the interaction. It requires shared objectives and consent on actions.

Horizontal structures enabling communication across the interacting institutions are essential. In **unilateral management** the interaction is determined by individual decision-making of the involved institutions without any coordination between the institutions. **Autonomous management** refers to activities of individual actors like NGOs, businesses and governments. Oberthür (2009) argued that since these actors are also involved in the decision-making processes in international institutions, they can influence the overall interaction situation.

An overarching institutional framework could neither be identified for the state-led institutions, nor for the private institutions this study focused on.

Recommendations for actions that would require joint interplay management are as follows:

Among the RED and Forest Europe:

- Much of the woody material used for energy generation is a by-product derived from processing chains related to non-energetic end products. Hence, the implications of end use specific sustainability requirements on the whole forestry sector should be considered. Furthermore the current RED criteria might be insufficient to prevent ecological damage in secondary forests. The EC may therefore seek advice of Forest Europe to develop a future RED. Forest Europe has been serving as a forum for forestry issues for more than a decade and has collected information on ecological and socio-economic aspects of forestry.

Among the FSC and the RSB:

- The established linkage can be drawn upon to further develop the CoC system so as to improve the sustainability of the supply chain.
- The sharing of information on GHG emission quantification should be continued. The FSC and the RSB might jointly investigate into the risks and opportunities of quantifying GHG emissions at the forest management unit.
- The FSC's specialization in SFM and the RSB's experience in certifying agricultural feedstock production are a good combination to address sustainability issues related to fast growing energy tree plantations.

The following recommended actions would need unilateral management:

On the side of Forest Europe:

- The inclusion of bioenergy specific indicators in the LBA offers opportunities to enhance the sustainability of woodfuels at various levels:

Forestry authorities will become more aware of sustainability issues related to woodfuels while they are using these indicators. Since a LBA will be authorized by states including the Russian Federation, it can offer an additional means apart from private certification to have higher guarantee that woodfuels are produced sustainably in the Russian Federation, which is a main exporter of wood pellets to the EU. Bioenergy and climate specific indicators included in a LBA could also influence standard development of forest certification schemes.

On the side of the RED

- The short time frames used in the RED's GHG calculation methodology has caused critics to question the resulting carbon neutrality assumption for woody biomass. In 2011 the European Parliament "called on the Commission to consult the IPCC and establish a new GHG calculation methodology, controlling for longer time horizons and for biomass emissions from land use, land use change and forest management" (European Parliament, 2011). The author of this study supports this call.
- Especially the forestry sector has expressed concerns that unadjusted RED criteria would exclude much of the currently available forest biomass from being used for energy. The author of this study is of the opinion that there is a low risk that the current criteria would exclude a great portion of the currently sustainably available forest biomass for energy. The RED already offers higher flexibility than an EU regulation to be implemented in accordance with national conditions. This might be considered to prevent that the RED requirements are "watered down" for solid biomass.
- The EC may continue to promote the establishment of a meta-standard framework for biomass and bioenergy including existing forest certification schemes and newer bioenergy schemes. The FSC or equivalent forest certification schemes could verify SFM. Other schemes could certify carbon offsets and thereby help to close compliance gaps.

The overall interaction situation might be improved through the following autonomous management practice:

- National biomass sustainability schemes can complement international voluntary forestry and bioenergy certification schemes. And, they can compensate for the absence of EU wide mandatory sustainability criteria for solid biomass to some extent. The schemes should be developed in a harmonized way to prevent barriers to trade.

8.2 Recommendations for future research

Because of the limited scope of this study, interactions with other institutions or initiatives related to woodfuels sustainability were not explored. Their investigation could be a task of future research, as it would help to delineate other important parts of the picture of how institutions interact in the issue area of woodfuels.

Other initiatives with an impact on the governance of woodfuels are e.g. the EU timber regulation, national bioenergy policies and voluntary certification systems that were developed to guarantee the sustainability of bioenergy for heat and power.

Since March 2013 legal supply of woody material including wood pellets and wood chips is enforced by the EU timber regulation. While it requires the supplied woody material to come from a legal source, it does not require that it is sustainable. Of particular interest would be the interaction between the EU timber regulation and the RED and the FSC.

Among the EU countries, the United Kingdom (UK) is a forerunner in setting sustainability requirements for solid biofuels. The forerunning countries have already developed a policy to guarantee the sustainability of solid biomass, ahead of the decisions made by the EC (van Dam & Junginger, 2011). In some of these countries including UK and the Netherlands wood biomass based electricity production relies heavily on imports of industrial pellets.

Recently the UK government announced that it will introduce new 'land criteria' for the use of biomass feedstocks under its national renewable energy policies (www.cpet.org.uk). The 'land criteria' will become binding for power companies of 1 MW electrical capacity or above. The UK government accepts two types of evidence that the 'land criteria' are met. Category A evidence entails that the FSC, the PEFC and the SFI are accepted as a proof of compliance. Category B evidence applies to

biomass that is not certified, but that can be verified legal and sustainable through meeting requirements as outlined in checklists. This type of evidence can vary greatly and needs to be judged on a case-by-case basis (www.cpet.org.uk).

It could be argued that interactions between national biomass sustainability rules and international voluntary schemes are particularly important for woodfuels sustainability in countries that are responsible for the increasing demand for industrial pellets in Europe. Ideally, national biomass sustainability rules and international voluntary schemes would reinforce each other. The interactions between the UK renewable energy policy and the forest certification schemes could be an interesting topic of future research.

The Green Gold Label (GGL) is a certification system that was explicitly developed to certify biomass used for electricity. It was founded by the Dutch energy company Essent in 2002. Its aim is to trace biomass based (by-) products from the power plant back to the production unit. The GGL recognizes the FSC and the PEFC. If the raw material is not certified by one of these schemes, the GGL offers standards that can be used temporarily, for a maximum of 4 years. The GGL includes eight different standards. The eighth standard serves to verify GHG emissions reductions. It is based on the GHG calculation method of the RED. Currently, 11 biomass suppliers have a certificate (van Dam et al., 2010). The IWPB proposes to use the GGL foundation as the new governance structure for their own standard (Goh et al., 2012). The linkage between the GGL and forest certification schemes, the RED and energy companies is apparent and could be investigated through using an institutional interplay approach.

9 References

- Abbott, K. W., & Snidal, D. (2010). International regulation without international government: Improving IO performance through orchestration. *The Review of International Organizations* 5, 315–344.
- Abbott, K. W., & Snidal, D. (2000). Hard and Soft Law in International Governance. *International Organization*, 54(3), 421–456.
- Arts, B. (2000). Regimes, Non-State Actors and the State System: A “Structurational” Regime Model. *European Journal of International Relations*, 513–542.
- Barrett, S. (2005). *Environment and Statecraft: The Strategy of Environmental Treaty-Making*. Oxford: Oxford University Press.
- Benda-beckmann, F. Von, Benda-beckmann, K. Von, & Eckert, J. (2009). Rules of Law and Laws of Ruling : Law and Governance between Past and Future. In F. Von Benda-beckmann, K. Von Benda-beckmann, & J. Eckert (Eds.), *Rules of law and laws of ruling: On the governance of law* (pp. 1–30).
- Bernstein, S., & Hannah, E. (2008). Non-state global standard setting and the WTO: legitimacy and the need for regulatory space. *Journal of International Economic Law*, 11(3), 575–608.
- Bernstein, S., & Cashore, B. (2004). Nonstate Global Governance : Is Forest Certification a Legitimate Alternative to a Global Forest Convention ? In J. J. Kirton & M. J. Trebilcock (Eds.), *Hard choices, Soft Law: Voluntary Standards in Global trade, environment and social governance* (pp. 33–63).
- Biermann, F., & Pattberg, P. (2008). Global Environmental Governance : Taking Stock , Moving Forward. *Annual Review of Environment and Resources*, 277–294.
- BTG, biomass technology group. (2008). Sustainability Criteria & Certification Systems for Biomass Production. Final report.
- Cash, D., Clark, W., Alcock, F., & Dickson, N. (2002). Salience, credibility, legitimacy and boundaries: Linking research, assessment and decision making. *KSG Faculty Research Working Paper Series*, (11), 1–24.
- Cashore, B. (2002). Legitimacy and the Privatization of Environmental Governance: How Non-State Market-Driven (NSMD) Governance Systems Gain Rule-Making Authority. *Governance*, 15(4), 503–529.
- Cutler, A.C., Haufler, V., Porter, T. (Eds.) (1999). *Private Authority and International Affairs*. State University of New York Press, New York.
- Deegan, C., & Blomquist, C. (2006). Stakeholder influence on corporate reporting: An exploration of the interaction between WWF-Australia and the Australian minerals industry. *Accounting, Organizations and Society*, 31, 343–372.

- Dieterich, V. (1968). Waldgesinnung und forstwirtschaftliches Wertdenken. *Forstwissenschaftliches Centralblatt*, 87, 65-74.
- Dietz, T., Ostrom, E., & Stern, P. C. (2003). The Struggle to Govern the Commons. *Science*, 302, 1907–1912.
- Downs, G. W., Rocke, D. M., & Barsoom, P. N. (1996). Is the good news about compliance good news about cooperation ?, *International Organization* 50(3), 379–406.
- EC (European Commission). (2011a). Results of the public consultation on additional sustainability measures at EU level for solid and gaseous biomass used in electricity, heating and cooling. Brussels.
- EC (European Commission). (2011b). PRESS RELEASE. First EU sustainability schemes for biofuels get the go-ahead. Brussels.
- EC (European Commission). (2010). Report from the Commission to the Council and the European Parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling. Brussels.
- EC (European Commission). (2009). Directive 2009/28/EC of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC. Brussels.
- Edwards, P., & Kleinschmit, D. (2013). Towards a European forest policy — Conflicting courses. *Forest Policy and Economics*, 33, 87–93.
- EFI (European Forestry Institute). (2012). Ex-post Evaluation of the EU Forest Action Plan.
- European Parliament. (2011). European Parliament resolution of 11 May 2011 on the Commission Green Paper on forest protection and information in the EU: preparing forests for climate change (2010/2106(INI)), (30). Retrieved from <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+TA+P7-TA-2011-0226+0+DOC+PDF+V0//EN>
- Fortin, E., & Richardson, B. (2013). Certification schemes and the governance of land: enforcing standards or enabling scrutiny? *Globalizations*, (6), 37–41.
- Franck, T. (1988). Legitimacy in the international system. *The American Journal of International Law*, 82(4), 705–759.
- Franck, T. (2006). Power of Legitimacy and the Legitimacy of Power: International Law in an Age of Power Disequilibrium, *The American Journal of International Law* 100, 88–106.
- FSC (Forest Stewardship Council). (2013). Global FSC certificates: type and distribution. Retrieved from <https://ic.fsc.org/facts-figures.19.htm>

- FSC (Forest Stewardship Council). (2012). Strategic Framework for an FSC Climate Change Engagement.
- Gehring, T., & Oberthür, S. (2009). The Causal Mechanisms of Interaction between International Institutions. *European Journal of International Relations*, 15(1), 125–156.
- Gießen, L. (2008). Ministerial Conference on the Protection of Forests in Europe - Expert Level Meetings as a means to integrate the concept of “public participation” into pan-European decision-making - An evaluative approach -. *GOEDOC - Dokumenten- und Publikationsserver der Georg-August-Universität Göttingen*.
- Goh, C.S. & Junginger, M. (2011). Training materials: Sustainability. *SolidStandards - Enhancing the implementation of quality and sustainability standards and certification schemes for solid biofuels*, EIE/11/218.
- Goh, C.S., Junginger, M., Dakhorst, J. (2012). D5.1c Comparative analysis of sustainability certification initiatives for solid biomass and solid biofuels. *SolidStandards - Enhancing the implementation of quality and sustainability standards and certification schemes for solid biofuels*, (EIE/11/218), 1–35.
- Goldstein, J. (1988). Ideas, institutions, and American trade policy. *International Organization*, 42(1), 179–217.
- Hall, P., & Taylor, R. (1996). Political Science and the Three New Institutionalisms*. *Political studies*, XLIV, 936–957.
- Hedström, P., & Swedberg, R. (1998). Social mechanisms: An introductory essay. In P. Hedström & R. Swedberg (Eds.), *Social Mechanisms: An Analytical Approach to Social Theory* (pp. 1–31). Cambridge University Press.
- Held, A., Ragwitz, M., Merkel, E., Rathmann, M., & Klessmann, C. (2010). Indicators assessing the performance of renewable energy support policies in 27 Member States.
- IEA (International Energy Agency). (2008). From 1st-to 2nd-Generation BioFuel Technologies. *An overview of current industry and RD&D activities*, (11). Retrieved from http://environmentportal.in/files/2nd_Biofuel_Gen.pdf
- INC (Intergovernmental Negotiating Committee). (2013). Draft negotiating text for a legally binding agreement on forests in Europe. Retrieved from <http://www.forestnegotiations.org/INC/INC4/reports>
- IWPB (Initiative Wood Pellets Buyers). (2012). REPORT n ° 1 Proposal for Sustainability Principles for Woody Biomass Sourcing and Trading, 1–30. Retrieved from http://www.laborelec.be/ENG/wp-content/uploads/2012/08/2012-06-05-IWPB-Initiative_Wood_Pellets_Buyers-Sustainability_principles_Report1_Public_draft-v2.pdf

- Johnson, F., Tella, P., & Israilava, A. (2010). What woodfuels can do to mitigate climate change. *FAO Forestry Paper*, 162. Retrieved from <http://su.diva-portal.org/smash/record.jsf?pid=diva2:378872>
- Jørgensen, K. E., Oberthür, S., & Shahin, J. (2011). Assessing the EU's Performance in International Institutions – Conceptual Framework and Core Findings. *Journal of European Integration*, 33(6), 599–620.
- Karlsson-Vinkhuyzen, S.I., & Kok, M.T.J. (2011). Interplay Management in the Climate, Energy, and Development Nexus. In S. Oberthuer, & O. Stokke (Eds.), *Managing Institutional Complexity: Regime Interplay and Global Environmental Change* (pp. 285-312).
- Karmann, M., & Smith, A. (2009). FSC reflected in scientific and professional literature. *Literature study on the outcomes and impacts of FSC certification*. Retrieved from <http://scholar.google.com/scholar?hl=en&btnG=Search&q=intitle:FSC+reflected+in+scientific+and+professional+literature#0>
- Kersbergen, K. Van, & Waarden, F. Van. (2004). “Governance” as a bridge between disciplines: Cross-disciplinary inspiration regarding shifts in governance and problems of governability, accountability and legitimacy. *European Journal of Political Research*, 43(2), 143–171.
- Kooiman, J. (2000). Societal Governance: Levels, models, and Orders of Social-Political Interaction. In J. Pierre (Ed.), *Debating governance: Authority, steering and democracy* (pp. 138-164). Oxford: Oxford University Press.
- Kooiman, J. (Ed.) (1993). *Modern governance: New government–society interactions*. London: Sage.
- Krasner, S. D. (1984). Approaches to the State: alternative Conceptions and Historical Dynamics. *Comparative Politics*, 223-246.
- Krasner, S. (1982). Structural causes and regime consequences: regimes as intervening variables. *International organization*, 36(2), 185–205.
- Krott, M. (2008). Forest Government and Forest Governance within a Europe in Change. In L. Cesaro, P. Gatto, & D. Pettenella (Eds.), *The Multifunctional Role of Forests: Policies, Methods and Case Studies* (pp. 13–25).
- Kumar, R. (2005). *Research Methodology: A Step-by-Step Guide for Beginners*. Second Edition ed. Australia: SAGE Publications.
- Lamers, P., Junginger, M., Hamelinck, C., & Faaij, A. (2012). Developments in international solid biofuel trade—An analysis of volumes, policies, and market factors. *Renewable and Sustainable Energy Reviews*, 16(5), 3176–3199.

- Lin, J. (2011). Governing Biofuels: A Principal-Agent Analysis of the European Union Biofuels Certification Regime and the Clean Development Mechanism. *Journal of Environmental Law*, 24(1), 43–73.
- Lin, J. (2010). The Sustainability of Biofuels: Limits of the Meta-Standard Approach. *The Governance of Clean Development - Working Paper Series*, 1-14.
- Londo, M. (2009). Technical assistance for an evaluation of international schemes to promote biomass sustainability. Specific invitation to Tender TREN/A2/143-2007.
- March, J., & Olsen, J. (1998). The institutional dynamics of international political orders. *International organization*, 52(4), 943–969.
- Marks, G., Hooghe, L., & Blank, K. (1996). European Integration from the 1980s: State-Centric versus Multi-level Governance. *JCMS: Journal of Common Market Studies*, 34(3), 341–378.
- Martikainen, A., Dam, J. Van, Alakangas, E., Kropáč, J., Hinge, J., Kaivola, A., ... Rothmer, P. Von. (2010). Different criteria for sustainability and certification of biomass and solid , liquid and gaseous biofuels - D 4 . 4 . 2, (October).
- MCPFE. (2009). Report of the MCPFE open-ended ad-hoc working group on "sustainability criteria" for forest biomass production, including bioenergy. Retrieved from http://www.foresteurope.org/other_meetings/3rd-meeting-mcpfe-ad-hoc-working-group-sustainability-criteria-forest-biomass-production-inc.
- MCPFE. (2007). Analysis of the role of the MCPFE as a regional process in the implementation of the Non-Legally Binding Instrument (NLBI).
- Oberthuer, S. (2009). Interplay management : enhancing environmental policy integration among international institutions. *International Environmental Agreements: Politics, Law and Economics*, 9, 371–391.
- Oberthuer, S. (2006). The Climate Change Regime: Interactions with ICAO,IMO, and the EU Burden-Sharing Agreement. In: S. Oberthuer, & T. Gehring, (Eds.), *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*, Cambridge: MIT Press, (pp. 53-78).
- Oberthuer, S., & Gehring, T. (Eds.) (2006). *Institutional Interaction in Global Environmental Governance: Synergy and Conflict among International and EU Policies*. Cambridge: MIT Press.
- Pa, A., Bi, X., & Sokhansanj, S. (2011). A life cycle evaluation of wood pellet gasification for district heating in British Columbia. *Bioresource technology*.
- Pierre, J. (2000). Introduction: Understanding Governance. In J. Pierre (Ed.), *Debating governance: Authority, steering and democracy* (pp. 1-10). Oxford: Oxford University Press.

- Pistorius, T., Schaich, H., Winkel, G., Plieninger, T., Bieling, C., Konold, W., & Volz, K.-R. (2012). Lessons for REDDplus: A comparative analysis of the German discourse on forest functions and the global ecosystem services debate. *Forest Policy and Economics*, 18, 4–12.
- Raustiala, K., & Victor, D. G. (2004). The Regime Complex for Plant Genetic Resources. *International Organization*, 58, 277–309.
- Rayner, J., Humphreys, D., Perron Welch, F., Prabhu, R., & Verkooijen, P. (2011). Introduction. In *EMBRACING COMPLEXITY – MEETING THE CHALLENGES OF INTERNATIONAL FOREST GOVERNANCE*, IUFRO World series vol. 28, 9-18.
- Rhodes, R.A.W. (2000). Governance and public administration. In J. Pierre (Ed.), *Debating governance: Authority, steering and democracy* (pp. 54-90). Oxford: Oxford University Press.
- Rosenau, J.N. (2000). Change, Complexity, and Governance in a Globalizing Space. in J. Pierre (Ed.), *Debating governance: Authority, steering and democracy* (pp. 167-200). Oxford: Oxford University Press.
- Rosendal, K. G. (2001). Overlapping International Regimes: The Case of the Intergovernmental Forum on Forests (IFF) between Climate Change and Biodiversity. *International Environmental Agreements: Politics, Law and Economics*, 447–468.
- RSB (Roundtable on Sustainable Biofuels) 2013: RSB Standard for certification of biofuels based on by-products and residues. RSB-STD-01-020 (Version 1.3).
- Rukundo, O., Verkooijen, P., & Wildburger, C. (2009). 6 Overcoming the challenges to integration: embracing complexity in forest policy design through multi-level governance. *IUFRO World series vol. 28*, 93–110. Retrieved from <http://www.holzwirtschaft.com/sites/default/files/userfiles/1file/ws28.pdf#page=93>
- SBP (Sustainable Biomass Partnership) (2013). Sustainable Biomass Partnership. Retrieved from http://www.laborelec.be/ENG/wp-content/uploads/2013/11/LBE-YR-Sustainable_biomass_partnership-02OCT2013.pdf
- Schmidt, V. (2005). Institutionalism and the State. In C. Hay, D. Marsh, & M. Lister (Eds.), *The state: theories and issues* (pp. 1–22).
- Silverman, D. (2010). *Doing Qualitative Research - A practical Handbook*. Third edition. Sage Publications Ltd.
- Smith, M. E., & Flach, B. (2013). The Market for Wood Pellets in the Benelux. *Gain Report*, (NL 3001).
- Skjærseth, J. B., Stokke, O. S., & Wettestad, J. (2006). Soft Law , Hard Law , and Effective Implementation of International Norms. *Global Environmental Politics*, (8), 104–120.

- Stokke, O. S. (2011). Interplay Management, Niche Selection, and Arctic Environmental Governance. In S. Oberthuer, & O. Stokke (Eds.), *Managing Institutional Complexity: Regime Interplay and Global Environmental Change* (pp. 143-170).
- Stokke, O. S. (2001a). Governing High Seas Fisheries: The Interplay of Global and Regional Regimes. Oxford: Oxford University Press.
- Stokke, O. S. (2001b). The Interplay of International Regimes: Putting Effectiveness Theory to Work. *THE FRIDTJOF NANSEN INSTITUTE*, 1–29.
- Stokke, O. S., & Oberthuer, S. (2011). Introduction: Institutional Interaction in Global Environmental Change. In S. Oberthuer, & O. Stokke (Eds.), *Managing Institutional Complexity: Regime Interplay and Global Environmental Change* (pp. 1-25).
- Stupak, I., Lattimore, B., Titus, B., & Smith, C. T. (2011). Criteria and indicators for sustainable forest fuel production and harvesting: a review of current standards for sustainable forest management. *Biomass and Bioenergy*, 35(8), 3287–3308.
- Suchman, M.C. (1995). Managing Legitimacy: Strategic and Institutional Approaches, *The Academy of Management Review*, 20, 571–610.
- Tallberg, J. (2002). Paths to Compliance : Enforcement , Management , and the European Union. *International organization*, 56(3), 609–643.
- Underdal, A. (2000). Science and politics: the anatomy of an uneasy partnership. In: S. Andresen, T. Skodvin, & A. Underdal (Eds.), *Science and politics in international environmental regimes: between integrity and involvement* (pp. 1-21).
- UNECE/FAO. (2012). *Forest Products Annual Market Review 2011-212*. Retrieved from http://www.unece.org/fileadmin/DAM/timber/publications/FPAMR_2012.pdf
- Upham, P., Riesch, H., Tomei, J., & Thornley, P. (2011). The sustainability of forestry biomass supply for EU bioenergy: A post-normal approach to environmental risk and uncertainty. *Environmental Science & Policy*, 14(5), 510–518.
- Van Dam, J., Junginger, M., & Faaij, a. P. C. (2010). From the global efforts on certification of bioenergy towards an integrated approach based on sustainable land use planning. *Renewable and Sustainable Energy Reviews*, 14(9), 2445–2472.
- Visseren-Hamakers, I. J. (2009). Partnerships in biodiversity governance: an assessment of their contributions to halting biodiversity loss. Copernicus Institute for Sustainable Development and Innovation. Utrecht, the Netherlands.
- Visseren-Hamakers, I. J., Arts, B., & Glasbergen, P. (2011). Interaction Management by Partnerships : The Case of Biodiversity and Climate Change. *Global Environmental Politics*, 4(11), 89–107.

- Visseren-Hamakers, I. J., & Glasbergen, P. (2007). Partnerships in forest governance. *Global Environmental Change*, 17(3-4), 408–419.
- Winkel, G., Kaphengst, T., Herbert, S., Robaey, Z., Rosenkranz, L., Sotirov, M. (2009). EU policy options for the protection of European forests against harmful impacts.
- Young, O. R. (2002a). *The Institutional Dimensions of Environmental Change: Fit, Interplay, and Scale*. Cambridge, MA: MIT Press.
- Young, O. R. (2002b). Institutional interplay: The environmental consequences of cross-scale interactions. In E. Ostrom (Ed.) *The Drama of the Commons* (pp. 263-291). National Academy press.
- Young, O. R. (1982). Regime dynamics : the rise and fall of international regimes. *International Organization*, 36(2), 277–297.
- Young, O. R. (1980). INTERNATIONAL REGIMES : Problems of Concept Formation. *World Politics*, 32(3), 331–356.

9.1 **Web sources**

Europeanvoice, EU media:

<http://www.europeanvoice.com/article/2013/august/commission-floats-less-stringent-sustainability-criteria-for-biomass/78049.aspx>, accessed on 23.12.2013.

The central point of expertise for timber procurement, UK government service:

<http://www.cpet.org.uk/woodfuel/legal-and-sustainable-forest-source-requirements-for-woodfuel>, accessed on 14.12.2013.

UNECE, press releases: <http://www.unece.org/index.php?id=32790>, accessed on 19.08.2013.

10 Appendices

Appendix 1: List of interviewees

Contact person	Organization, position	Type of organization	Contact person participated in:	Int. date
Mr. Bernard De Galember	Confederation of European Paper Industries, <i>Director Forest and Innovation</i>	Non-profit organization	Forest Europe (WG)	19/7/13
Professor Dr. Bart Muys	European Forestry Institute, <i>Senior Researcher</i>	Research organization		24/7/13
Dr. Hillevi Eriksson	Swedish Forest Agency, <i>Climate & bioenergy expert</i>	Government associated research organization	Forest Europe (WG)	2/8/13
Mr. Asger Olesen	European Commission DG Climate, <i>Forestry policy officer</i>	EU		8/8/13
Mr. Laszlo Mathe	WWF International, <i>Forest & Carbon Officer</i>	Environmental NGO	Forest Europe (WG), RSB	12/8/13
Mr. John Hontelez	FSC, <i>Chief Advocacy Officer</i>	Private certification scheme		12/8/13
Mr. Ariel Brunner	BirdLife Europe, <i>Coordinator for EU Policy issues</i>	Environmental NGO		13/8/13
Dr. Uwe R. Fritsche	IINAS - International Institute for Sustainability Analysis and Strategy, <i>Scientific Director & CEO</i>	Research organization	IEA Bioenergy (international R&D network)	15/8/13
Dr. Gerben Janse	Swedish Forest Agency, <i>Coordinator International Affairs</i>	Government associated research organization	Forest Europe (WG), LBA negotiations	16/9/13
Mr. Peter-Paul Schouwenberg	RWE Essent (Dutch power company) <i>Senior Officer Regulatory Affairs</i>	Industry	Initiative Wood Pellets Buyers; IEA Bioenergy; GGL	2/10/13
Mr. Kjell Andersson	Svebio, <i>Policy advisor</i>	Non-profit organization for bioenergy industry	European Biomass Association (Aebiom)	3/10/13
Mr. Sébastien Haye	RSB Secretariat, <i>Standards director</i>	Public-private certification scheme		6/11/13
Mr. Peter van der Knaap	Directie Natuur en Biodiversiteit, Dutch Ministry of Economic Affairs, <i>Policy officer</i>	Government		7/11/13
Professor Dr. C.T. (Tat) Smith	Faculty of Forestry, University of Toronto, <i>Professor</i>	University	IEA Bioenergy, board member of SFI program (certification scheme)	19/11/13

Appendix 2: Suggested climate and bioenergy relevant MCPFE indicators

The six MCPFE pan-European criteria that were adopted and endorsed in Lisbon in 1998, selected corresponding qualitative indicators and additional indicators or requirements (cursive letters) proposed so that MCPFE tools meet new requirements for climate change mitigation and bioenergy. Two proposed indicators contained thresholds (GHG emissions > 30% of fossil fuel emissions; restrictions for stump harvesting), which was considered necessary for auditing e.g. through third parties. Other proposed indicators did not contain thresholds. It was stated that thresholds should either be developed by experts or be set by operational level guidelines depending on country situations.

MCPFE criteria (Lisbon resolution L2, 1998)	MCPFE qualitative indicators corresponding to MCPFE criteria	Additional indicators proposed during WG meetings
Criterion 1: Maintenance and Appropriate Enhancement of Forest Resources and their Contribution to Global Carbon Cycles	1.1 Area of forest and other wooded land, classified by forest type and by availability for wood supply, and share of forest and other wooded land in total land area 1.2 Growing stock on forest and other wooded land, classified by forest type and by availability for wood supply 1.3 Age structure and/or diameter distribution of forest and other wooded land, classified by forest type and by availability for wood supply 1.4 Carbon stock of woody biomass and of soils on forest and other wooded land	<ul style="list-style-type: none"> - “Area of land management methods for biomass production at a certain piece of land which will most likely result in GHG emissions higher than 30 % of the potential emissions of fossil fuel if used for the same energy purpose in a 50-year perspective, in relation to the average for former land use.” - GHG savings in heat, electricity and biofuel/bioliquid production from wooden biomass - Carbon sequestration in harvested wood products
Criterion 2: Maintenance of Forest Ecosystem Health and Vitality	2.1 Deposition of air pollutants on forest and other wooded land, classified by N, S and base cations	
Criterion 3: Maintenance and Encouragement of Productive Functions of Forests, Wood and Non-Wood	3.1 Balance between net annual increment and annual fellings of wood on forest available for wood supply	<ul style="list-style-type: none"> - Nutrient fluxes and balance in regeneration areas - Level and quality of groundwater as results of forest operations - <i>For stump extraction on fertile spruce forest sites at least 30% of stumps should not be harvested</i> - <i>In boreal rich soil forest at least 5 m³/ha dead wood shall be left in the regeneration site</i>

MCPFE criteria (Lisbon resolution L2, 1998)	MCPFE qualitative indicators corresponding to MCPFE criteria	Additional indicators proposed during WG meetings
Criterion 4: Maintenance, Conservation and Appropriate Enhancement of Bio-logical Diversity in Forest Ecosystems	4.3 Area of forest and other wooded land, classified by “undisturbed by man”, by “semi-natural” or by “plantations”, each by forest type 4.5 Volume of standing deadwood and of lying deadwood on forest and other wooded land classified by forest type	
Criterion 5: Maintenance and Appropriate Enhancement of Protective Functions in Forest Management, notably soil and water	5.1 Area of forest and other wooded land designated to prevent soil erosion, to pre-serve water resources, or to maintain other forest ecosystem functions, part of MCPFE Class “Protective Functions”	
Criterion 6: Maintenance of other socio-economic functions and conditions	6.2 Contribution of forestry and manufacturing of wood and paper products to gross domestic product 6.9 Share of wood energy in total energy consumption, classified by origin of wood	

Appendix 3: Interview Guide – orienting open questions

“All of the following questions concern only the 4 initiatives (RED, Forest Europe, the RSB and the FSC) and their policies or standards related to woodfuels. The questions do not specify a particular initiative, because influence may take place between any 2 of the 4 initiatives. Hence, for answering the questions, you may consider influence between any 2 of the 4 initiatives.”

1) Inspired by policies or standards

- a) Were policies or standards of one initiative inspired by the policies or standards of another initiative?

- b) Why was the initiative inspired by the policies or standards of another one?
Did it adopt similar policies or standards, because they corresponded to the objectives of the initiative? Or, did external circumstances induce the initiative to adopt them?

2) Inspired by methodologies

- a) Did one initiative develop a methodology for the regulation of woodfuels?
Did this methodology inspire another initiative? An example for a methodology is the chain of custody system.

- b) Why was the initiative inspired by the methodology of the other initiative?

- 3) Influence, because third actors were involved
 - a) When the target group of one initiative changes its behavior or preferences, this may affect the initiative. Did the target group of one initiative change its behavior or preferences, because of the policies of another initiative? The target group could be e.g. biofuel operators, forest owners, or governments. Example: The considerations to extend the RED may have led to an investment climate where pellets firing power companies try to use wood from FSC certified forests.
 - b) Why was the target group of one initiative influenced by another initiative? Was it, because of characteristics of the involved initiatives, or because of external circumstances?
- 4) Reinforcing or contradicting standards
 - a) Did guidelines or standards of one initiative reinforce or contradict those of another initiative?
 - b) Why was the initiative able to reinforce or contradict the guidelines of the other initiative? Was it, because of characteristics of the involved initiatives, or because of external circumstances?
- 5) Did one initiative influence another one through mobilizing or collecting knowledge that was relevant for decision-making in the issue area of woodfuels?